

# 10446

# 10446

Diagram No. 1219-3

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-20-4-92  
Registry No. ... H-10446

### LOCALITY

State ... Delaware  
General Locality ... Atlantic Ocean  
Sublocality ... 3.5 NM East of Cape Henlopen

1992-93

CHIEF OF PARTY  
CDR A.A. Armstrong

### LIBRARY & ARCHIVES

DATE ... February 8, 1994

HYDROGRAPHIC TITLE SHEET

H-10446 (1992-93)

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-20-4-92

State DELAWARE

General locality APPROACHES TO DELAWARE BAY - ATLANTIC OCEAN

Locality 3.5 <sup>NM</sup> NAUTICAL MILES EAST OF CAPE HENLOPEN, DELAWARE

Scale 1:20,000 Date of Survey Oct. 23 - Nov. 24, 1992  
*ADG, 15, 1993*

Instructions dated JULY 16, 1992 Project No. OPR-D 308-WH-93  
OPR-D168-WH-92

Vessel NOAA Ship WHITING S-329 EDP # 2930

Chief of party Commander Andrew A. Armstrong III

Suveyed by A.A. Armstrong, C.B. Greenawalt, J.S. Verlaque, R.A. Fletcher, D.E. Bixby, L.P. Henn, J.L. Riley

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 HP 7959B, Bruning  
*KYNETICS 1201 PLOTTER (AHS)*

Verification by ATLANTIC HYDROGRAPHIC SECTION

Soundings in MLLW Meters

REMARKS: Surveyed by 1:20,000-scale standards, plotted at 1:10,000

Junctions with H-10444

200% side scan sonar coverage

Time zone used, 0 (UTC)

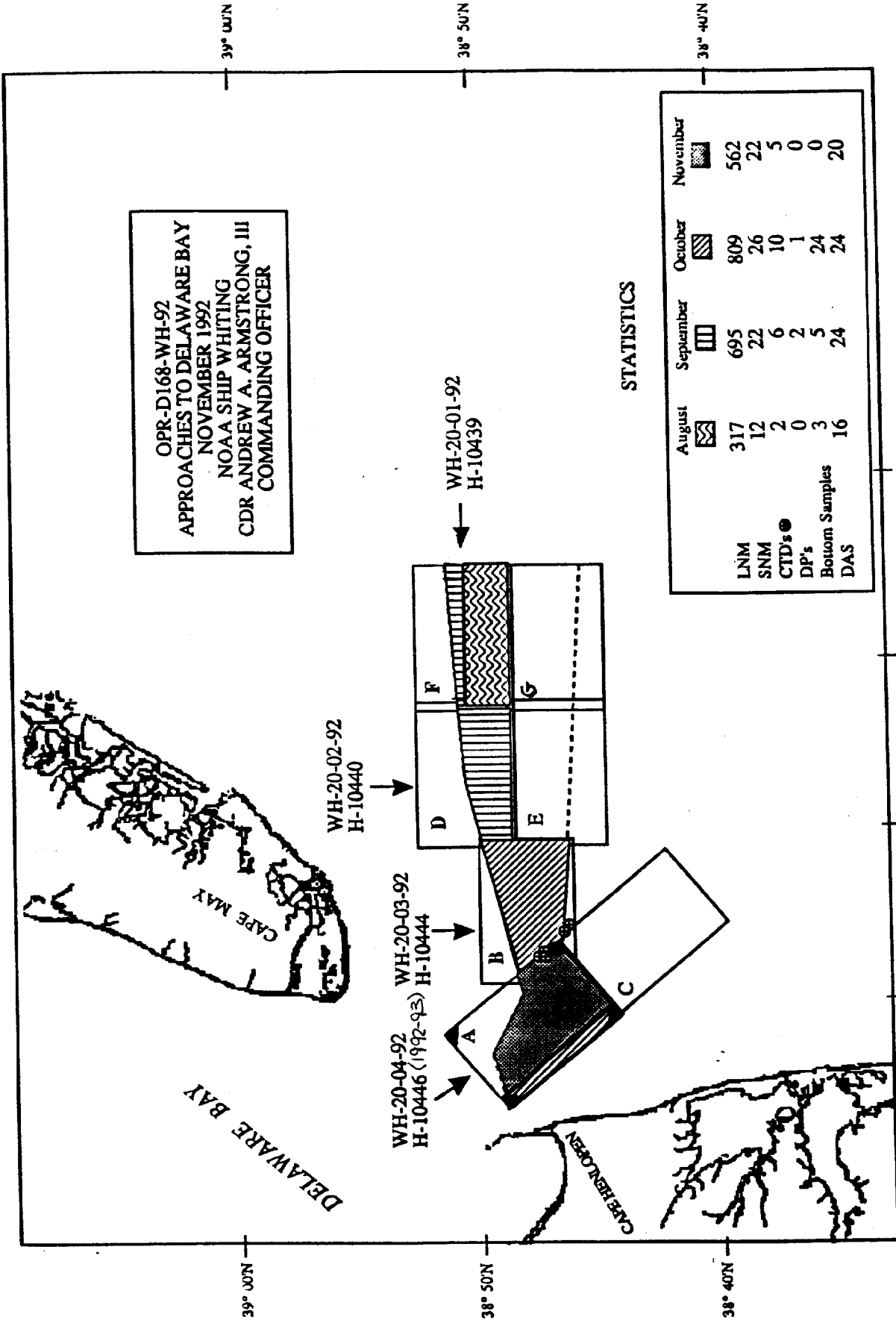
NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

*AWOIS/SURFV 3/29/94 SW*

*12-13-96*

*X.M.W. 5/12/94*

# NOAA SHIP WHITING PROGRESS SKETCH



DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY  
OPR-D168-WH  
1992  
WH-20-4-92  
H-10446

NOAA SHIP WHITING  
CDR Andrew A. Armstrong, III, NOAA  
Commanding Officer

A. PROJECT

Project OPR-D168-WH is a basic hydrographic survey with 200-percent side scan sonar (SSS) bottom coverage of the approaches to Delaware Bay.

The purpose of the project is to update the existing nautical charts and to locate any wrecks and obstructions in or near the approaches to Delaware Bay. Specifically, the project is in response to a request by the Fifth Coast Guard District to survey the approaches to Delaware Bay in order to realign the eastern approach of the traffic separation scheme.

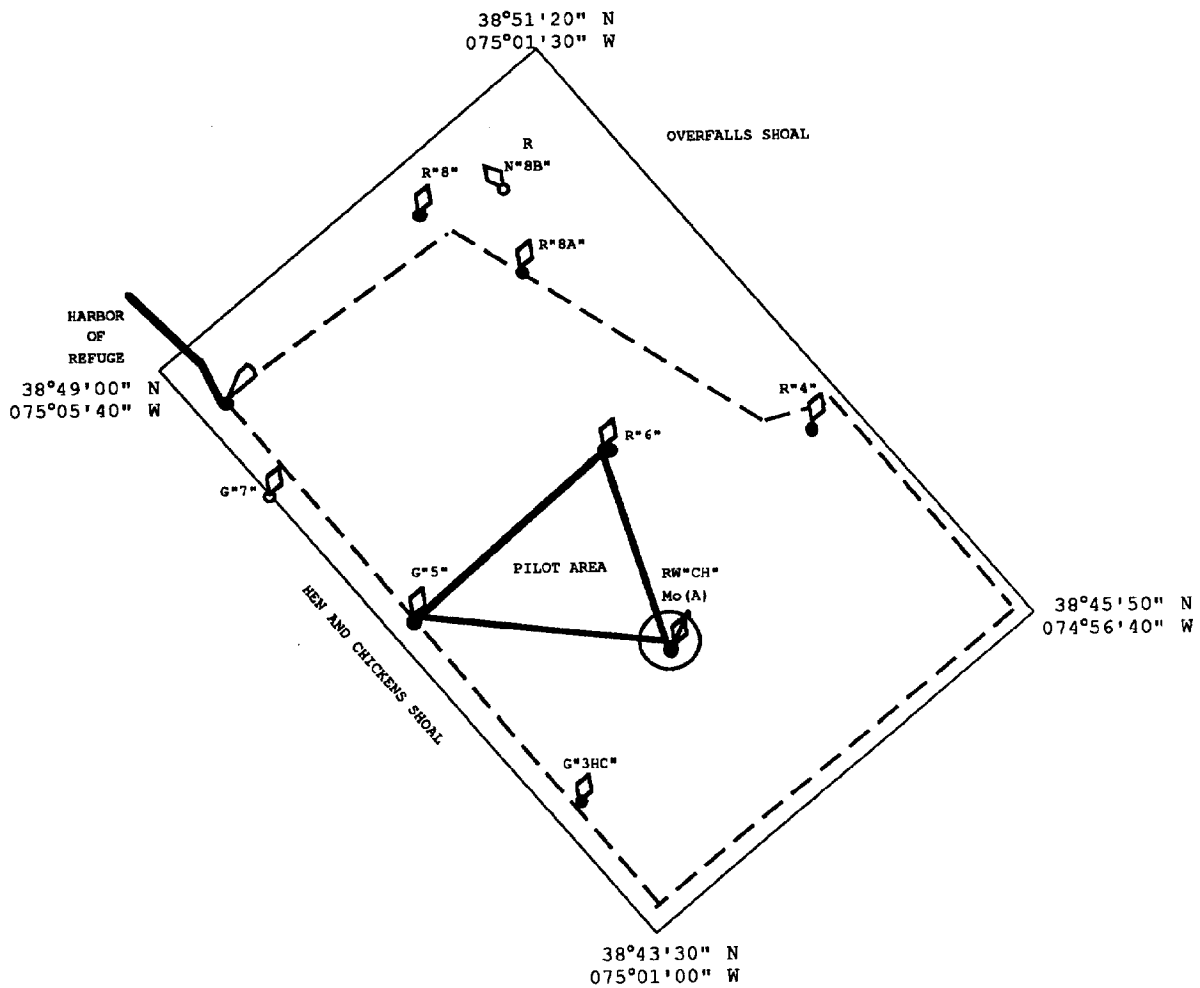
Survey operations were conducted in accordance with Hydrographic Project Instructions OPR-D168-WH dated July 16, 1992. No changes to the project instructions were issued. A change to the Automated Wreck and Obstruction Information System (AWOIS) listing dated August 5, 1992 was issued on October 5, 1992.

Project OPR-D168-WH was divided into seven survey sheets. The survey described in this report was designated "A" Sheet, and assigned field sheet number WH-20-4-92 and registry number H-10446.

B. AREA SURVEYED

Hydrographic survey H-10446 is three and one-half nautical miles east of Cape Henlopen, Delaware. The survey limits cover most of the southeast quadrant of the Precautionary Area, encompassing the Delaware Bay Pilot Boarding Area.

The survey area is shown in the following diagram:



Survey operations began on October 23, 1992 (DOY 297) and ended on November 24, 1992 (DOY 329). Data were acquired on the following days:

<u>DOY</u>	<u>Date</u>
297-298	October 23-24
301-303	October 27-29
309-317	November 4-12
322-324	November 17-19
327-329	November 22-24

### C. SURVEY VESSEL

NOAA Ship WHITING, vessel identification number 2930, was used for all data acquisition during survey H-10446; no unusual vessel configurations were employed.

### D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

<u>PROGRAM NAME</u>	<u>VERSION</u>	<u>VERSION DATE</u>
AUTOST	3.00	24-Sep-92
BACKUP	2.00	27-Dec-90
BASELINE	1.13	09-Jul-92
BIGABST	2.03	11-Sep-92
BLKEDIT	2.00	15-Jun-92
BLKEDIT	2.01	29-Sep-92
CARTO	2.03	23-Sep-92
CARTO	2.04	21-Oct-92
CONTACT	2.01	23-Sep-92
CONTACT	2.02	03-Nov-92
CONTACT	2.03	09-Nov-92
CONVERT	3.51	11-Sep-92
CONVERT	3.52	21-Oct-92
DAS_SURV	6.32	16-Jul-92
DIAGNOSE	3.01	21-May-92
DISC_UTIL	1.00	03-Aug-92
DP	2.11	11-Jun-92
DP	2.12	01-Oct-92
EXCESS	4.10	23-Sep-92
FILESYS	3.01	09-Sep-92
FILESYS	3.02	20-Oct-92
GRAFEDIT	6.00	06-Jul-92
GRAFEDIT	6.00	09-Oct-92
HIPSTICK	1.01	28-Jul-92
HPRAZ	1.26	22-May-92
INSTALL	4.00	09-Jul-92
INVERSE	2.00	10-Jul-92
LISTDATA	1.00	03-Aug-92
LOADNEW	2.01	09-Sep-92
LOADNEW	2.02	29-Sep-92
LSTAWOIS	3.01	23-Sep-92
LSTAWOIS	3.02	07-Oct-92
MAINMENU	1.00	Jul-92
MAN_DATA	2.00	09-Jul-92
NEWPOST	6.00	not listed

<u>PROGRAM NAME</u>	<u>VERSION</u>	<u>VERSION DATE</u>
PLOTALL	2.06	22-Sep-92
PLOTALL	2.07	21-Oct-92
POINT	2.10	10-Jun-92
PRESURV	7.00	23-Sept-92
PREDICT	2.00	9-Jul-92
PRINTOUT	4.01	9-Sep-92
PRINTOUT	4.02	13-Oct-92
QUICK	2.00	20-Aug-92
QUICK	2.01	29-Sep-92
RAMSAVER	1.01	21-May-92
REAPPLY	2.01	10-Sep-92
RECOMP	2.02	3-Aug-92
SCANNER	1.00	10-Jul-92
SELPRINT	2.02	31-Aug-92
SHEETSPLIT	1.02	23-Sep-92
SHEETSPLIT	1.01	30-Sep-92
ZOOMEDIT	2.10	23-Sep-92
ZOOMEDIT	2.11	1-Oct-92

NADCON (version 1.01 for MSDOS) was used to calculate the datum shift from the North American Datum of 1983 (NAD 83) to NAD 27 for comparisons with prior surveys.

NAVUTL (version 6.00 for the MicroVAX computer) was used to compute inverses for DGPS performance checks.

MAGDIM (Version 1.2 for MSDOS, modified for HDAPS by Lieutenant Commander Dave Minkle aboard WHITING on October 2, 1992) was also used for DGPS performance checks.

Sound velocity corrections were determined using version 1.00 of program CAT and version 1.11 of program VELOCITY.

#### E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder in conjunction with an EG&G model 272-T dual-channel, single-frequency towfish. The towfish was operated on a frequency of 100 kHz with a 20' beam depression. The sonar equipment used throughout the survey is listed below:

<u>Type</u>	<u>S/N</u>
Towfish	10823
260 Recorder	10884
260 Recorder	12104

The towfish was deployed from a Reuland winch (model number

8377-XF5461A, s/n 814861A-1) on the stern of WHITING. The SSS towfish was towed with an armored cable connected to the acquisition computer cabling via a slip-ring assembly. The towfish was maintained at a height above the seafloor between 8 to 20 percent of the SSS range scale. SSS operations were limited to a speed-over-ground of 5 knots or slower, except where strong currents kept WHITING's minimum speed slightly higher.

Offsets and laybacks for the A-frame used to tow the SSS towfish were measured on July 27, 1992 using the forward 100 kHz (high frequency) echo-sounder transducer as the reference. The A-frame height was measured from the waterline on the same date. All offset, layback and height data were applied as required by the HDAPS Manual. These data are on file at the Atlantic Hydrographic Section (AHS). DATA FILED WITH FIELD RECORDS.

Main-scheme lines were run at a maximum spacing of 75 meters while using the 100-meter range scale in order to acquire the required 200 percent SSS coverage. Adequate SSS coverage was determined by producing an 'A' and 'B' swath plot and ensuring 100 percent coverage on each plot. Main-scheme survey lines were split or re-run in all areas where 200 percent coverage was questionable due to degraded sonargram records.

Degraded sonargrams were usually caused by sea surface return. However, some propeller wash noise was evident in the sonargram when WHITING ran over areas where the depth was less than 15 meters.

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

#### F. SOUNDING EQUIPMENT

A Raytheon Digital Survey Fathometer (DSF) 6000N echo sounder was the only echo-sounding equipment used to determine water depth during the survey. The DSF-6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) depth. The high and low frequency digital depths were recorded by the HDAPS acquisition system. The high frequency depths were selected as the primary depths as shown on the sounding plots. The following DSF-6000N echo sounders were used during the survey:

<u>S/N</u>	<u>DOY</u>
A122N	297-303, 309-311, 314-317
A111N	311-314, 317
B053N	322-324, 327-329



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 selected. Electronic technicians performed daily accuracy checks and preventive maintenance on the DSF-6000N.

#### 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 profiler was calibrated on January 29, 1992 during WHITING's winter inport period. A copy of the calibration report is included in the supplemental data cahier submitted with this survey.

The CTD was lowered through the water column in a cage to obtain data for sound velocity corrections. Programs CAT and VELOCITY were used to process the data, select significant data points, and create a corrector table. The velocity correctors were manually entered into an HDAPS velocity table. The correctors were applied to both high and low frequency beams during acquisition. Velocity profile data can be found in the supplemental data cahier submitted with this survey.

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

A summary of sound velocity casts follows:

<u>DOY</u>	<u>Vel. Table#</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>
297	13	38°46'06"	74°56'47"	38.0
301	15	38°46'00"	74°56'45"	36.4
309	17	38°45'45"	74°56'12"	41.7
312	18	38°45'14"	74°56'28"	40.8
315	19	38°45'32"	74°56'06"	47.8
322	20	38°45'42"	74°56'06"	52.4
324	21	38°46'05"	74°57'11"	50.8

The correction for WHITING's static draft is 3.2 meters, a historical value that WHITING divers confirmed by pneumatic depth gauge on October 28, 1991. The Transducer Depth Determination Report is on file at AHS. DATA FIELD WITH FIELD RECORDS.

Settlement and squat measurements were conducted and correctors determined on August 5, 1991. Settlement and squat correctors were recomputed based on the August 5, 1991 measurements prior to starting survey H-10446. Settlement and squat correctors are on

file at AHS. DATA FILED WITH FIELD RECORDS.

The tidal datum for this project was Mean Lower Low Water. The operating tide station at Breakwater Harbor (Lewes), Delaware (855-7380) served as direct control for datum determination. Mr. Larry Nieson, Atlantic Operations Group N/OES213, confirmed the proper operation of the tide station during the survey. This station also 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:	-00 hr 30 min	x0.96
Low Water:	-00 hr 30 min	x0.96

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 on-line to the digital data using HDAPS software. The tidal data, in digital form, were received on floppy disk from N/CG24, Hydrographic Surveys Branch. Request for smooth tides was submitted to Sea and Lake Levels Branch N/OMA12 on December 1, 1992. APPROVED TIDES AND ZONING HAVE BEEN APPLIED DURING OFFICE PROCESSING.

The tide station at Breakwater Harbor was inspected and leveled on October 20, 1992. The inspection and levels confirmed that the station was working properly and was undisturbed.

All sounding corrections, except heave, were applied on-line to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams. The HDAPS data acquisition computer logged heave data from a Heave, Roll, and Pitch sensor (HIPPY, s/n 19109-C). Heave corrections were applied in post-processing.

A leadline comparison with the DSF-6000N was performed off-line on September 27, 1992 (DOY 271). The difference in the high frequency reading was 0.1 meter and the difference in the low frequency reading was -0.06 meter. This difference is attributable to the swell action at the time the comparison was performed. No correction for this difference was applied to the survey soundings.

H. CONTROL STATIONS SEE ALSO SECTION 2.9. OF THE EVALUATION REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Two B-order horizontal control stations were used as DGPS reference stations for this survey; one at Cape Henlopen and one at Cape Henry. The adjusted NAD83 positions, computed by GPS methods, were provided by Lieutenant Jeffrey Ferguson of the Hydrographic Surveys Branch, N/CG24 on April 3,

1992. The positions are as follows:

	<u>Latitude</u>	<u>Longitude</u>	<u>Frequency</u>
Cape Henry	36°55'37.580"N	076°00'23.884"W	289 kHz
Cape Henlopen	38°46'36.421"N	075°05'15.667"W	298 kHz

The horizontal control station list can be found in Appendix III.  
*DATA APPENDED TO THIS REPORT.*

I. HYDROGRAPHIC POSITION CONTROL *SEE ALSO SECTION 2.9 OF THE EVALUATION REPORT.*

A Differential Global Positioning System (DGPS) was used as the primary navigation system for this survey. WHITING monitored two U.S. Coast Guard DGPS beacons; Cape Henlopen, Delaware and Cape Henry, Virginia. Two Magnavox MX4200 DGPS satellite receivers were used to compute geographic positions and two MX50R beacon receivers were used to monitor the differential correctors.

The serial numbers of the Magnavox MX4200 and MX50R receivers were as follows:

<u>Item</u>	<u>Part Number</u>	<u>Serial Number</u>
Primary System:		
Magnavox MX4200D	707361-803	537
Magnavox MX50R	627188-1	060
Secondary System:		
Magnavox MX4200D	707361-803	681
Magnavox MX50R	627188-1	036

Magnavox MX4200D software was upgraded on March 25, 1992. The firmware revision was A1 REV\_E/H D030/B030.

HDAPS initialized the MX50R to monitor either the Cape Henlopen or Cape Henry beacon. WHITING operated in altitude constrained mode throughout the survey.

Horizontal Dilution of Precision (HDOP) limits were computed for each station as required in section 3.4.2 of the Field Procedures Manual (FPM) for Hydrographic Surveying. The HDOP limit for the Cape Henlopen and Cape Henry beacons were 7.5 and 6.2, respectively; no data were acquired at HDOP values exceeding these thresholds.

DGPS positioning was accomplished in accordance with the FPM, section 3.4. Cape Henlopen was used as the primary station throughout the project. Cape Henry was used as a back-up when the Cape Henlopen signal became intermittent or erratic. When the beacon signal was lost for more than 45 seconds, the survey line

was broken and the line was rerun appropriately. WHITING was unable to survey during a 1.5 hour satellite window each day. WHITING used this time to run the engines under load.

Performance checks were conducted on a Gateway 2000 386/33c microcomputer (S/N 402208) using program MAGDIM under MSDOS. MAGDIM uses the two reference station method as described in FPM section 3.4.5. All performance checks used Cape Henlopen as the primary reference station and Cape Henry as the check station. A summary of the DGPS performance checks may be found in the supplemental data cahier submitted with this survey.

DGPS antenna offsets and laybacks were measured on July 27, 1992 using the forward 100 kHz (high frequency) echo-sounder transducer as the reference. Antenna heights were measured from the waterline on the same date. Offsets and laybacks were applied by HDAPS on line. All offset, layback, and height data are on file at AHS. DATA FILED WITH FIELD RECORDS.

J. SHORELINE SEE ALSO SECTION 2.D. OF THE EVALUATION REPORT

There was no shoreline in this survey area.

K. CROSSLINES SEE ALSO SECTION 3.Q. OF THE EVALUATION REPORT.

A total of 20.3 nautical miles of crosslines were run on H-10446. This amounted to 6.6 percent of the total linear nautical miles of main-scheme lines needed for 100 percent coverage.

Crossline and mainscheme agreement was excellent. The average difference between crossline and mainscheme soundings was 0.3 meters. The maximum difference between mainscheme and crossline soundings was 0.6 meters.

L. JUNCTIONS SEE ALSO SECTION 5. OF THE EVALUATION REPORT.

Survey H-10446 junctioned with survey H-10444 (WH-20-3-92) on the east. Overlapping contours and soundings agreed extremely well with a maximum difference of 0.3 meters between corresponding soundings.

There were no other contemporary surveys that junctioned with project H-10446.

M. COMPARISONS WITH PRIOR SURVEYS *SEE ALSO SECTION 6. OF THE EVALUATION REPORT.*

As depicted on the prior surveys, the western half of the survey sheet is generally smooth. Shoaler areas are found on the extreme western edge of the sheet extending NNW from the western middle of the sheet near Hen and Chickens Shoal to the northern limit of the sheet near the Harbor of Refuge. The bottom relief located in the northeast section of the sheet, south of Overfalls Shoal, was very irregular and shoal with numerous sandwave peaks and deeps. The southeastern corner of the sheet is characterized by a large mound located next to deeper water on the extreme eastern edge of the survey area.

Survey H-10446 soundings were compared with prior surveys H-9136, H-9154, H-9176, H-9173 WD and H-9758 WD. All prior surveys were referenced to NAD 27; hence, a datum shift was applied to H-10446 in accordance with section 7.4 of the FPM for comparison purposes.

The southern tip of the survey area was covered by H-9136 (1970, scale 1:20,000, MLW). There was good agreement between surveys. Survey H-10446 depths were approximately 0.6<sup>3</sup> meters deeper than their H-9136 counterparts.

The western half of the survey area was covered by H-9154 (1970, scale 1:10,000, MLW). Present survey soundings agreed very well with H-9154 soundings. Depths from H-10446 were generally 0.3 meters deeper than corresponding soundings found on H-9154. Some of the irregular contours near Overfalls Shoal have changed slightly.

The eastern half of the survey area was covered by H-9176 (1970, scale 1:10,000, MLW). H-10446 survey soundings agreed well with H-9176 soundings. Depths from H-10446 were generally 0.4 meters deeper than those found on H-9176. All features depicted on prior survey H-9176 were located. The contours around the mound and trench, located on the southeastern portion of the sheet, matched very well.

The east-central edge of the survey area was covered by H-9173 WD (1970, scale 1:20,000, MLW). All soundings acquired from H-10446 were deeper than the wire drag cleared areas covered on prior survey H-9173.

WHITING recommends survey H-10446 supersede all hydrography from prior surveys in the common area. *CONCUR*

Wire drag hangs from prior survey H-9758 were located in the northwest corner of the survey area. The hangs depicted on H-9758 correspond to the following AWOIS items, discussed below: 1142, 1145, 1147, 1149, 1150, 8231, 8232, and 8233.

AWOIS item 1142, charted as a dangerous <sup>SUBMERGED</sup> obstruction, <sup>IN LATITUDE 38°48'07.60"N</sup> is described <sup>LONGITUDE 75°03'41.84"W</sup> as an uninvestigated hang at 54 feet, cleared to 54 feet. A 200-meter search radius centered on the source position was surveyed with 400 percent side scan sonar coverage. No significant contacts were found. WHITING considers the item disproved and recommends that the dangerous 54-foot cleared least depth symbol and the accompanying "Obstr" label charted at latitude 38°48'07.60"N, longitude 75°03'41.84"W be <sup>DELETED</sup> removed from the charts. CONCUR

AWOIS item 1145, charted as a dangerous <sup>SUNKEN</sup> wreck, <sup>IN LATITUDE 38°48'17.20"N</sup> is described as the <sup>LONGITUDE 75°04'02.84"W</sup> remains of a 357-foot cargo ship, the "Gypsum Prince". A 200-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. The wreck was found at latitude 38°48'16.10"N, longitude 75°04'02.40"W. A 14.81 meter (48.6 feet) least depth, corrected to predicted MLLW, was obtained from an echo sounding development with 5-meter line spacing. WHITING recommends that the dangerous 40-foot cleared least depth symbol and the accompanying "Wreck" label <sup>BE DELETED</sup> remain ~~charted at latitude 38°48'17.20"N, longitude 75°04'02.84"W until a diver least depth is determined.~~ CONCUR  
SEE ALSO SECTION N38, PAGE 72 OF THIS REPORT FOR <sup>ADDITIONAL</sup> CHARTING RECOMMENDATION.

AWOIS item 1147, charted as a dangerous <sup>IN LATITUDE 38°48'35.20"N</sup> obstruction, <sup>LONGITUDE 75°04'06.44"W</sup> is described as an unidentified obstruction projecting approximately one meter above the bottom. A 200-meter search radius centered on the source position was surveyed with 400 percent side scan sonar coverage. No significant contacts were found. WHITING considers the item disproved and recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Obstr PA" label charted at latitude 38°48'35.20"N, longitude 75°04'06.44"W be <sup>DELETED</sup> removed from the charts. CONCUR

AWOIS item 1149, charted as a dangerous <sup>SUNKEN</sup> wreck, <sup>IN LATITUDE 38°48'46.00"N</sup> is described as <sup>LONGITUDE 75°04'24.44"W</sup> steam propulsion gear and some plates from the ship "B.F. Macomber". A 200-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. The wreck was found at latitude 38°48'44.89"N, longitude 75°04'25.18"W. A 15.2-meter (49.9 feet) least depth corrected to predicted MLLW was calculated from side scan sonar records. WHITING recommends that the dangerous 47-foot cleared least depth and the accompanying "Wreck" label <sup>BE DELETED</sup> remain ~~charted at latitude 38°48'46.00"N, longitude 75°04'24.44"W until a diver least depth is determined.~~ CONCUR  
SEE SECTION NO. ) PAGE 49 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

AWOIS item 1150, charted as a dangerous <sup>SUNKEN</sup> wreck, <sup>IN LATITUDE 38°48'46.60"N</sup> is described as <sup>LONGITUDE 75°04'03.44"W</sup> five wooden ribs protruding about two feet off the bottom from the ship "B.F. Macomber". A 200-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. The wreckage was found at latitude 38°48'46.72"N, longitude 75°04'04.69"W. A 17.4-meter (57.1 feet) least depth corrected to predicted MLLW was calculated from side scan sonar

records. WHITING recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Wreck" label <sup>BE DELETED.</sup> remain ~~charted at latitude 38°48'46.60"N, longitude 75°04'03.44"W until a diver least depth is determined.~~ CONCUR  
SEE SECTION N16, PAGE 55 OF THIS REPORT FOR CHARTING RECOMMENDATION.

AWOIS item 1152 is uncharted and is described as an uncharted hang at 52 feet. <sup>IN LATITUDE 38°49'01.00"N, LONGITUDE 75°03'00.44"W</sup> A 200-meter search radius centered on the source position was surveyed with <sup>4</sup>200 percent side scan sonar coverage. No significant contacts were found. WHITING considers the item disproved and recommends that the reported uncharted hang at 52 feet at latitude 38°49'01.00"N, longitude 75°03'00.44"W not be charted. CONCUR

AWOIS item 8228, charted as a sunken wreck not dangerous to surface navigation, <sup>IN LATITUDE 38°48'56.75"N, LONGITUDE 75°02'52.14"W</sup> is described as unidentified wreckage. A 200-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. The wreckage was found at latitude 38°48'56.60"N, longitude 75°02'51.30"W. A <sup>22.7</sup>22.7-meter (74.5 feet) least depth corrected to predicted MLLW was calculated from side scan sonar records. WHITING recommends that the symbol for a sunken wreck not dangerous to surface navigation ~~remain charted at latitude 38°48'56.75"N, longitude 75°02'52.14"W~~ <sup>BE DELETED.</sup> until an echo sounder or diver least depth is determined. CONCUR  
SEE SECTION N6, PAGE V OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

AWOIS item 8231, charted as an obstruction with an unknown depth, is described as an anchor fluke protruding two feet off the bottom. A 200-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. An object was found at latitude 38°49'00.99"N, longitude 75°04'59.52"W. A <sup>16.6</sup>16.6-meter (54.5 feet) least depth corrected to predicted MLLW was calculated from side scan sonar records. WHITING recommends that the obstruction symbol <sup>BE DELETED</sup> remain charted at latitude 38°49'01.40", longitude 75°05'00.65"W until a diver least depth is determined. <sup>46-47</sup>  
\* CONTACT WAS DETERMINED INSIGNIFICANT DURING OFFICE PROCESSING.

AWOIS item 8232 is charted as a dangerous <sup>SUBMERGED</sup> obstruction. <sup>IN LATITUDE 38°48'44.00"N, LONGITUDE 75°04'10.64"W</sup> A 200-meter search radius centered on the source position was surveyed with 400 percent side scan sonar coverage. AWOIS item 1150 was the only significant contact located within the search radius. WHITING considers the item disproved and recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Obstr" label charted at latitude 38°48'44.40"N, longitude 75°04'10.64"W be <sup>DELETED</sup> removed from the charts. CONCUR

AWOIS item 8233 is charted as a dangerous <sup>SUBMERGED</sup> obstruction. <sup>IN LATITUDE 38°48'49.40"N, LONGITUDE 75°04'07.64"W</sup> A 200-meter search radius centered on the source position was surveyed with 400 percent side scan sonar coverage. AWOIS item 1150 was the only significant contact located within the search radius. WHITING considers the item disproved and recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Obstr" label charted at latitude 38°48'49.40"N, longitude 75°04'07.64"W be <sup>DELETED</sup> removed from the charts. CONCUR

A copy of the AWOIS Item Investigation Reports can be found in Appendix VII, TO THIS REPORT.

N. COMPARISON WITH THE CHART SEE ALSO SECTION 7.9. OF THE EVALUATION REPORT.

The survey was compared with an enlargement (1:10,000) of chart 12214, 37th ed., June 27, 1992 (scale 1:80,000). Notices to Mariners 37/92, 38/92, and 39/92 pertain to buoys in the survey area. No other changes were effected by Notices to Mariners. All charted soundings in the survey area were compared and good agreement was found. The average difference showed survey soundings 0.5 meters deeper than the charted soundings.

WHITING recommends that depths from H-10446 supersede all charted soundings in the common area. CONCUR

AWOIS item 1148 is uncharted and is described as an unknown obstruction cleared to 39 feet\*. A 200-meter search radius centered on the source position was covered with 200 percent side scan sonar coverage. AWOIS item 1149 was the only significant contact located within the search radius. WHITING considers the item disproved and recommends that the reported obstruction cleared to 39 feet at latitude  $38^{\circ}48'45.40''N$ , longitude  $75^{\circ}04'22.64''W$  not be charted. CONCUR

AWOIS item 1158, charted as a sunken wreck not dangerous to surface navigation, is described as the steamer "Long Island" with a least depth of 60 feet. WHITING completed 200 percent side scan sonar coverage over the southern half of the 1000-meter search radius centered on the source position. The wreck was found at latitude  $38^{\circ}49'36.04''N$ , longitude  $75^{\circ}02'28.64''W$ . The northern half was not completed because of shoal water outside the project limits of H-10446. A 21.8-meter (71.5 feet) least depth corrected to predicted MLLW was calculated from side scan sonar records. WHITING recommends that the symbol for a sunken wreck not dangerous to surface navigation remain charted at latitude  $38^{\circ}49'36.40''N$ , longitude  $75^{\circ}02'28.64''W$  until a final position and an echo sounder or diver least depth is determined. CONCUR  
SEE SECTION N.7, PAGE 40 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

AWOIS item 8226, charted as a dangerous sunken wreck, is described as the 88 foot barge, "Mars 54". A 500-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. The barge was found at latitude  $38^{\circ}48'29.60''N$ , longitude  $75^{\circ}02'53.70''W$ . A 22.2-meter (72.8 feet) least depth corrected to predicted MLLW was calculated from side scan sonar records. WHITING recommends that the dangerous 75-foot least depth symbol and the accompanying "Wreck" label remain charted at latitude  $38^{\circ}48'28.99''N$ , longitude  $75^{\circ}02'53.72''W$  until an echo sounder or diver least depth is determined. CONCUR  
SEE ALSO SECTION N39, PAGE 74 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.



AWOIS item 8227, charted as a dangerous <sup>SUBMERGED</sup> obstruction, <sup>IN</sup> is described <sup>LATITUDE 38°48'45.07"N, LONGITUDE 75°02'51.14"W</sup> as the crane from the 88-foot barge, "Mars 54" (AWOIS 8226). A 500-meter search radius centered on the source position was surveyed with 200 percent side scan sonar coverage. The obstruction was found at latitude 38°48'45.30"N, longitude 75°02'51.06"W. A 22.8-meter (74.8 feet) least depth corrected to predicted MLLW was calculated from side scan sonar records. WHITING recommends that the dangerous 65-foot least depth symbol and the accompanying "Obstr" label <sup>BE DELETED</sup> remain ~~charted at latitude 38°48'45.07"N, longitude 75°02'51.14"W until an echo sounder or diver least depth is determined.~~ CONCUR  
 SEE ALSO SECTION N(40), PAGE 74 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.  
 A copy of the AWOIS Item Investigation Reports can be found in Appendix VII <sup>ED TO THIS REPORT</sup> TO THIS REPORT.

An uncharted wreck was located with side scan sonar at latitude 38°44'48.2"N, longitude 74°57'32.4"W, approximately one-half mile south of the field sheet survey limits. Data for this item were submitted to AHS on December 2, 1992. A danger to navigation report was submitted on December 3, 1992; a copy of the report can be found in Appendix I. The wreck had approximate dimensions of 5 x 14 meters. Evaluation of the side scan sonargram revealed an approximate least depth of 50 feet (15.2 m), corrected to MLLW using predicted tide correctors. ~~WHITING recommends a diver least depth be determined over the wreck prior to charting.~~ SEE H-10476(1993) DESCRIPTIVE REPORT FOR CHARTING RECOMMENDATION.

The HDAPS Contact Utility Program was used to compute the location and approximate height of contacts depicted on the sonargrams. Significant contacts recommended for further investigation by AHS are found in Appendix VI: contact tables 2, 3, 5, 6, 7, 8, 9, 10, 13, 14, 15, and 16.\*

The following list of suspected submerged buoys and buoy anchors were found during the survey. A complete listing of the supporting side scan sonar positions can be found in Appendix VI: contact tables 17, 18, and 19.\* These submerged items are significant and are recommended for further investigation by WHITING:

Suspected Item	Position		Representative Position
	Latitude	Longitude	
** Buoy & Anchor	38°48'03.0" N	074°59'46.0" W	3002.63S 3002.71S
** Buoy & Anchor	38°47'56.0" N	074°59'40.0" W	3498.19S 3498.29S
** Buoy & Anchor	38°47'52.3" N	074°59'36.5" W	3009.82P 3009.87P

\*\* SEE SECTION 1.6 OF THE EVALUATION REPORT FOR CHARTING STATUS.  
 \* DATA FILED WITH FIELD RECORDS.

Suspected Item	Position		Representative Position
	Latitude	Longitude	
* Buoy & Anchor	38°47'37.5" N	075°01'12.4" W	1662.36P 1662.39P
* Buoy & Anchor	38°47'37.0" N	075°01'13.0" W	3283.25S 3283.17P
* Buoy	38°47' <sup>97</sup> 39. <sup>8</sup> " N	075°01' <sup>27</sup> 15. <sup>1</sup> " W	1852.75S
* Buoy & Anchor	38°49'20.0" N	075°01'39.0" W	2569.62P 2569.67P
* Buoy & Anchor	38°48'51.8" N	075°04'52.6" W	378.14P 378.17P
* Buoy & Anchor	38°47'35.5" N	075°01'23.5" W	1873.62P 1873.69P
* Anchor	38°46'11.1" N	075°02'45.1" W	280.47P
* Buoy	38°47'13.5" N	075°03'28.7" W	366.39S
* Buoy	38°49'20.0" N	075°01' <sup>39.72</sup> <del>40.0</del> " W	2593.82S
* Buoy & Anchor	38°48'20.0" N	075°02'44.0" W	1259.49S 1259.62S
* Anchor	38°46'23.9" N	074°58'39.6" W	3100.43P

\* SEE SECTION I.B. OF THE EVALUATION REPORT FOR CHARTING STATUS.  
O. ADEQUACY OF SURVEY SEE ALSO SECTION 9. OF THE EVALUATION REPORT.

This survey is a complete basic hydrographic survey, adequate to supersede all prior surveys of the common area. No part of this survey is considered to be substandard. Final determination of sonar contacts requiring further investigation will be made during post-survey processing at AHS.

Any required investigations of significant contacts will be scheduled as separate field examinations.

P. AIDS TO NAVIGATION SEE ALSO SECTION 7.C. OF THE EVALUATION REPORT.

Six floating aids to navigation were located in the survey area, buoys G"3HC", G"5", R"6", RW"CH", R"8", and R"8A". WHITING made several passes alongside each buoy while towing the SSS towfish. Multiple positions for each buoy anchor were entered into contact table 1. The multiple positions were averaged for a final buoy position. Buoy positions were compared to positions published in the Light List, Vol II Atlantic Coast (1992), corrected through NM 52; notices 37/92, 38/92, and 39/92 affect buoys 6, 8, and 8A. All buoys were found to be on station.

The following surveyed positions were determined for the buoys:

BUOY	SURVEY GP		LIGHT LIST GP	
	Latitude	Longitude	Latitude	Longitude
G"3HC"	38°44.7'N	75°01.8'W	38°44.8'N	75°01.8'W
G"5"	38°47.0'N	75°03.9'W	38°47.0'N	75°03.9'W
R"6"	38°48.0'N	75°01.7'W	38°48.0'N	75°01.7'W
RW"CH"	38°46.3'N	75°01.3'W	38°46.3'N	75°01.3'W
R"8"	38°49.4'N	75°02.4'W	38°50.0'N	75°02.9'W
N"8A"	38°49.3'N	75°01.6'W	38°49.3'N	75°01.6'W

Calculations for buoy positions can be found in Appendix II.  
DATA FILED WITH FIELD RECORDS.

Buoy "3HC" characteristics were observed as FL G 4s. This verified both the charted and Light List characteristics.

Buoy "5" characteristics were observed as FL G 2.5s GONG. This verified both the charted and Light List characteristics.

Buoy "6" characteristics were observed as Q R. This verified both the charted and Light List characteristics.

Buoy "CH" characteristics were observed as Mo(A) W. This verified both the charted and Light List characteristics.

Buoy "8" characteristics were observed as Fl R 2.5s. This verified both the charted and Light List characteristics.

The light on Buoy "8A" was observed to be extinguished and the USCG was notified by voice radio. The charted and Light List characteristics for the buoy are Oc R 4s.

## Q. STATISTICS

Number of Positions.....	3516
Main-scheme Sounding Lines (Nautical Miles).....	600
Crosslines (Nautical Miles).....	20
Square Nautical Miles Surveyed.....	21
Days of Production.....	18
Detached Positions.....	0
Bottom Samples.....	10
Tide Stations Installed.....	0
Current Stations.....	0
Number of CTD Casts.....	6
Magnetic Stations.....	0

## R. MISCELLANEOUS

Adequate bottom samples were collected during a prior survey in 1977. Ten bottom samples, taken during this survey, confirmed that the bottom type has not changed since the prior survey. The oceanographic log sheet is included in the supplemental cahier submitted with this survey. Bottom samples were not submitted to the Smithsonian Institution.

WHITING suspended side scan operations twice daily to run the engines under full load. This time was used to run crosslines, service equipment, or transit between survey areas.

WHITING investigated seven significant contacts before closing the field season. AWOIS 1145, the Gypsum Prince, was developed with 200% SSS and an echo sounder with 5-meter line spacing. A wreck, located approximately one mile south of the southern limit of H-10446, was investigated with the SSS on the 50-meter range scale. Five contacts originally located by SSS (386.67, 991.43, 1307.50, 638.75, and 3009.10) were investigated more thoroughly by SSS on the 50-meter range scale. All of these contacts require least depth determination by diver investigations. Disposition of the remaining contacts located during this survey will be made by AHS. ALL CONTACTS VERIFIED OR DISPROVED BY PRESENT SURVEY.

Strong currents were encountered in the northern part of the survey area. The currents encountered were in fair agreement with the predicted currents in that the direction of currents in the area were as predicted, but the speed of the current often exceeded those predicted. Strong currents combined with wind effects made steering on line difficult. WHITING sometimes steered 15° off course to stay on line.

No unusual magnetic variations were encountered in the survey area.

S. RECOMMENDATIONS SEE ALSO SECTION 9, OF THE EVALUATION REPORT.

See sections M. and N.

T. REFERRAL TO OTHER REPORTS

The following reports will be submitted to N/CG244 and forwarded to N/CG243 as part of OPR-D168-WH-92:

Coast Pilot Report  
Chart Agent Visit Report  
User Evaluation Report

Submitted By:

*Jack L. Riley*  
Jack L. Riley  
Ensign, NOAA

Reviewed By:

*James S. Verlaque*  
James S. Verlaque  
Lieutenant, NOAA  
Operations Officer

ITEM INVESTIGATION REPORT

ITEM NO.: 1142

CHART NO.: 12216  
EDITION: 23<sup>rd</sup> Edition  
CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: H9758/76

SOURCE POSITION: 38°48'07.60" N 075°03'41.84" W

BRIEF DESCRIPTION OF ITEM:

Obstruction - uninvestigated hang at 54 feet cleared to 54 feet.

METHOD OF INVESTIGATION: S4, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 400% coverage.

RESULTS OF INVESTIGATION:

There were no significant contacts found within the search radius. The shoalest depth found within the search radius was 18.0<sup>6</sup> meters (59.1<sup>6</sup> feet), corrected to ~~predicted~~ MLLW. Average depth within the search radius <sup>RANGED FROM</sup> was 18.4 meters (60.4 feet), <sup>TO 19.5m (64.0)</sup> corrected to ~~predicted~~ MLLW. WHITING considers the item disproved. CONCUR

SUPPORTING POSITION NO'S.

N/A

CHARTING RECOMMENDATION:

WHITING recommends that the dangerous 54-foot cleared least depth symbol and the accompanying "Obstr" label charted at 38°48'07.60" N, 075°03'41.84" W be ~~removed~~ from the charts. CONCUR  
DELETED

**ITEM INVESTIGATION REPORT**

**ITEM NO.:** 1145

**CHART NO.:** 12216  
**EDITION:** 23<sup>rd</sup> Edition  
**CHART DATE:** Feb. 22, 1992

**SURVEY:** H-10446

**SOURCE:** FE9/50

**SOURCE POSITION:** 38°48'17.20" N 075°04'02.84" W

**BRIEF DESCRIPTION OF ITEM:**

Cargo ship "Gypsum Prince" cleared to 37 feet.

**METHOD OF INVESTIGATION:** S2, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage and 5-meter echo sounding development.

**RESULTS OF INVESTIGATION:**

Found during area survey.

Water depth immediately surrounding the wreck was 18.5 meters (60.7 feet), corrected to ~~predicted~~ MLLW. The wreck's height above bottom calculated from side scan sonargram records was 6.0<sup>8</sup> meters (19.7 feet). Echo sounder least depth was 14.8<sup>9</sup> meters (48.6 feet), corrected to ~~predicted~~ MLLW.

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
14.8 <sup>9</sup> m (48.6 ft)	654.04PS	38°48'16.10"	75°04'02.40"	Large wreck

**SUPPORTING POSITION NO'S.**

531.25P  
 773.44P

**CHARTING RECOMMENDATION:**

WHITING recommends that the dangerous 40-foot cleared least depth symbol and the accompanying "Wreck" label ~~remain charted at 38°48'17.20" N, 075°04'02.84" W until a diver least depth is determined.~~ <sup>BE DELETED.</sup> CONCUR  
 SEE ALSO SECTION N38., PAGE 72 OF THIS REPORT FOR ADDITION CHARTING RECOMMENDATION

ITEM INVESTIGATION REPORT

ITEM NO.: 1147

CHART NO.: 12216  
EDITION: 23<sup>rd</sup> Edition  
CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: H9758/76

SOURCE POSITION: 38°48'35.20" N 075°04'06.44" W

BRIEF DESCRIPTION OF ITEM:

Unidentified item projecting approximately one meter above bottom.

METHOD OF INVESTIGATION: S4, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 400% coverage.

RESULTS OF INVESTIGATION:

There were no significant contacts found within the search radius. The shoalest depth found the search radius was 18.<sup>5</sup>6 meters (~~61.0~~<sup>60</sup> feet) corrected to ~~predicted~~ MLLW. Average depth within the search radius was 20.<sup>2</sup>0 meters (~~65.6~~<sup>66</sup> feet), corrected to ~~predicted~~ MLLW. WHITING considers the item disproved. CONCUR

RANGE FROM 18.5m (60FT) K

SUPPORTING POSITION NO'S.

N/A

CHARTING RECOMMENDATION:

WHITING recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Obstr PA" label charted at 38°48'35.20" N, 075°04'06.44" W be removed from the charts. CONCUR  
DELETED



ITEM INVESTIGATION REPORT

ITEM NO.: 1148

CHART NO.: Uncharted

EDITION: N/A

CHART DATE: N/A

SURVEY: H-10446

SOURCE: Unknown - reported through H.O. chart records, dated 1950.

SOURCE POSITION: 38°48'45.40" N 075°04'22.64" W

BRIEF DESCRIPTION OF ITEM:

Unknown - WD cleared to 39 feet, position accuracy within 1 mile.

METHOD OF INVESTIGATION: S2, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

RESULTS OF INVESTIGATION:

AWOIS item 1149 was the only contact located within the search radius. There were no other significant contacts found. Excluding AWOIS 1149, the shoalest depth found was ~~17.4~~<sup>18.3</sup> meters (~~57.1~~<sup>60</sup> feet) corrected to predicted MLLW. WHITING considers the item disproved. *CONCUR*

SUPPORTING POSITION NO'S.

N/A

CHARTING RECOMMENDATION:

WHITING recommends that the reported obstruction cleared to 39 feet at 38°48'45.40"N, 075°04'22.64"W not be charted. *CONCUR*

**ITEM INVESTIGATION REPORT**

**ITEM NO.:** 1149

**CHART NO.:** 12216  
**EDITION:** 23<sup>rd</sup> Edition  
**CHART DATE:** Feb. 22, 1992

**SURVEY:** H-10446

**SOURCE:** H9758/76

**SOURCE POSITION:** 38°48'46.00" N 075°04'24.44" W

**BRIEF DESCRIPTION OF ITEM:**

"B.F. Macomber" - steam propulsion gear and some plates.

**METHOD OF INVESTIGATION:** S2, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

**RESULTS OF INVESTIGATION:**

Scattered debris found during area survey.

Water depth immediately surrounding the debris was 20.4 meters (66.9 feet), corrected to predicted MLLW. The height of the debris calculated from side scan sonagram records was 5.2 meters (17.1 feet); least depth corrected to ~~predicted~~ MLLW is 15.2 meters (49.9 feet).

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
17.0 15.2m (49.9ft)	56 775.84P	38°48'44.89" 45.24	75°04'25.18" 24.73	Scattered debris large shadow

**SUPPORTING POSITION NO'S.**

~~656.52S 3250.74S~~  
~~721.41S 3252.31S~~

**CHARTING RECOMMENDATION:**

WHITING recommends that the dangerous 47-foot cleared least depth and the accompanying "Wreck" label ~~remain~~ <sup>BE DELETED</sup> ~~charted at 38°48'46.00" N, 075°04'24.44" W until a diver least depth is determined.~~ CONCUR  
 SEE SECTION 18, PAGE 49 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

**ITEM INVESTIGATION REPORT**

**ITEM NO.:** 1150

**CHART NO.:** 12216  
**EDITION:** 23<sup>rd</sup> Edition  
**CHART DATE:** Feb. 22, 1992

**SURVEY:** H-10446

**SOURCE:** FE9/50

**SOURCE POSITION:** 38°48'46.60" N 075°04'03.44" W

**BRIEF DESCRIPTION OF ITEM:**

"B.F. Macomber" - five wood ribs protruding about 2 feet from bottom; hung at 57 feet, cleared to 50 feet.

**METHOD OF INVESTIGATION:** S2, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

**RESULTS OF INVESTIGATION:**

Found during area survey.

Water depth immediately surrounding wreck was 19.4 meters (63.7 feet), corrected to ~~predicted~~ MLLW. The wreck's height calculated from side scan sonagram records was 2.0 meters (6.6 feet); least depth corrected to ~~predicted~~ MLLW is 17.4 meters (57.1 feet).

<u>REDUCED</u> <u>LEAST DEPTH</u>	<u>POSITION</u> <u>NO.</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DESCRIPTION</u>
17.4m (57.1ft)	839.63S	38°48'46.72" 94	75°04'04.69" φ 3.73	Hard contact, irregular shadow

**SUPPORTING POSITION NO'S.**

833.09S 3240.36P  
 867.32P 3243.82P

**CHARTING RECOMMENDATION:**

WHITING recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Wreck" label <sup>BE DELETED,</sup> remain charted at 38°48'46.60" N, 075°04'03.44" W until a diver least depth is determined. CONCUR  
 SEE SECTION N16, PAGE 55 OF THIS REPORT FOR CHARTING RECOMMENDATION.

ITEM INVESTIGATION REPORT

ITEM NO.: 1152

CHART NO.: Uncharted

EDITION: N/A

CHART DATE: N/A

SURVEY: H-10446

SOURCE: H9758/76

SOURCE POSITION: 38°49'01.00" N 075°03'00.44" W

BRIEF DESCRIPTION OF ITEM:

Estimated hang at 52 feet, not cleared.

METHOD OF INVESTIGATION: S4, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

RESULTS OF INVESTIGATION:

There were no significant contacts found within the search radius. The shoalest depth found within the search radius was ~~22.8~~<sup>25.9</sup> meters (74.8<sup>85 FT</sup> feet), corrected to ~~predicted~~ MLLW. Average depth within the search radius ~~was~~<sup>was</sup> ~~28.8~~<sup>31.9</sup> meters (94.6 feet), corrected to ~~predicted~~ MLLW. WHITING considers the item disproved. *CONCUR*

*PAKED FROM 25.9m (85 FT)*

SUPPORTING POSITION NO'S.

N/A

CHARTING RECOMMENDATION:

WHITING recommends that the reported uncleared hang at 52 feet at 38°49'01.00" N, 075°03'00.44" W not be charted. *CONCUR*

**ITEM INVESTIGATION REPORT**

ITEM NO.: 1158

CHART NO.: 12214  
 EDITION: 37th Ed.  
 CHART DATE: June 27, 1992

SURVEY: H-10446

SOURCE: LHM 39/36

SOURCE POSITION: 38°49'36.40" N 075°02'28.64" W

**BRIEF DESCRIPTION OF ITEM:**

Steamer "Long Island" - LD 60 feet (source unknown).

**METHOD OF INVESTIGATION:** S2, DI, SD, 1000-m search radius assigned.

200% Side Scan Sonar coverage completed over southern half of the search radius. The northern half was not completed because of shoal water outside the survey area.

**RESULTS OF INVESTIGATION:**

Found during area survey.

Water depth immediately surrounding wreck was ~~26.0~~<sup>25.7</sup> meters (~~85.3~~<sup>84</sup> feet), corrected to ~~predicted~~ MLLW. The wreck's height calculated from side scan sonargram records was ~~4.2~~<sup>2.8</sup> meters (~~13.8~~<sup>9</sup> feet); least depth corrected to ~~predicted~~ MLLW is ~~21.8~~<sup>23.2</sup> meters (~~71.5~~<sup>76</sup> feet).

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
<del>23.2</del> 76	<del>2060.25S</del>	3 74	34.73	
<del>21.8m (71.5ft)</del>	<del>2056.16</del>	38°49'36.04"	75°02'33.82"	Big hard contact

**SUPPORTING POSITION NO'S.**

2006.07S 2060.25S  
 2118.01P

**CHARTING RECOMMENDATION:**

WHITING recommends that the symbol for a sunken wreck not dangerous to surface navigation ~~remain charted at 38°49'36.40" N, 075°02'28.64" W until a final position and an echo sounder or diver least depth is determined.~~ <sup>BE DELETED</sup>  
 When the final information is determined, WHITING recommends that item 1158 also be charted on chart number 12216 (23rd Edition, Feb. 22, 1992). CONCUR SEE SECTION N7, PAGE 48 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

**ITEM INVESTIGATION REPORT**

ITEM NO.: 8226

CHART NO.: 12216  
 EDITION: 23<sup>rd</sup> Edition  
 CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: CL1169/79 - USPS

SOURCE POSITION: 38°48'28.99" N 075°02'53.72" W

**BRIEF DESCRIPTION OF ITEM:**

"Mars 54" - 88 foot barge in 95 feet with 75 feet over it.

**METHOD OF INVESTIGATION:** S2, DI, SD, 500-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

**RESULTS OF INVESTIGATION:**

Found during area survey.

Water depth immediately surrounding barge was 29.2<sup>1</sup> meters (~~95.8~~<sup>95</sup> ft), corrected to ~~predicted~~ MLLW. The barge's height calculated from side scan sonagram records was ~~7.0~~<sup>7.6</sup> meters (~~23.0~~<sup>25</sup> ft); least depth corrected to ~~predicted~~ MLLW is ~~22.2~~<sup>24.1</sup> meters (~~72.8~~<sup>79</sup> ft).

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
24.1 79 <del>22.2m (72.8ft)</del>	1260 <del>405</del> <sup>+3</sup>	38°48'29. <del>60</del> <sup>25</sup> "	75°02'53. <del>70</del> <sup>69</sup> "	Large rectangle 5 meter offset

**SUPPORTING POSITION NO'S.**

1219.34P  
 1271.83S

**CHARTING RECOMMENDATION:**

WHITING recommends that the dangerous 75-foot least depth symbol and the accompanying "Wreck" label ~~remain charted at 38°48'28.99" N, 075°02'53.72" W until an echo sounder or diver least depth is determined.~~ <sup>BE DELETED.</sup> ~~CONCUR~~  
 SEE ALSO SECTION N39.) PAGE 74 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

ITEM INVESTIGATION REPORT

ITEM NO.: 8227

CHART NO.: 12216  
 EDITION: 23<sup>rd</sup> Edition  
 CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: CL1169/79 - USPS

SOURCE POSITION: 38°48'45.07" N 075°02'51.14" W

**BRIEF DESCRIPTION OF ITEM:**

Obstruction - crane from 88 foot barge "Mars 54" (AWOIS 8226).

**METHOD OF INVESTIGATION:** S2, DI, SD, 500-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

**RESULTS OF INVESTIGATION:**

Found during area survey.

Water depth immediately surrounding crane was 28.3 meters (93<sup>93</sup> ft), corrected to ~~predicted~~ MLLW. The crane's height calculated from side scan sonogram records was 5.5 meters (18.0 ft); least depth corrected to predicted MLLW is 22.8 meters (74.8<sup>75</sup> ft).

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
9 75 22.8m (74.8ft)	1396.83P	38°48'45.30" <sup>40</sup>	75°02'51.00" <sup>03</sup>	Contact with large shadow

**SUPPORTING POSITION NO'S.**

1370.53S  
 1407.45S

**CHARTING RECOMMENDATION:**

WHITING recommends that the dangerous 65-foot least depth symbol and the accompanying "Obstr" label ~~remain charted at 38°48'45.07" N, 075°02'51.14" W until an echo sounder or diver least depth is determined.~~ <sup>BE DELETED</sup> CONCLUDE  
 SEE ALSO SECTION N40.) PAGE 75 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.

**ITEM INVESTIGATION REPORT**

ITEM NO.: 8228

CHART NO.: 12216  
 EDITION: 23<sup>rd</sup> Edition  
 CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: CL470/83

SOURCE POSITION: 38°48'56.75" N 075°02'52.14" W

**BRIEF DESCRIPTION OF ITEM:**

Unidentified wreckage.

**METHOD OF INVESTIGATION:** S2, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

**RESULTS OF INVESTIGATION:**

Found during area survey.

Water depth immediately surrounding the wreckage was <sup>25.1</sup>~~27.2~~ meters (<sup>82</sup>~~88.6~~ ft), corrected to ~~predicted~~ MLLW. The height of the wreckage calculated from side scan sonargram records was 4.3 meters (14.11 ft); least depth corrected to ~~predicted~~ MLLW is <sup>21.9</sup>~~22.7~~ meters (<sup>72</sup>~~74.5~~ ft).

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
21.9 72 <del>22.7m (74.5ft)</del>	1450.49S <del>1459.41S</del>	38°48'56. <sup>91</sup> <del>66</del> "	75°02'51. <sup>35</sup> <del>36</del> "	Long thin shadow

**SUPPORTING POSITION NO'S.**

1450.49S

**CHARTING RECOMMENDATION:**

WHITING recommends that the symbol for a sunken wreck not dangerous to surface navigation ~~remain charted at 38°48'56.75" N, 075°02'52.14" W until an echo sounder or diver least depth is determined.~~ <sup>BE DELETED</sup> ~~convolve~~  
 SEE SECTION NO. 46-47 OF THIS REPORT FOR ADDITIONAL CHARTING RECOMMENDATION.



ITEM INVESTIGATION REPORT

ITEM NO.: 8231

CHART NO.: 12216  
 EDITION: 23<sup>rd</sup> Edition  
 CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: H9758/76

SOURCE POSITION: 38°49'01.40" N 075°05'00.65" W

BRIEF DESCRIPTION OF ITEM:

Obstruction - anchor fluke 2 feet off bottom.

METHOD OF INVESTIGATION: S4, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 200% coverage.

RESULTS OF INVESTIGATION:

An object was found during area survey.

Water depth immediately surrounding the obstruction was 16.9 meters (55.8 ft), corrected to ~~predicted~~ MLLW. The obstruction's height calculated from side scan sonargram records was 0.4 meters (1.3 ft); least depth corrected to ~~predicted~~ MLLW is ~~16.6~~ <sup>17.8</sup> meters (~~54.5~~ <sup>58</sup> ft).

REDUCED LEAST DEPTH	POSITION NO.	LATITUDE	LONGITUDE	DESCRIPTION
16.6m (54.5ft)	377.34P	38°49'00.99"	75°04'59.52"	Carrot-shaped soft contact

SUPPORTING POSITION NO'S.

431.40P

CHARTING RECOMMENDATION:

WHITING recommends that the obstruction <sup>BE DELETED</sup> ~~symbol remain charted at 38°49'01.40" N, 075°05'00.65" W until a diver least depth is determined.~~  
 SEE ALSO SECTION M., PAGE 12 FOR ADDITIONAL INFORMATION.

ITEM INVESTIGATION REPORT

ITEM NO.: 8232

CHART NO.: 12216  
EDITION: 23rd Edition  
CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: H9758/76, OPR-515-R/H-76

SOURCE POSITION: 38°48'44.40" N 075°04'10.64" W

BRIEF DESCRIPTION OF ITEM:

Obstruction - cleared depth of 50 feet.

METHOD OF INVESTIGATION: S4, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 400% coverage.

RESULTS OF INVESTIGATION:

AWOIS item 1150 was the only contact located found within the search radius. There were no other significant contacts found within the search radius. Excluding AWOIS item 1150, the shoalest depth found was 18.7 meters (61.4 feet) corrected to predicted MLLW; the average depth was 19.09 meters (62.5 feet). WHITING considers the item disproved. <sup>RANGE 50 From 18.5m (60 ft) TD</sup> ~~CONCUR~~

SUPPORTING POSITION NO'S.

N/A

CHARTING RECOMMENDATION:

WHITING recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Obstr" label charted at 38°48'44.40" N, 075°04'10.64" W be ~~removed~~ from the charts. <sup>DELETED</sup> ~~CONCUR~~

ITEM INVESTIGATION REPORT

ITEM NO.: 8233

CHART NO.: 12216  
EDITION: 23<sup>rd</sup> Edition  
CHART DATE: Feb. 22, 1992

SURVEY: H-10446

SOURCE: H9758/76, OPR-515-R/H-76

SOURCE POSITION: 38°48'49.40" N 075°04'07.64" W

BRIEF DESCRIPTION OF ITEM:

Obstruction - cleared depth of 50 feet.

METHOD OF INVESTIGATION: S4, DI, SD, 200-m search radius assigned.

Side Scan Sonar area survey with 400% coverage.

RESULTS OF INVESTIGATION:

AWOIS item 1150 was the only contact found within the search radius. There were no other significant contacts found within the search radius.

Excluding AWOIS item 1150, the shoalest depth found was 18.6 meters (61.0 feet) corrected to predicted MLLW; the average depth was 19.0 meters (62.3 feet). WHITING considers the item disproved. CONCUR

RANGED FROM 18.1m (59 FT) TO 5 64

SUPPORTING POSITION NO'S.

N/A

CHARTING RECOMMENDATION:

WHITING recommends that the dangerous 50-foot cleared least depth symbol and the accompanying "Obstr" label charted at 38°48'49.40" N, 075°04'07.64" W be removed from the charts. CONCUR  
DELETED

**DESCRIPTIVE REPORT TO ACCOMPANY  
FIELD EXAMINATION SURVEY  
OPR-D368-WH  
1993  
WH-20-6-93  
FE-386SS**

**NOAA SHIP WHITING  
CDR Andrew A. Armstrong, III, NOAA  
Commanding Officer**

**A. PROJECT**

This survey was conducted in accordance with Hydrographic Project Instructions OPR-D368-WH, Delaware Bay, dated February 23, 1993 and Change No. 1, dated May 13, 1993. Although this survey is registered as a 1:20,000 scale, all data acquired meet the accuracy requirements for a 1:10,000 scale survey.

The purpose of this survey is to investigate and resolve side scan sonar contacts located by the NOAA Ship WHITING during hydrographic survey operations on H-10446 (1992), and to verify or disprove AWOIS items in and near the area of H-10446.

**B. AREA SURVEYED**

Field Examination 386SS is 3.5 nautical miles east of Cape Henlopen, Delaware at the eastern approaches to Delaware Bay.

Survey operations began on May 21, 1993 (DN 141) and ended on August 15, 1993 (DN 227).

**C. SURVEY VESSEL**

NOAA Ship WHITING, vessel identification number 2930, was used for all side scan sonar and sounding-data acquisition. Launches 1014 and 1021 were used as dive platforms for least depth determination and for acquiring a position on each item investigated.

No unusual vessel configurations were used nor were any problems encountered.

#### D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

AUTOST	3.01	18-May-93
BACKUP	2.00	24-Sep-92
BASELINE	1.14	18-May-93
BIGABST	2.05	18-May-93
BLKEDIT	2.02	18-May-93
CARTO	2.06	18-May-93
CONTACT	2.04	18-May-93
CONVERT	3.54	18-May-93
DAS_SURV	6.341	18-May-93
DIAGNOSE	3.03	18-May-93
DISC_UTIL	1.00	24-Sep-92
DP	2.14	18-May-93
EXCESS	4.11	18-May-93
FILESYS	3.05	04-May-93
GRAFEDIT	1.04	18-May-93
HIPSTICK	1.01	24-Sep-92
HPRAZ	1.26	24-Sep-92
INSTALL	4.02	18-May-93
INVERSE	2.01	18-May-93
LISTDATA	1.02	18-May-93
LOADNEW	2.04	18-May-93
LSTAWOIS	3.03	18-May-93
MAINMENU	1.01	18-May-93
MAN_DATA	2.01	18-May-93
NEWPOST	6.01	18-May-93
PLOTALL	2.11	18-May-93
POINT	2.10	24-Sep-92
PRESURV	7.02	18-May-93
PREDICT	2.01	18-May-93
PRINTOUT	4.03	18-May-93
QUICK	2.03	02-Mar-93
RAMSAVER	1.02	18-May-93
REAPPLY	2.03	18-May-93
RECOMP	2.02	24-Sep-92
SCANNER	1.00	24-Sep-92
SELPRINT	2.03	18-May-93
SHEETSPLIT	1.03	18-May-93
SYMBOL	2.00	18-May-93
ZOOMEDIT	2.12	18-May-93

SHIPDIM (Version 9-22-92 for MS-DOS) was also used for DGPS performance checks.

Sound velocity corrections were determined using version 2.00 of program CAT and version 2.00 of VELOCITY.

All field sheets were made aboard WHITING with automated Bruning 936 plotters driven by the HDAPS system. No final-field sheets were prepared. All on-line plots for the surveyed area were transmitted to AHS. There were no irregularities in projection or scale during post processing of this survey. All field records and supporting data were sent to AHS per the Processing Partnership Agreement.

#### 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. The following sonar equipment was used throughout the survey:

<u>Type</u>	<u>S/N</u>
Towfish	0011443
260 Recorder	016630

The towfish was deployed from a Reuland winch (model number 8377-XF5461A, S/N 814861A-1) on the stern of WHITING. The SSS towfish was towed with armored cable which was connected to the recorder cabling with a slip-ring assembly. The SSS towfish was maintained at a height off the bottom of 8 to 20 percent of the range scale. SSS operations were limited to a speed of 5 knots or slower.

Offsets and laybacks for the A-frame used to tow the SSS towfish 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. All offset, layback, and height data were applied as required by the HDAPS Manual. These data are on file at the Atlantic Hydrographic Section (AHS). *DATA FILED WITH FIELD RECORDS.*

All side scan sonar data was collected using the 50, 75, or 100-meter range scale and 100-kHz towfish frequency.

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 wrecks when convenient.

#### F. SOUNDING EQUIPMENT

A RAYTHEON Digital Survey Fathometer (DSF) 6000N echosounder (S/N B053N) was used to determine water depths during the survey. The DSF-6000N produced a graphic record of the high frequency

(100-kHz) and low frequency (24-kHz) depth. The high- and low-frequency digital depths were recorded by the HDAPS acquisition system. The high-frequency depths were selected as the primary depths for sounding plot purposes.

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 selected. Electronic technicians performed daily accuracy checks and preventive maintenance on the DSF-6000N.

Diver determined least depths were measured with a pneumatic depth gauge. WHITING's pneumatic depth gauges (S/N 13892130 and 8406714N) were built according to Hydrographic Guideline No. 55. Gauge 13892130 was calibrated on January 25, 1993 and gauge 8406714N was calibrated on October 9, 1992. System checks were performed prior to every dive to ensure the pneumatic depth gauge being used was within tolerance.

#### 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 profiler was calibrated on December 16, 1992 during WHITING's winter inport period. A copy of the calibration report is on file at AHS.\*

The CTD, mounted in a cage, was lowered through the water column to obtain data for sound velocity corrections. Programs CAT and VELOCITY were used to process the data, select significant data points, and create a corrector table. The velocity correctors were manually entered into an HDAPS velocity table. The correctors were applied to both high- and low-frequency beams during acquisition. Velocity profile data can be found in the separates submitted with this survey.\*

Data Quality Assurance (DQA) for the Seacat was performed by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample taken during the CTD cast. The program CAT compared these values to the CTD surface values, and confirmed that the velocity probe was working properly.

A summary of sound velocity casts follows:

<u>DN</u>	<u>Vel.Table#</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>
140	17	38°46'30"N	074°34'27"W	33.9
174	23	38°44'51"N	074°55'23"W	55.8

The correction for WHITING's static draft is 3.2 meters, a historical value that WHITING divers confirmed by pneumatic depth gauge on October 28, 1991. The Transducer Depth Determination

\* DATA FILED WITH FIELD RECORDS.

Report is on file at AHS. A transducer-depth determination conducted on May 20, 1993 confirmed the draft measurement of 3.2 meters. These data are on file at AHS.\*

Settlement and squat measurements were conducted and correctors determined on August 5, 1991. Correctors based on this determination were applied in real time throughout the survey. Settlement and squat correctors are on file at AHS.\*

The HDAPS data acquisition computer logged heave data from a Heave, Roll, and Pitch Sensor (HIPPY, s/n 19109-C). Heave correctors were applied in post-processing.

The tidal datum for this project was Mean Lower Low Water. The operating tide station at Breakwater Harbor (Lewes), Delaware (855-7380) served as direct control for datum determination. Mr. Larry Nieson, Atlantic Operations Group, N/OES213, confirmed the proper operation of the tide station during the survey. This station also 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:	1 hr 00 min	x0.94
Low Water:	1 hr 00 min	x0.94

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 on-line to the digital data using HDAPS software. The tidal data, in digital form, were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

Opening and closing levels were conducted at the Breakwater Harbor tide station on March 8, 1993 and August 17, 1993, respectively. The levels confirmed that the tide staff and marks were undisturbed. The final Tide Note for this survey is on file at AHS.\*

All sounding corrections, except heave, were applied on-line to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams. Heave corrections were applied in post-processing.

Leadlines were made on April 10, 1993. Calibrations performed on April 26, 1993 confirmed the leadline error was negligible. A leadline comparison with the DSF-6000N was performed on April 3, 1993 (DN 113). The difference between the leadline and the high-frequency reading was -0.07 meter and the difference between the leadline and the low-frequency reading was -0.18 meter. These differences may be attributable to the soft-mud bottom at the comparison site. No correction for this difference is applied to the survey data.

\* DATA FILED WITH FIELD RECORDS.



Depths were determined by pneumatic gauge on the dive investigations. The leadline calibration reports for the pneumatic gauge are on file at AHS.\* Predicted tide correctors were applied to the least depths.\* DATA FILED WITH FIELD RECORDS. APPROVED TIDES AND ZONING HAVE BEEN APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS SEE ALSO SECTION 2.9. OF THE 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: one located at Cape Henlopen, DE and one located at Cape Henry, VA. The adjusted NAD 83 positions, computed by GPS methods, were provided by Lieutenant Jeffrey Ferguson of the Hydrographic Surveys Branch, N/CG24, on April 3, 1992. The horizontal control station list is on file at AHS.\* The NAD83 positions are as follows:

\* DATA APPENDED TO THIS REPORT.

	<u>Latitude</u>	<u>Longitude</u>	<u>Frequency</u>
Cape Henlopen	38°46'36.421"N	075°05'15.667"W	298 kHz
Cape Henry	36°55'37.580"N	076°00'23.884"W	289 kHz

I. HYDROGRAPHIC POSITION CONTROL SEE ALSO SECTION 2.9. OF THE EVALUATION REPORT.

A Differential Global Positioning System (DGPS) was used as the primary navigation system for this survey. WHITING monitored two U.S. Coast Guard DGPS beacons: Cape Henlopen, Delaware and Cape Henry, Virginia. WHITING used two Ashtech Sensor GPS receivers for DGPS navigation with two Magnavox MX50R differential radio receivers supplying correctors to the Ashtech receivers. Both MX50R and Ashtech receivers were initialized by HDAPS, with only the primary receiver sending navigational output to HDAPS.

The serial numbers of the Ashtech Sensor and MX50R receivers were as follows:

	<u>Device</u>	<u>Serial Number</u>
Primary System:	Ashtech Sensor	700417B1055
	Magnavox MX50R	168
Secondary System:	Ashtech Sensor	700417B1129
	Magnavox MX50R	169

Launch 1014 was used as the dive platform for two item investigations on August 14, 1993 (DN 226) and August 15, 1993 (DN 227). An Ashtech Sensor receiver (S/N 700417B1203) with a Magnavox MX50R (S/N 036) differential radio receiver linked to HDAPS was used for obtaining the positions on the items investigated. Performance checks for the launch's positioning system were done with 1014 secured in the davits aboard WHITING. An HDAPS position for launch 1014 was compared with a corresponding, GPS time-synchronized, HDAPS position for WHITING.

An offset in distance and azimuth between the two systems was then calculated. Performance checks were conducted on a weekly basis with a computed distance offset of less than 3 meters.

Launch 1015 was used as the dive platform for one item investigation on July 18, 1993 (DN 199). An Ashtech Sensor receiver (S/N 700417B1191) with a Magnavox MX50R (S/N 219) differential radio receiver linked to HDAPS was used for obtaining the positions on the items investigated. Performance checks for the launch's positioning system were done with 1015 secured in the davits aboard WHITING. An HDAPS position for launch 1015 was compared with a corresponding, GPS time-synchronized, HDAPS position for WHITING. An offset in distance and azimuth between the two systems was then calculated. Performance checks were conducted on a weekly basis with a computed distance offset of less than 3 meters.

Launch 1021 was used as the dive platform for the remaining item investigations. A Magnavox 4200 DGPS receiver (S/N 537) with a Magnavox MX50R (S/N 060) differential radio receiver was used to obtain the positions on items investigated. Modified performance checks on launch 1021 were conducted by first acquiring a position on the least depth with the Cape Henlopen beacon and then the position with the Cape Henry beacon. The two positions were compared to ensure the inverse distance was within acceptable limits. Generally, the inverse distance was less than 5 meters between the two least depth positions.

Satellite coverage during the side scan sonar item investigation lines allowed WHITING to operate in the non-altitude constrain mode continuously. The Cape Henlopen DGPS receiver system was used for all data acquisition.

Horizontal Dilution of Precision (HDOP) limits were computed for each station as required in section 3.4.2 of the Field Procedures Manual (FPM) for Hydrographic Surveying. The HDOP limit for a 1:20,000-scale survey for the Cape Henlopen and the Cape Henry beacons were 7.5 and 6.2, respectively. The HDOP limit for a 1:10,000 scale survey for the Cape Henlopen and the Cape Henry beacons is 3.7 and 3.1, respectively. No data were acquired at HDOP values exceeding the 1:10,000 thresholds.

DGPS positioning was accomplished in accordance with the FPM, section 3.4. When the beacon signal was lost for more than 30 seconds, the investigation line was broken and the line was rerun where control had been unacceptable. Cape Henry was used as the check station when acquiring performance checks to ensure proper operation of the Cape Henlopen beacon. Performance checks were conducted on a Gateway 2000 386/33c microcomputer (S/N 402208) using program SHIPDIM. SHIPDIM uses the two reference station method as described in FPM section 3.4.5. All DGPS performance checks confirmed that the DGPS positioning systems were operating

properly and accurately. A summary of the DGPS performance checks may be found in the separates submitted with this survey.

DGPS antenna offsets and laybacks were measured on March 19, 1993 as WHITING converted from Magnavox to Ashtech receivers and antennas. Offsets and laybacks were measured using the forward 100-kHz (high frequency) echosounder transducer as the reference. Antenna heights were measured from the waterline on the same date. Offsets and laybacks were applied by HDAPS on line. All offset, layback, and height data are on file at AHS.\*

DGPS antenna offsets and laybacks for launches 1014 and 1015 were measured on July 28, 1993. Offsets and laybacks were applied by HDAPS online. All offset, layback, and height data are on file at AHS.\*

\* DATA FILED WITH FIELD RECORDS.

J. SHORELINE SEE SECTION 2.D. OF THE EVALUATION REPORT.

There is no shoreline in the present survey area.

K. CROSSLINES SEE SECTION 3.A. OF THE EVALUATION REPORT.

Crosslines were not required; however, where crossings occur, agreement is adequate.

L. JUNCTIONS SEE SECTION 5. OF THE EVALUATION REPORT.

There are no junctional requirements for this survey.

M. COMPARISONS WITH PRIOR SURVEYS SEE SECTION 6. OF THE EVALUATION REPORT.

Comparison to prior surveys for items investigated, appear in section N of this report.

N. ITEM INVESTIGATIONS SEE ALSO SECTION 6.b.2.) OF THE EVALUATION REPORT.

Summary of items investigated:

<u>CONTACT NO.</u>	<u>SECTION</u>	<u>STATUS</u>
3128.82S	N1	Located
3128.86S	N2	Located
2322.86S	N3	Located
2345.12PS	N4	Located

<u>CONTACT NO.</u>	<u>SECTION</u>	<u>STATUS (con't)</u>
3183.56S	N5	Located
1459.41S (AWOIS 8228)	N6	Located
2060.25S (AWOIS 1158)	N7	Located
3252.31S (AWOIS 1149)	N8	Located
3491.64S	N9	Located
3474.26S	N10	Located
728.80S	N11	Located
875.58P	N12	Located
280.47P	N13	Located
672.22P, 792.27S	N14	Located
933.69S	N15	Located
3240.36P (AWOIS 1150)	N16	Located
290.19S	N17	Located
25.45P	N18	Located
1272.68S, 1272.56S	N19	Located
934.75P	N20	Located
1141.49P	N21	Located
1450.01S	N22	Located
71.58P, 119.04P, 119.88P, 1956.85S, 3468.35P, 3495.62S	N23	Located
811.87P, 812.49P, 1182.07S	N24	Disproved
2495.48S	N25	Disproved
3183.72S	N26	Located
2593.82P	N27	Located
2599.03P	N28	Located

<u>CONTACT NO.</u>	<u>SECTION</u>	<u>STATUS (con't)</u>
1851.52S	N29	Located
1851.75S	N30	Disproved
1095.48P	N31	Located
3478.76P	N32	Located
AWOIS 8425	N33	Located
3505.76S	N34	Located
3505.55S, 3111.02S	N35	Located
1580.10S	N36	Located
3499.06P, 3506.34S	N37	Located
654.04PS (AWOIS 1145)	N38	Located
1260.40S (AWOIS 8226)	N39	Located
1396.83P (AWOIS 8227)	N40	Located

N1. Contact #3128.82S

Reported Latitude: 38°46'23.80" N  
 Reported Longitude: 074°58'39.50" W  
 Source: H-10446  
 Datum: NAD 83  
 Feature: submerged obstruction

Contact #3128.82S originates with prior survey H-10446 (1992)<sup>1-93</sup>.  
~~the item was not assigned on survey FE-386SS, but WHITING  
 concluded this contact was significant and required further  
 investigation.~~

Contact #3128.82S was investigated and echosounding was used to  
 pinpoint a drop position for divers. Once the item was located,  
 a position and least depth (fix #500, DN 157) were determined  
 during dive operations. <sup>4366</sup>

A submerged obstruction was located in latitude 38°46'23.70"N,  
 longitude 074°58'39.61"W with a pneumatic gauge least depth of  
 17.7<sup>8</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding  
 depths are 18.4 to 19.1 meters. The item located is a concrete  
 block with a diameter of 1.5 meters, extending 1.0 meter off the  
 bottom.

WHITING recommends that an obstruction with a known least depth by diver of 17.7 meters <sup>NOT</sup> be charted at latitude ~~38°46'23.70"N~~, longitude ~~074°58'39.61"W~~. IN VICINITY OF CONTACT 3128.86S. SEE CHARTING RECOMMENDATION FOR CONTACT 3128.62S IN SECTION N.2., BELOW.

N2. Contact #3128.86S

Reported Latitude: 38°46'24.04" N  
Reported Longitude: 074°58'40.62" W  
Source: H-10446  
Datum: NAD 83  
Least Depth: 17<sup>1</sup> m side scan sonar estimated  
Feature: dangerous submerged obstruction  
(~~Obstn (A)~~)

Contact #3128.86S originates with prior survey H-10446 (1992<sup>1993</sup>), and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 17.1 meters (17<sup>1</sup> ~~Obstn (A)~~).

Survey requirements were to verify or disprove <sup>THE CONTACT</sup> the 17<sup>1</sup> ~~Obstn (A)~~ located by WHITING during prior survey H-10446 (1992<sup>1993</sup>).

Contact #3128.86S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #501, DN 158) were determined during dive operations. 4361

A submerged wreck was located in latitude 38°46'24.19<sup>20</sup>N, longitude 074°58'40.19<sup>20</sup>W, with a pneumatic gauge least depth of 16.9<sup>8</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 18.4 to 19.1 meters. The item located is a wreck consisting of wooden debris with some metal present. The wreck extends approximately 1.5 to 1.8 meters off the bottom and tapers into the sand on the east end with a maximum debris breadth of 10 meters. The divers also found chain link on the west end of the wreck (possibly the anchor chain) and several bottles scattered throughout the site, three of which were brought to the surface.

WHITING recommends that the 17<sup>1</sup> ~~Obstn (A)~~ be deleted and a wreck with a known least depth by diver of 16.9<sup>8</sup> meters ~~be~~ charted at latitude 38°46'24.19<sup>20</sup>N, longitude 074°58'40.19<sup>20</sup>W. <sup>20</sup> ~~CONCUR~~

\* (55FT), 16<sup>B</sup> WKK, AND A DANGER CURVE,

N3. Contact #<sup>2232</sup>~~2322~~.86S

Reported Latitude: 38°47'42.48" N  
Reported Longitude: 074°58'37.17" W  
Source: H-10446  
Datum: NAD 83  
Least Depth: 22<sup>2</sup> m side scan sonar estimated  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #<sup>2232</sup>~~2322~~.86S originates with ~~prior~~ survey H-10446 (1992)<sup>93</sup> and ~~is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 22<sup>2</sup> meters (22<sup>2</sup> Obstn (A)).~~

Survey requirements were to verify or disprove the ~~22<sup>2</sup> Obstn (A)~~<sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992).

Contact #<sup>2232</sup>~~2322~~.86S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #503, DN 159) were determined during dive operations. 4363

A submerged obstruction was located in latitude 38°47'43.34<sup>5</sup>"N, longitude 074°58'38.07"W with a pneumatic gauge least depth of 22.8<sup>1</sup> meters (corrected to predicted MLLW). The surrounding depths are 24.1<sup>6</sup> to 26.5 meters. The item located is a 1.2-meter x 1.8-meter propeller blade protruding from the bottom at a 45° angle. A piece of trawl net extending 5.2 meters off the bottom was attached to the blade. The diver least depth was taken on the propeller blade. The divers also located a submerged telephone cable with approximately 2.5 meters exposed along the bottom.

WHITING recommends that the ~~22<sup>2</sup> Obstn (A)~~ be deleted and an obstruction with a known least depth by diver of 22.8 meters\* be charted at latitude 38°47'43.34<sup>5</sup>"N, longitude 074°58'38.07"W. CONCUR  
\*(14 FT), 22<sup>1</sup>OBSTR,

N4. Contact #2345.12PS

Reported Latitude: 38°48'00.24" N  
Reported Longitude: 074°58'48.62" W  
Source: H-10446  
Datum: NAD 83  
Least Depth: 16<sup>0</sup> m echosounder estimated  
Feature: submerged obstruction  
(Obstn)

Contact #2345.12PS originates with ~~prior~~ survey H-10446 (1992) and is ~~shown as~~ a submerged obstruction with an echosounder estimated least depth of 16<sup>0</sup> meters (16<sup>0</sup> Obstn).

Survey requirements were to verify or disprove the 16<sup>0</sup> Obstrn located by WHITING during ~~prior~~ survey H-10446 (1992-93).

Contact #2345.12PS was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #505, DN 160) were determined during dive operations. 4364

A submerged obstruction was located in latitude 38°48'00.51"N, longitude 074°58'48.58"W with a pneumatic gauge least depth of 15.0<sup>2</sup> meters (corrected to predicted MLLW). The surrounding depths are 17.5 meters to 18.5 meters. The item located is a metal structure resembling a crane. A triangular-shaped frame structure was found connected to the western edge of a long boom. The boom is laying east-northeast west-southwest and extends 1.8 meters off the bottom on the west end and tapers into the sand towards the east.

WHITING recommends that THE 16<sup>0</sup> OBSTRN BE DELETED AND an obstruction with a known least depth by diver of 15.3<sup>2</sup> meters be charted at latitude 38°48'00.41"N, longitude 074°58'48.58"W. CONCUR \* (SAFT), 15<sup>2</sup> OBSTR, AND A DANGER CURVE

N5. Contact #3183.56S

Reported Latitude: 38°49'16.40" N  
Reported Longitude: 075°01'33.02" W  
Source: H-10446  
Datum: NAD 83  
Least Depth: 15<sup>1</sup> m side scan sonar estimated  
Feature: dangerous submerged obstruction  
~~(Obstrn (A))~~

Contact #3183.56S originates with ~~prior~~ survey H-10446 (1992-93) and ~~is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 15<sup>1</sup> meters (15<sup>1</sup> Obstrn (A)).~~

Survey requirements were to verify or disprove the 15<sup>1</sup> Obstrn (A) located by WHITING during ~~prior~~ survey H-10446 (1992-93). CONTACT

A contact near #3183.56S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #506, DN 161) were determined during dive operations. 4366

A submerged obstruction was located in latitude 38°49'16.39<sup>40</sup>"N, longitude 075°01'34.17<sup>8</sup>"W with a pneumatic gauge least depth of 12.3<sup>3</sup> meters (corrected to predicted MLLW). The surrounding depths are 12.6 meters to 16.1 meters. The item located is a submerged nun buoy standing approximately 4.0 meters off the bottom with a 1-meter deep scour surrounding it. The submerged



nun buoy is an item near contact #3183.56S. Item #3183.56S is located approximately 20 meters northeast of the nun buoy, identified as a small pile of chain partially covered with sand. Divers report that the chain extends no more than 0.3 meters off the bottom and is insignificant. CONCUR

WHITING recommends that the ~~15<sup>1</sup> Obstr (A)~~ be deleted and an obstruction with a known least depth by diver of 12.3<sup>2</sup> meters\* be charted at latitude 38°49'16.39<sup>4</sup>"N, longitude 075°01'34.17<sup>8</sup>"W. CONCUR  
\*(40 FT), 12<sup>2</sup> OBSTR, AND A DANGER CURVE

SEE ALSO SECTION I.D OF THE EVALUATION REPORT.

N6. Contact #~~1459.415~~

1450.015

Reported Latitude: 38°48'56.66<sup>91</sup>" N  
Reported Longitude: 075°02'51.38<sup>5</sup>" W  
Source: H-10446  
Datum: NAD 83  
Least Depth: 23<sup>8</sup> 21<sup>9</sup> m side scan sonar estimated  
Feature: dangerous submerged obstruction  
(Obstr (A))

Contact #~~1459.415~~ originates with prior survey H-10446 (1992)<sup>93</sup> and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 21<sup>9</sup> meters (21<sup>9</sup> Obstr (A)).

Survey requirements were to verify or disprove the ~~21<sup>9</sup> Obstr (A)~~ located by WHITING during prior survey H-10446 (1992)<sup>93</sup>. CONTACT

Contact #~~1459.415~~ was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #507, DN 161) were determined during dive operations. 4367

A submerged wreck was located in latitude 38°48'56.69<sup>70</sup>"N, longitude 075°02'51.40"W with a pneumatic gauge least depth of 23.3 meters (corrected to predicted MLLW). The surrounding depths are 22.9 meters to 27.2 meters. The item located is a wooden wreck with a bulkhead standing approximately 3.5 meters off the bottom with ribs running in a northwest-southeast direction tapering into the sand.

This wreck found by divers fits the description of, and is identified as AWOIS #8228. AWOIS #8228 is currently charted as a sunken wreck not dangerous to surface navigation at position 38°48'56.75"N, 075°02'52.14"W on charts 12214, 12216, and 12304. This wreck was the only significant contact located by WHITING inside the 200-meter search radius for AWOIS #8228. CONCUR

WHITING recommends that the ~~21<sup>9</sup> Obstr (A)~~ from H-10446 (1992) be deleted, and that the sunken wreck not dangerous to surface navigation charted at position 38°48'56.75"N, 075°02'52.14"W be

deleted from all affected charts. A wreck with a known least depth by diver of 23.3 meters should be charted at latitude

~~38°48'56.89"N, longitude 075°02'51.40"W.~~ CONCUR

\* A SHOAL TO 22.9 METERS (75 FT), IN LATITUDE 38°48'56.93"N, LONGITUDE 75°02'48.98"W IS RECOMMENDED FOR CHARTING IN THIS AREA.

N7. Contact #2060.25S

Reported Latitude: 38°49'35.74" N  
Reported Longitude: 075°02'34.73" W  
Source: H-10446  
Datum: NAD 83  
Least Depth: 23<sup>2</sup> m side scan sonar estimated  
Feature: dangerous <sup>SUNKEN</sup> submerged wreck  
(~~Wk (A)~~)

Contact #2060.25S originates with prior survey H-10446 (1992<sup>93</sup>) and is shown as a dangerous submerged wreck with a side scan sonar estimated least depth of 23<sup>2</sup> meters (~~23<sup>2</sup> Wk (A)~~).

Survey requirements were to verify or disprove the ~~23<sup>2</sup> Wk (A)~~ <sup>CONTACT</sup> located by WHITING during prior survey H-10446 (1992<sup>93</sup>).

Contact #2060.25S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #500, DN 170) were determined during dive operations. 4368

A submerged wreck was located in latitude 38°49'35.78<sup>9</sup>"N, longitude 075°02'34.32<sup>9</sup>"W with a pneumatic gauge least depth of 21.8 meters (corrected to predicted MLLW). The surrounding depths are 24.4 meters to 30.3 meters. The items located are scattered debris consisting of metal railing, 1-inch manila line, fish netting, wooden beams, a small square metal compartment, and a large rectangular metal compartment. The least depth was taken on the large metal compartment which extends approximately 4.9 meters off the bottom. Near the least depth site there is a 1-meter long x 7.5-cm diameter pipe attached to the compartment with a 90° elbow. The divers also located a large anchor shank leaning against the west side of the large compartment.

This wreck found by divers fits the description of, and is identified as AWOIS #1158, the steamer LONG ISLAND. AWOIS #1158 is currently charted as a sunken wreck not dangerous to surface navigation at position 38°49'36.40"N, 074°02'28.64"W on charts 12214, 12216, and 12304. During H-10446 WHITING discovered another obstruction within the 1000-meter search radius for AWOIS item #1158. WHITING also investigated this contact during survey FE-3865S and found the item to be insignificant (see contact #1956.85S, section N23.). CONCUR

WHITING recommends THAT THE ~~23<sup>2</sup> WK (A)~~ from H-10446 (1992) be deleted, and that the sunken wreck not dangerous to surface navigation charted at position 38°49'36.40"N, 074°02'28.64"W be deleted from all affected charts. A wreck with a known least depth by diver of 21.8 meters\* should be charted at latitude 38°49'35.78<sup>93</sup>N, longitude 075°02'34.32<sup>3</sup>W. ~~CONCUR~~  
\* (TIFT), 21<sup>8</sup>WK,

N8. Contact #3252.31S

Reported Latitude: 38°48'44.83" N  
Reported Longitude: 075°04'25.22" W  
Source: H-10446  
Least Depth: 15<sup>2</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
(~~Obstn (A)~~)

Contact #3252.31S originates with ~~prior~~ survey H-10446 (1992) and ~~is shown as a dangerous submerged obstruction with a side scan sonar least depth of 15.2 meters (15<sup>2</sup> Obstn (A)).~~<sup>93)</sup>

Survey requirements are to verify or disprove the ~~15<sup>2</sup> Obstn (A)~~ located by WHITING during ~~prior~~ survey H-10446 (1992)<sup>CONTACT</sup><sub>93)</sub>.

Contact #3252.31S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth were determined during dive operations.

A submerged wreck was located in latitude 38°48'44.<sup>45.11</sup>98"N, longitude 075°04'25.<sup>24</sup>16"W with a pneumatic gauge least depth of 16.5<sup>4</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 19.2 meters to 20.2 meters. The items located are scattered debris consisting of wooden beams and planks, hawser line, a metal windlass and two rectangular metal compartments. The least depth measurement was taken on a large metal compartment which extended approximately 3.5 meters off the bottom. Approximately 10 meters away, the divers found a smaller metal compartment laying flat on the bottom (3.0 m x 3.0 m, 0.9 m off the bottom).

This wreck found by divers fits the description of, and is identified as AWOIS #1149. AWOIS listing 3/18/93 reports AWOIS #1149 as the remains of the propulsion gear of the B.F. MACOMBER. It is unlikely that this wreckage is part of the B.F. MACOMBER, which is reported to be located almost one-half nautical mile to the east (AWOIS #1150, see section N16.). AWOIS #1149 is currently charted as a dangerous "Wreck" cleared to 47 feet at position 38°48'46.00"N, 075°04'24.44"W on charts 12214, 12216,

and 12304. There were no other significant contacts located within the 200-meter search radius for AWOIS #1149.

WHITING recommends that the ~~15<sup>2</sup> Obstrn (A) from H-10446 (1992) be deleted, and that the dangerous "Wreck" cleared to 47 feet charted at position 38°48'46.00"N, 075°04'24.44"W be deleted from all affected charts. A wreck with a known least depth by diver of 16.5 meters should be charted at latitude 38°48'44.98"N, longitude 075°04'25.16"W. CONCUR~~  
X (54 FT), 16<sup>4</sup> WK, AND A DANGER CURVE,

N9. Contact #3491.64S

Reported Latitude: 38°46'39.35" N  
Reported Longitude: 075°01'09.97" W  
Source: H-10446  
Least Depth: 21<sup>4</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: submerged obstruction  
~~(Obstrn (A))~~

Contact #3491.64S originates with ~~prior survey H-10446 (1992) and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 21<sup>4</sup> meters (21<sup>4</sup> Obstrn (A))~~<sup>93)</sup>.

Survey requirements were to verify or disprove the ~~21<sup>4</sup> Obstrn (A)~~<sup>CONTACT</sup> located by WHITING during ~~prior survey H-10446 (1992)~~<sup>93)</sup>.

Contact #3491.64S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #510, DN 172) were determined during dive operations. 437φ

A submerged obstruction was located in latitude 38°46'39.42<sup>3</sup>N, longitude 075°01'09.81<sup>2</sup>W with a pneumatic gauge least depth of ~~21.5 meters (corrected to predicted MLLW)~~<sup>24<sup>5</sup></sup>. The surrounding depths are 22.0 meters to 24.0 meters. The items located are two long sections of pipe laying side by side in a northwest-southeast direction, and a 1.8-meter diameter fractured metal tank extending approximately 3.0 meters off the bottom at a 45° angle. The items appear to be the remnants of a sunken dredge pipe assembly. The tank has a large fracture zone with gaping holes and cracks. The least depth was measured on the extreme southern edge of the fractured tank.

WHITING recommends that ~~the 21<sup>4</sup> Obstrn (A) be deleted and an obstruction with a known least depth by diver of 21.5 meters be charted at latitude 38°46'39.42"N, longitude 075°01'09.81"W. CONCUR~~  
X (67 FT), 24<sup>5</sup> OBSTR,

N10. Contact #3474.26P

Reported Latitude: 38°47'13.52"N  
Reported Longitude: 075°03'28.97" W  
Source: H-10446  
Least Depth: 17<sup>2</sup> m echosounder estimated  
Datum: NAD 83  
Feature: submerged obstruction  
(Obstn)

Contact #3474.26S originates with ~~prior~~ survey H-10446 (1992) and is ~~shown as~~ a submerged obstruction with an echosounder estimated least depth of 17<sup>2</sup> meters (17<sup>2</sup> Obstn).

Survey requirements were to verify or disprove the 17<sup>2</sup> Obstn located by WHITING during ~~prior~~ survey H-10446 (1992).

Contact #3474.26S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #511, DN 172) were determined during dive operations. 4371

A submerged obstruction was located in latitude 38°47'13.5<sup>6</sup>"N, longitude 075°03'28.9<sup>8</sup>"W with a pneumatic gauge least depth of 16.8<sup>8</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 19.1 meters to 19.8<sup>6</sup> meters. The item located is a structure buoy laying on its side in a north-northwest south-southeast orientation, extending approximately 2.0 meters off the bottom. A chain was found leading into the bottom from a padeye mounted on the side of the buoy's float. Side scan sonargrams position a 0.8-meter high anchor block (FE-386SS item #229.56S, H-10446 item #3474.40P) approximately 50 meters from the sunken buoy, bearing 320°T. The anchor block is a less significant target.

WHITING recommends that ~~THE~~ 17<sup>2</sup> OBSTN BE DELETED AND an obstruction with a known least depth by diver of 16.8<sup>8</sup> meters be charted at latitude 38°47'13.5<sup>6</sup>"N, longitude 075°03'28.9<sup>8</sup>"W. ~~CONUR~~  
\*(65 FT), 16<sup>8</sup> OBSTR, AND A DANGER CURVE,  
SEE ALSO SECTION I.D. OF THE EVALUATION REPORT.

N11. Contact #728.80S

Reported Latitude: 38°47'27.26" N  
Reported Longitude: 075°03'13.61" W  
Source: H-10446  
Least Depth: 17<sup>4</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #728.80S originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) and ~~is shown as a submerged obstruction with a side scan sonar depth of 17<sup>4</sup> meters (17<sup>4</sup> Obstn (A))~~.

Survey requirements were to verify or disprove the ~~17<sup>4</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992<sup>93</sup>).

Contact #728.80S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #512, DN 174) were determined during dive operations. 4372

A submerged obstruction was located in latitude 38°47'27.25<sup>6</sup>"N, longitude 075°03'13.33<sup>7</sup>"W with a pneumatic gauge least depth of 17.6<sup>5</sup> meters (corrected to predicted MLLW). The surrounding depths are 18.6<sup>6</sup> meters to 19.1<sup>7</sup> meters. The item located is a concrete block in the shape of a hexagon of revolution with an approximate diameter of 1.5 meters at the middle and 0.9 meters at the top and bottom. The block is standing upright, approximately 1.7 meters high, with a significant amount of mussel growth covering it. Centered on the top face of the structure is a metal padeye attached to a 1-cm x 0.9-m metal rib embedded in the concrete.

WHITING recommends that ~~the 17<sup>4</sup> Obstn (A) be deleted and an~~ obstruction with a known least depth by diver of 17.6<sup>5</sup> meters ~~be~~ charted at latitude 38°47'27.25<sup>6</sup>"N, longitude 075°03'13.33<sup>7</sup>"W. CONCUR  
\*(51 FT), 17<sup>6</sup> OBSTR, AND A DANGER CURVE,

N12. Contact #875.58P

Reported Latitude: 38°47'39.05" N  
Reported Longitude: 075°03'00.60" W  
Source: H-10446  
Least Depth: 17<sup>9</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #875.58P originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) and ~~is shown on this survey as a submerged obstruction with a side~~

~~scan sonar depth of 17<sup>9</sup> meters (17<sup>9</sup> Obstrn (A)).~~

Survey requirements were to verify or disprove the ~~17<sup>9</sup> Obstrn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992).

Contact #875.58P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #513, DN 174) were determined during dive operations.

A submerged obstruction was located in latitude 38°47'38.8<sup>9</sup>"N, longitude 075°03'00.2<sup>2</sup>"W with a pneumatic gauge least depth of 18.7<sup>6</sup> meters (corrected to predicted MLLW). The surrounding depths are 18.9 meters to 19.4 meters. The item located is a rock 0.8 meters high and 0.6 meters in diameter covered with a significant amount of marine growth. A large mussel shell bed was located nearby. Additionally, a black 3-cm diameter cable was found approximately 2.5 meters to the east, with 2.5 meters exposed and both ends buried in the sand.

WHITING recommends that the ~~17<sup>9</sup> Obstrn (A) be deleted and an~~ <sup>A ROCK WITH A</sup> ~~obstruction~~ <sup>KNOWN DEPTH</sup> of 18.7<sup>6</sup> meters, <sup>CONCUR</sup> be charted at latitude 38°47'38.8<sup>9</sup>"N, longitude 075°03'00.2<sup>2</sup>"W. <sup>\* (61 FT) (6" RK) AND A DANGER CURVE,</sup>

N13. Contact #280.47P

Reported Latitude:	38°46'11.00" N
Reported Longitude:	075°02'45.10" W
Source:	H-10446
Datum:	NAD 83
Feature:	submerged obstruction

Contact #280.47P originates with ~~prior~~ survey H-10446 (1992). This item was not assigned on survey FE-386SS, but WHITING concluded this contact was significant and required further investigation.

Contact #280.47P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #514, DN 175) were determined during dive operations.

A submerged obstruction was located in latitude 38°46'11.4<sup>6</sup>"N, longitude 075°02'44.9<sup>4</sup>"W with a pneumatic gauge least depth of 19.1<sup>8</sup> meters (corrected to predicted MLLW). The surrounding depths are 20.3<sup>4</sup> meters to 21.8 meters. Two large concrete blocks, each measuring 1.2 m x 1.2 m x 1.2 m, were found placed nearly end to end. Several other smaller blocks are in the area within a 6.0-meter radius and mussel shells are scattered throughout the site.

WHITING recommends that an obstruction with a known least depth by diver of 19.1<sup>0</sup> meters\*be charted at latitude 38°46'11.46"N, longitude 075°02'44.945"W. CONCOR  
\*(62 FT), 19 OBSTR, AND A DANGER CURVE,

N14. Contacts #672.22P and #792.27S

Reported Latitude: 38°46'48.13" N (#672.22P)  
Reported Longitude: 075°02'30.61" W

Reported Latitude: 38°46'45.54" N (#792.27S)  
Reported Longitude: 075°02'24.77" W

Source: H-10446  
Least Depth (m): 17<sup>1</sup> for 672.22P and 17<sup>3</sup> for 792.27S  
side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstr (A))~~

Contacts #672.22P and #792.27S originate with ~~prior~~ survey H-10446 (1992)<sup>13</sup> and are shown as ~~dangerous submerged obstructions.~~

Survey requirements were to verify or disprove the two ~~Obstr (A)~~<sup>CONTACTS</sup> (17<sup>1</sup> m for 672.22P and 17<sup>3</sup> m for 792.27S) located by WHITING during ~~prior~~ survey H-10446 (1992).

Contacts #672.22P and #792.27S were investigated with side scan sonar. WHITING determined that these contacts are the same item. Subsequent review of the contact tables from survey H-10446 revealed an erroneous offset input for contact #672.22P and an erroneous time input for contact #792.27S. A position was calculated for the single target using side scan sonar investigation records from survey FE-386SS. Echosounding was then used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #515, DN 175) were determined during dive operations. 4375

A submerged obstruction was located in latitude 38°46'49.72"N, longitude 075°02'28.21"W with a pneumatic gauge least depth of 17.4<sup>2</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 18.5 meters to 18.8 meters. The item located is an anchor block extending approximately 0.9 meters off the bottom measuring 1.8 meters x 1.5 meters. The object is covered with heavy-marine growth and mussels. Additionally, a 1.5-cm diameter black cable is protruding from underneath the block.

WHITING recommends that ~~the Obstr (A) for contacts #672.22P and #792.27S be deleted~~ and an obstruction with a known least depth by diver of 17.4 meters\*be charted at latitude 38°46'49.72"N, longitude 075°02'28.21"W. CONCOR  
\*(57 FT), 17<sup>3</sup> OBSTR, AND A DANGER CURVE,  
SEE SECTION 1.0. OF THE EVALUATION REPORT.



N15. Contact #933.69S

Reported Latitude 38°47'20.66" N  
Reported Longitude: 075°02'35.62" W  
Source: H-10446  
Least Depth: 16<sup>2</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
(Obstn (A))

Contact #933.69S originates with ~~prior~~ survey H-10446 (1992) <sup>-93)</sup> and ~~is shown as a submerged obstruction with a side scan sonar least depth of 16<sup>2</sup> meters (16<sup>2</sup> Obstn (A))~~.

Survey requirements were to verify or disprove the ~~16<sup>2</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992) <sup>93)</sup>.

Contact #933.69S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #516, DN 175) were determined during dive operations. 4376

A submerged obstruction was located in latitude 38°47'20.6<sup>7</sup>"N, longitude 075°02'35.62"W with a pneumatic gauge least depth of 18.8<sup>6</sup> meters (corrected to predicted MLLW). The surrounding depths are 19.1 meters to 23.5<sup>3</sup> meters. Two structure buoys were found laying side by side in approximately opposite directions. One of the buoys has a chain leading from it and into a bed of mussels. Side scan sonargrams position a 0.8-meter high anchor block (FE-386SS item #131.78P, H-10446 item #933.67S) approximately 60 meters from the sunken buoys, bearing 320°T. The anchor block is a less significant target. CONCUR

WHITING recommends that ~~the 16<sup>2</sup> Obstn (A) be deleted and an~~ obstruction with a known least depth by diver of 18.8<sup>6</sup> meters ~~\*be~~ charted at latitude 38°47'20.6<sup>6</sup>"N, longitude 075°02'35.62"W. CONCUR  
\*(61FT), 18<sup>6</sup> OBSTR, AND A DANGER CURVE,  
SEE ALSO SECTION 1-D. OF THE EVALUATION REPORT.

N16. Contact #3240.36P

Reported Latitude: 38°48'46.22" N  
Reported Longitude: 075°04'04.33" W  
Source: H-10446  
Least Depth: 17<sup>4</sup> m echosounder estimated  
Datum: NAD 83  
Feature: submerged obstruction  
(Obstn)

Contact #3240.36P originates with ~~prior~~ survey H-10446 (1992) and ~~is shown as a submerged obstruction with an echosounder estimated least depth of 17<sup>4</sup> meters (17<sup>4</sup> Obstn)~~.

Survey requirements were to verify or disprove the 17<sup>4</sup> *Obstn* located by WHITING during ~~prier~~ survey H-10446 (1992).

Contact #3240.36P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #517, DN 175) were determined during dive operations. 4377

A submerged wreck was located in latitude 38°48'46.7<sup>3</sup>"N, longitude 075°04'04.10"W with a pneumatic gauge least depth of 16.4 meters (corrected to predicted MLLW). The surrounding depths are 18.7 meters to 19.9 meters. Three large wooden ribs were found protruding from the bottom about 1.5 meters high and at a 30° angle from vertical. The ribs were laying in an east-west line, approximately 2.0 meters apart. The divers also located scattered debris throughout the site consisting of bricks (some of which have evidence of re-bar steel strengthening), coal and wood.

The item found by divers at latitude 38°48'46.7<sup>3</sup>"N, longitude 075°04'04.10"W during <sup>JHS</sup> survey FE-386SS is believed to be AWOIS #1150, the B.F. MACOMBER. This item was the only significant contact located by WHITING inside the search radius for AWOIS #1150. AWOIS #1150 is currently charted as a dangerous 50-foot cleared least depth "Wreck" at position 38°48'46.60"N, 075°04'03.44"W on charts 12214, 12216, and 12304.

WHITING recommends that the 17<sup>4</sup> *Obstn* from H-10446 be deleted, and that the dangerous "Wreck" cleared to 50 feet charted at position 38°48'46.60"N, 075°04'03.44"W be deleted from all affected charts. A wreck with a known least depth by diver of 16.4 meters should be charted at latitude 38°48'46.7<sup>3</sup>"N, longitude 075°04'04.10"W. CONCUR  
\*(54 FT), 16<sup>4</sup> WK, AND A DANGER CURVE,

N17. Contact #290.19S

Reported Latitude: 38°48'17.45" N  
Reported Longitude: 075°04'37.03" W  
Source: H-10446  
Least Depth: 18<sup>9</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #290.19S originates with ~~prier~~ survey H-10446 (1992) <sup>93)</sup> and is shown as a submerged obstruction with a side scan sonar least depth of 18<sup>9</sup> meters (18<sup>9</sup> *Obstn* (A)).

Survey requirements were to verify or disprove the 18<sup>9</sup> *Obstn* ~~(A)~~ located by WHITING during ~~prier~~ survey H-10446 (1992) <sup>CONTACT</sup> ~~(A)~~ <sup>93)</sup>.

Contact #290.19S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #518, DN 176) were determined during dive operations. 4378

A submerged obstruction was located in latitude 38°48'17.578"N, longitude 075°04'37.588"W with a pneumatic gauge least depth of 18.54 meters (corrected to predicted MLLW). The surrounding depths are 19.3 meters to 22.9 meters. The item located is a 1.5-meter diameter cylindrical metal object sitting upright, approximately 1.8 meters off the bottom, covered extensively with marine growth.

WHITING recommends that ~~the 18<sup>2</sup> Obstrn (A) be deleted and an~~ obstruction with a known least depth by diver of 18.54 meters, ~~be~~ charted at latitude 38°48'17.578"N, longitude 075°04'37.588"W. CONCUR \* (60 FT), 18<sup>4</sup> OBSTR, AND A DANGER CURVE,

N18. Contact #25.45P

Reported Latitude: 38°48'51.03" N  
Reported Longitude: 075°05'26.66" W  
Source: H-10446  
Least Depth: 14<sup>3</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstrn (A))~~

Contact #25.45P originates with ~~prior survey H-10446 (1992) and~~ <sup>93)</sup> is shown as a submerged obstruction with a side scan sonar least depth of 14.3 meters ~~(14<sup>3</sup> Obstrn (A))~~.

Survey requirements were to verify or disprove ~~a 14<sup>3</sup> Obstrn (A)~~ <sup>THE CONTACT</sup> located by WHITING during ~~prior survey H-10446 (1992)~~ <sup>93)</sup>.

This contact was adequately investigated by the present survey. It was located near its reported position by side scan sonar on the 50-meter range scale and an echosounder depth of 13.4 meters (corrected to predicted MLLW) was obtained ~~(FE-386SS position #196.70, DN 142)~~. The echosounder depth can be confidently considered a least depth because the object is small. The object rests adjacent to a rise on the bottom. The surrounding depths are 12.8 meters to 16.8 meters (corrected to predicted MLLW). This contact is also located extremely close to the Harbor of Refuge breakwater.

WHITING recommends that ~~the 14<sup>3</sup> Obstrn (A) be deleted,~~ <sup>16.2m, (53 FT)</sup> a 13.4 sounding appear on the survey, and this contact not be charted as an obstruction. CONCUR

N19. Contacts #1272.68S and #1272.56S

Reported Latitude: 38°48'19.80" N (#1272.68S)  
Reported Longitude: 075°02'43.90" W

Reported Latitude: 38°48'21.40" N (#1272.56S)  
Reported Longitude: 075°02'44.90" W

Source: H-10446  
Least Depth: 25<sup>4</sup> m for 1272.68S, 26<sup>6</sup> m for 1272.56S  
side scan sonar estimated

Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contacts #1272.68S and #1272.56S originate with ~~prior~~ survey H-10446 (1992) and are ~~shown as~~ submerged obstructions with a side scan sonar least depth of 25.4 meters ~~(25<sup>4</sup> Obstn (A))~~ and 26.6 meters ~~(26<sup>6</sup> Obstn (A))~~, respectively.

Survey requirements were to verify or disprove the ~~25<sup>4</sup> Obstn (A)~~ <sup>CONTACTS</sup> and the ~~26<sup>6</sup> Obstn (A)~~ located by WHITING during ~~prior~~ survey H-10446 (1992).

Both contacts were adequately investigated by the present survey. Contact #1272.68S was located near its reported position by side scan sonar on the 50-meter range scale and an echosounder depth of ~~23.4~~<sup>22.6</sup> meters (corrected to ~~predicted~~ MLLW) was obtained (FE-386SS position ~~#87.30~~<sup>#87.30</sup>, DN 142). The average depth surrounding the area is 25.1 meters (corrected to ~~predicted~~ MLLW). Contact #1272.68S is identified as a sunken buoy. Contact #1272.56S was also located near its reported position by side scan sonar on the 50-meter range scale and is identified as an anchor block attached by chain to contact #1272.68S. The anchor block (#1272.56S) is located approximately 60 meters from the sunken buoy (#1272.68S), bearing 330°T. Both contact heights are less than 10 percent of the depth in greater than 20 meters of water; hence, the contacts do not meet the significance criteria specified in the Field Procedures Manual. <sup>CONCUR</sup>

<sup>26</sup> WHITING recommends that the ~~25<sup>4</sup> Obstn (A)~~ be deleted, a depth of ~~23.4~~<sup>(25 FT)</sup> meters be shown on the survey, and contact #1272.68S not be charted as an obstruction. Similarly, WHITING recommends that the ~~26<sup>6</sup> Obstn (A)~~ be deleted and contact #1272.56S not be charted as an obstruction. <sup>CONCUR</sup>  
SEE ALSO SECTION I. D. OF THE EVALUATION REPORT.

N20. Contact #934.75P

Reported Latitude: 38°47'09.48" N  
Reported Longitude: 075°02'20.18" W  
Source: H-10446  
Least Depth: 24<sup>2</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #934.75P originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) ~~and is shown as a submerged obstruction with a side scan sonar least depth of 24.2 meters (24<sup>2</sup> Obstn (A)).~~

Survey requirements were to verify or disprove the ~~24<sup>2</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992<sup>93</sup>).

This contact was adequately investigated by the present survey. It was located near its reported position by side scan sonar on the 50-meter range scale with a computed height of 1.9 meters (FE-386SS item #129.28S, DN 146). The average depth surrounding the area is 24.5 meters (corrected to ~~predicted~~ MLLW). Contact #934.75P is identified as a sunken buoy and is attached by chain to an anchor block. The anchor block is located approximately 75 meters north of the sunken buoy. The height of both contact #934.75P and the anchor block is less than 10 percent of the depth in greater than 20 meters of water; hence, the contacts do not meet the significance criteria specified in the Field Procedures Manual. *CONCUR*

WHITING recommends that the ~~24<sup>2</sup> Obstn (A)~~ be deleted and contact #934.75P not be charted as an obstruction. *CONCUR*  
*SEE ALSO SECTION I. B. OF THE EVALUATION REPORT.*

N21. Contact #1141.49P

Reported Latitude: 38°47'07.80" N  
Reported Longitude: 075°01'59.95" W  
Source: H-10446  
Least Depth: 23<sup>9</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #1141.49P originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) ~~and is shown as a submerged obstruction with a side scan sonar least depth of 23.9 meters (23<sup>9</sup> Obstn (A)).~~

Survey requirements were to verify or disprove the ~~23<sup>9</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992<sup>93</sup>).

This contact was adequately investigated by the present survey. It was located near its reported position by side scan sonar on the 50-meter range scale with a computed height of 2.4 meters (FE-386SS item #141.16P, DN143). The average depth surrounding the area is 26.3 meters (corrected to ~~predicted~~ MLLW). Contact #1141.49P is identified as a sunken buoy and is attached by chain to an anchor block. The anchor block is located approximately 35 meters from the sunken buoy, bearing 325°T. The height of both contact #1141.49P and the anchor block are less than 10 percent of the depth in greater than 20 meters of water; hence, the contacts do not meet the significance criteria specified in the Field Procedures Manual. CONCUR

WHITING recommends that ~~the 23<sup>9</sup> Obstrn (A) be deleted~~ and contact #1141.49P not be charted as an obstruction. CONCUR  
SEE ALSO SECTION I. b. OF THE EVALUATION REPORT.

N22. Contact #1450.01S

Reported Latitude: 38°48'<sup>50.60</sup>56.91" N  
Reported Longitude: 075°02'<sup>46.13</sup>51.35" W  
Source: H-10446  
Least Depth: 21<sup>9</sup>23.8 m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~Obstrn (A)~~

Contact #1450.01S originates with prior survey H-10446 (1992) ~~and is shown as a submerged obstruction with a side scan sonar least depth of 23.8 meters (23<sup>8</sup> Obstrn (A))~~.  
21.9 21.9

Survey requirements were to verify or disprove the ~~23<sup>8</sup> Obstrn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992)<sup>(93)</sup>.

This contact was adequately investigated by the present survey. It was located near its reported position by side scan sonar on the 50-meter range scale with a computed height of 2.3 meters (FE-386SS item #54.21P, DN 141). The average depth surrounding the area is 28.0 meters (corrected to ~~predicted~~ MLLW). Contact #1450.01S is identified as a sunken buoy and is attached by chain to an anchor block. The anchor block is located approximately 60 meters from the sunken buoy, bearing 145°T. The height of both contact #1450.01S and the anchor block are less than 10 percent of the depth in greater than 20 meters of water; hence, the contacts do not meet the significance criteria specified in the Field Procedures Manual. CONCUR

WHITING recommends that ~~the 23<sup>8</sup> Obstrn (A) be deleted~~ and contact #1450.01S not be charted as an obstruction. CONCUR  
SEE ALSO SECTION I. b. OF THE EVALUATION REPORT.

N23. Contacts #71.58P, 119.04P, 119.88P,  
1956.85S, 3468.35P, 3495.62S

These contacts originate from ~~prior~~ survey H-10446 (1992<sup>95</sup>) and are ~~shown as~~ dangerous submerged obstructions with side scan estimated depths listed in the table below.

Survey requirements were to verify or disprove these contacts located by WHITING during ~~prior~~ survey H-10446. Each item was adequately investigated by the present survey. Every item was located near its reported position by side scan sonar on the 50-meter or 75-meter range scale.

H-10446#	Latitude (N)	Longitude (W)	FE-386SS #
71.58P 22 <sup>1</sup> m Obstn (A)	38°46'39.9 <sup>3</sup>	075°03'25.8 <sup>2</sup>	<del>4076</del> 216.66P <del>219.54S</del>
119.04P 24 <sup>2</sup> m Obstn (A)	38°47'09.4 <sup>6</sup>	075°03'44.2 <sup>2</sup>	<del>4079</del> <del>4082</del> 222.61P <del>225.49S</del>
119.88P 23 <sup>9</sup> m Obstn (A)	38°47'19.6 <sup>6</sup>	075°03'53.7 <sup>3</sup>	<del>4085</del> 4081 221.70P
1956.85S 26 <sup>2</sup> m Obstn (A)	38°49'24.6 <sup>56</sup>	075°02'34.6 <sup>6</sup>	3944 44.74S 47.63P
3468.35P 18 <sup>4</sup> m Obstn (A)	38°47'17.9 <sup>2</sup>	075°03'22.4 <sup>3</sup>	3947 4094 234.51S 236.51S
3495.62S 23 <sup>3</sup> m Obstn (A)	38°45'21.2 <sup>75</sup>	075°01'22.5 <sup>7</sup>	<del>4096</del> 3965 105.75P 108.71S 3968

The above contacts were examined carefully on the sonargrams. These views were taken at close range and on short-range scales. The records show that the items stand less than 1 meter above the bottom or are less than 10 percent of the depth in greater than 20 meters of water; the items do not meet the significance criteria specified in the Field Procedures Manual. WHITING recommends that none of these contacts from H-10446 be charted. CONCUR

N24. Contacts #811.87P, 812.49P, 1182.07S

These contacts originate from ~~prior~~ survey H-10446 (1992) and are ~~shown as~~ dangerous submerged obstructions with side scan estimated depths listed in the table on the next page.

H-10446 Item #	Latitude (N)	Longitude (W)	FE386SS Fixes
811.87P <del>22<sup>2</sup>m Obstrn (A)</del>	38°45'08.6"	075°00'53.6" <sub>57</sub>	* <del>98-104</del> * 3958-3964
812.49P <del>24<sup>2</sup>m Obstrn (A)</del>	38°45'16.12	075°00'59.12 <sub>5</sub>	* <del>98-104</del>
1182.07S <del>21<sup>2</sup>m Obstrn (A)</del>	38°44'39.4" <sub>35</sub>	075°59'40.02	3953-3957 93-97

Survey requirements were to verify or disprove these contacts located by WHITING during ~~prior~~ survey H-10446. Each item was adequately investigated by the present survey.

The above contact positions were investigated thoroughly on the 50-meter range scale. No contacts were located at these positions during the present survey and there were no cross-reference contacts on H-10446 for any of the items. The H-10446 sonar returns for these contacts are consistent with those of fish or dolphins in the water column. WHITING considers these items from survey H-10446 disproved and recommends that none of the contacts be charted. CONCUR

N25. Contact #2495.48S

Reported Latitude: 38°48'13.8" N  
 Reported Longitude: 074°58'30.6" W  
 Source: H-10446  
 Least Depth: 13<sup>1</sup> m side scan sonar estimated  
 Datum: NAD 83  
 Feature: dangerous submerged obstruction  
 (~~Obstrn (A)~~)

Contact #2495.48S originates with ~~prior~~ survey H-10446 (1992) <sup>-93)</sup> and ~~is shown on this survey as a submerged obstruction with a side scan sonar least depth of 13.1 meters (13<sup>1</sup> Obstrn (A))~~.

Survey requirements were to verify or disprove <sup>THE CONTACT</sup> a ~~13<sup>1</sup> Obstrn (A)~~ located by WHITING during ~~prior~~ survey H-10446 (1992) <sup>-93)</sup>.

The item's position was investigated thoroughly on the 50-meter range scale (FE-386SS fixes <sup>3942-3948 4071 4075</sup> 76-78, 211-215). Nothing was found at the reported position during the present survey and there were no cross-reference contacts on H-10446. The one sonar return from H-10446 for this contact is consistent with that of a change in the bottom texture. WHITING considers the item disproved. CONCUR

WHITING recommends that ~~the 13<sup>1</sup> Obstrn (A) be deleted and this contact not be charted.~~ CONCUR



N26. Contact #3183.72S

Reported Latitude: 38°49'20.96" N  
Reported Longitude: 075°01'38.09" W  
Source: H-10446  
Least Depth: 7<sup>7</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #3183.72S originates with prior survey H-10446 (1992)<sup>93)</sup> and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 7<sup>7</sup> meters (~~7<sup>7</sup> Obstn (A)~~).

Survey requirements were to verify or disprove the ~~7<sup>7</sup> Obstn (A)~~<sup>CONTACT</sup> located by WHITING during prior survey H-10446 (1992)<sup>93)</sup>.

Contact #3183.72S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #519, DN 179) were determined during dive operations. 4379

A submerged obstruction was located in latitude 38°49'20.99"<sup>21.00</sup>N, longitude 075°01'37.99"W with a pneumatic gauge least depth of 10.3 meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 10.1 to 12.6 meters (corrected to ~~predicted~~ MLLW). The item located is a structure buoy laying on its side, situated on the south side of a sand ridge. Divers measured the least depth on the buoy's top end; the buoy's float was buried in the bottom.

WHITING recommends that the ~~7<sup>7</sup> Obstn (A)~~ be deleted and an obstruction with a known least depth by diver of 10.3 meters<sup>NCT</sup> be charted at latitude 38°49'20.99"<sup>21.00</sup>N, longitude 075°01'37.99"W. CONCUR IN VICINITY OF CONTACT #2593.82P. SEE CHARTING RECOMMENDATION FOR CONTACT #2593.82P SEE ALSO SECTION 1.0. OF THE EVALUATION REPORT. IN SECTION N27, BELOW.

N27. Contact #2593.82P

Reported Latitude: 38°49'20.01" N  
Reported Longitude: 075°01'39.72" W  
Source: H-10446  
Least Depth: 11<sup>3</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #2593.82P originates with prior survey H-10446 (1992)<sup>93)</sup> and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 11<sup>3</sup> meters (~~11<sup>3</sup> Obstn (A)~~).

Survey requirements were to verify or disprove the 11<sup>3</sup> *Obstn (A)* located by WHITING during ~~prior~~ survey H-10446 (1992).

Contact #2593.82P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #520, DN 179) were determined during dive operations. 4380

A submerged obstruction was located in latitude 38°49'20.4<sup>2</sup>"N, longitude 075°01'39.79<sup>8</sup>"W with a pneumatic gauge least depth of 9.7<sup>6</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 10.1 to 13.8 meters (corrected to predicted MLLW). The item located is a structure buoy laying on its side, situated on the south side of a sand ridge. Divers measured the least depth on the buoy's top end; the buoy's float was buried one-third of the way in the bottom. Contact #2593.82P is attached by chain to an anchor block (FE-386SS item #58<sup>16</sup>.61P, DN 141). The anchor block is located approximately 40 meters from the sunken buoy, bearing 105°T. The anchor block was diver investigated during survey H-10489 of OPR-D368-WH (see item #2447.38S, fix #6190, DN 228). SEE DESCRIPTIVE REPORT FOR H-10489 (1993) FOR CHARTING RECOMMENDATION.

WHITING recommends that the 11<sup>3</sup> *Obstn (A)* be deleted and an obstruction with a known least depth by diver of 9.7 meters, \*be charted at latitude 38°49'20.4<sup>2</sup>"N, longitude 075°01'39.79<sup>8</sup>"W. CONCUR \* (31 FT), 9<sup>6</sup> OBSTR, AND A DANGER CURVE, EP

SEE ALSO SECTION I.D. OF THE EVALUATION REPORT.

N28. Contact #2599.03P

Reported Latitude:	38°48'53.37" N
Reported Longitude:	075°01'09.72" W
Source:	H-10446
Least Depth:	16 <sup>2</sup> m side scan sonar estimated
Datum:	NAD 83
Feature:	dangerous submerged obstruction
	<del>(Obstn (A))</del>

Contact #2599.03P originates with ~~prior~~ survey H-10446 (1992) <sup>93)</sup> and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 16<sup>2</sup> meters (~~16<sup>2</sup> Obstn (A)~~).

Survey requirements were to verify or disprove the ~~16<sup>2</sup> *Obstn (A)*~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992) <sup>93)</sup>.

Contact #2599.03P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #521, DN 180) were determined during dive operations. 4381

A submerged obstruction was located in latitude 38°48'53.5<sup>7</sup>"N, longitude 075°01'09.26<sup>7</sup>"W with a pneumatic gauge least depth of 16.8 meters (corrected to ~~predicted~~ MLLW). The surrounding

depths are 14.4 to 18.9 meters (corrected to predicted MLLW). The item located is a 12-m long x 0.6-m x 0.6-m square wooden beam laying in a southeast-northwest orientation. The northwest end is sanded into the bottom and the beam forms a 10° angle with the horizontal. The southeast end has 1.2 meters of clearance off the bottom.

WHITING recommends that the ~~16<sup>2</sup> Obstrn (A)~~ be deleted and an <sup>NOT</sup> obstruction with a known least depth by diver of 16.8 meters be charted. at latitude ~~38°48'53.53"N~~, longitude ~~075°01'09.26"W~~. CONCUR

N29. Contact #1851.52S

Reported Latitude: 38°47'36.82" N  
Reported Longitude: 075°01'12.24" W  
Source: H-10446  
Least Depth: 19<sup>7</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstrn (A))~~

Contact #1851.52S originates with ~~prior survey H-10446 (1992)~~ <sup>(B)</sup> and ~~is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 19<sup>7</sup> meters (19<sup>7</sup> Obstrn (A))~~.

Survey requirements were to verify or disprove the ~~19<sup>7</sup> Obstrn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior survey H-10446 (1992)~~ <sup>(B)</sup>.

Contact #1851.52S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #522, DN 196) were determined during dive operations.

A submerged obstruction was located in latitude 38°47'36.28"N, longitude 075°01'12.29<sup>30</sup>"W with a pneumatic gauge least depth of 19.2 meters (corrected to predicted MLLW). The surrounding depths are 19.9 to 21.4 meters (corrected to predicted MLLW). The item located is a structure buoy laying flat on the bottom in a northeast-southwest orientation. The least depth was measured on the buoy's float on the northeast end. The buoy extends approximately 1.8 meters off the bottom and is laying in a scour pocket. Contact #1851.52S is attached by chain to an anchor block (FE-386SS item #155.79P, DN 142). The anchor block, a less significant target, is located approximately 30 meters from the sunken buoy, bearing 330°T.

WHITING recommends that the ~~19<sup>7</sup> Obstrn (A)~~ be deleted and an <sup>NOT</sup> obstruction with a known least depth by diver of 19.2 meters be charted. at latitude ~~38°47'36.28"N~~, longitude ~~075°01'12.29"W~~. CONCUR

N30. Contact 1851.75S

Reported Latitude: 38°47'39.97" N  
Reported Longitude: 075°01'15.27" W  
Source: H-10446  
Least Depth: 21<sup>0</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #1851.75S originates with ~~prior~~ survey H-10446 (1992)<sup>93)</sup> and ~~is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 21<sup>0</sup> meters (21<sup>0</sup> Obstn (A))~~.

Survey requirements were to verify or disprove the ~~21<sup>0</sup> Obstn (A)~~<sup>CONTACT</sup> located by WHITING during prior survey H-10446 (1992)<sup>93)</sup>.

Contact #1851.75S was investigated by additional SSS lines (fixes ~~149-157, FE-386SS~~<sup>4901-4911</sup>) and diver (fix #~~523~~<sup>528</sup>, DN 196). Divers descended on the position and conducted a 30-meter circle search. No items were found; a trough is located near the detached position. None of the side scan sonar records acquired by WHITING during surveys H-10446 and ~~FE-386SS~~ showed a well-defined shadow for the item. WHITING considers the item a change in bottom texture and disproved as an obstruction.<sup>CONCUR</sup> WHITING recommends that ~~the 21<sup>0</sup> Obstn (A) be deleted and this contact not be charted.~~<sup>CONCUR</sup>

N31. Contact #1095.48P

Reported Latitude: 38°48'32.17" N  
Reported Longitude: 075°03'23.88" W  
Source: H-10446  
Least Depth: 20<sup>5</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #1095.48P originates with ~~prior~~ survey H-10446 (1992)<sup>93)</sup> and ~~is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 20<sup>5</sup> meters (20<sup>5</sup> Obstn (A))~~.

Survey requirements were to verify or disprove the ~~20<sup>5</sup> Obstn (A)~~<sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992).

Contact #1095.48P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #~~524~~, DN 197) were determined during dive operations.  
4384

A submerged obstruction was located in latitude 38°48'31.95<sup>6</sup>"N, longitude 075°03'23.51"W with a pneumatic gauge least depth of 22.2 meters (corrected to predicted MLLW). The surrounding depths are 22.1 to 28.9 meters (corrected to predicted MLLW). The item located is a structure buoy oriented north-northeast by south-southwest laying on its side. The buoy makes a 30° angle with the bottom, with the least depth located near the top of the buoy at the north-northeast end. The top of the buoy extends approximately 3.0 meters off the bottom. The base of the buoy tapers into the bottom and has a gaping hole. Also, there is a small dome, possibly a light, located on the top end of the buoy.

WHITING recommends that ~~the 20<sup>5</sup> Obstrn (A) be deleted~~ and an <sup>NOT</sup> \* obstruction with a known least depth by diver of 22.2<sup>0</sup> meters be charted at latitude ~~38°48'31.95"N~~, longitude ~~075°03'23.51"W~~. CONCUR  
SEE ALSO SECTION I. D. OF THE EVALUATION REPORT.

N32. Contact #3478.76P

*\* N/CG 241 recommends charting a 22 obstr as surveyed. 4/8/94 - SJV*

Reported Latitude:	38°47'16.15" N
Reported Longitude:	075°02'26.73" W
Source:	H-10446
Least Depth:	21 <sup>4</sup> m side scan sonar estimated
Datum:	NAD 83
Feature:	dangerous submerged obstruction

~~(Obstrn (A))~~

Contact #3478.76P originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) and ~~is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 21<sup>4</sup> meters (21<sup>4</sup> Obstrn (A)).~~

Survey requirements were to verify or disprove the ~~21<sup>4</sup> Obstrn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992<sup>93</sup>).

Contact #3478.76P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #525, DN 198) were determined during dive operations. <sup>4385</sup>

A submerged obstruction was located in latitude 38°47'16.52<sup>3</sup>"N, longitude 075°02'27.11"W with a pneumatic gauge least depth of 23.7<sup>1</sup> meters (corrected to predicted MLLW). The surrounding depths are 20.6 to 26.8 meters (corrected to predicted MLLW). The item located is a structure buoy oriented east-northeast by west-southwest laying flat on its side. The least depth is located on the buoy's cylindrical float near the west-northwest end. The buoy's broken light globe along with a 1.5-cm diameter black wire was found on the bottom near the top end of the buoy. The buoy's counterweight is also visible on the west-southwest end.

WHITING recommends that the ~~21<sup>4</sup> Obstrn (A)~~ be deleted and an obstruction with a known least depth by diver of 23.2<sup>1</sup> meters, be charted at latitude 38°48'31.95"N, longitude 075°03'23.51"W. CONCUR  
\*(16 FT), 23' OBSTR, 47' 16.53 02' 27.11

SEE ALSO SECTION 1.6. OF THE EVALUATION REPORT.  
N33. AWOIS #8425

Reported Latitude: 38°51'18.40" N  
Reported Longitude: 075°05'45.45" W  
Source: AWOIS list dated 3/18/93  
Feature: Obstrn rep 1989

The reported position for AWOIS item #8425 is located approximately 2.5 nm north of survey area H-10446. A 500-meter search radius centered on the source position was surveyed with 400 percent side scan sonar coverage during FE-386SS. An object was found within the given search radius and was investigated by WHITING with side scan sonar on the 50-meter range scale (FE-386SS contacts #1003.50S and #1014.85S). Echosounding was used to pinpoint a divers drop position. Once the item was located, a position and least depth (fix #526, DN 198) were determined during dive operations.

The item located is an anchor chain laying flat on the bottom in a northwest-southeast orientation. Approximately 150 meters of chain is exposed, extending 15 to 30 centimeters off the bottom. Each link in the chain measures approximately 35 by 20 centimeters. No additional items were found after divers conducted a 5-meter circle search on each end of the exposed anchor chain. A pneumatic gauge least depth of 26.8<sup>1</sup> meters (corrected to ~~predicted~~ MLLW) was measured on the northwest end of the anchor chain at position 38°51'21.14<sup>5</sup>N, longitude 075°05'32.8<sup>0</sup>W".

The anchor chain found by divers fits the description of, and is identified as AWOIS #8425. AWOIS #8425 is currently charted as a "Obstrn rep 1989" at position 38°51'18.40"N, 075°05'45.45"W on charts 12214, ~~12216~~, and 12304. The anchor chain was the only significant contact located by WHITING inside the 200-meter search radius for AWOIS #8425.

WHITING recommends that the "Obstrn rep 1989" charted at latitude 38°51'18.40"N, longitude 075°05'45.45"W be deleted from all affected charts. Although this item is insignificant and not a danger to surface navigation, it does pose a problem to vessels that may anchor in this vicinity. WHITING recommends that this object be charted as an obstruction or ~~feal-bottom~~ with known depth at the position determined on this survey. CONCUR  
26.7m, (87 FT), 26' OBSTR,

N34. Contact #3505.76S

Reported Latitude: 38°47'56.40" N  
Reported Longitude: 074°59'39.57" W  
Source: H-10446  
Least Depth: 23<sup>8</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #3505.76S originates with ~~prior survey H-10446 (1992) and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 23<sup>8</sup> meters (23<sup>8</sup> Obstn (A)).~~ <sup>93).</sup>

Survey requirements were to verify or disprove the ~~23<sup>8</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior survey H-10446 (1992).~~

Contact #3505.76S was investigated and echosounding was used to pinpoint a drop position for divers. <sup>4388</sup> Once the item was located, a position and least depth (fix #528, position DN 199, least depth DN 202) were determined during dive operations.

A submerged obstruction was located in latitude 38°47'55.2<sup>8</sup><sub>5</sub>"N, longitude 074°59'40.08<sup>7</sup><sub>7</sub>"W with a pneumatic gauge least depth of <sup>23.4</sup> ~~22.7~~ meters (corrected to predicted MLLW). The surrounding depths are <sup>26.6</sup> ~~24.3~~ to <sup>26.2</sup> ~~25.5~~ meters (corrected to predicted MLLW). The item located is a structure buoy laying on its side, oriented east-northeast by west-southwest. The west-southwest end is sanded into the bottom and the buoy forms a slight angle with the horizontal. The top end of the buoy has approximately 2 meters of clearance off the bottom. A trawl net trails 3 meters above the buoy eastward from the top end of the buoy and is supported in the water column with 30-centimeter diameter plastic floats. The least depth is located at the east-southeast end on the top end of the buoy, approximately 3.4 meters above the bottom. Side scan sonargrams from ~~FE-38688~~ position an anchor block approximately 35 meters from the sunken buoy, bearing 325°T. The anchor block is a less significant target.

WHITING recommends that the ~~23<sup>8</sup> Obstn (A) be deleted and an obstruction with a known least depth by diver of 22.7 meters~~ <sup>23.4</sup> be charted at latitude 38°47'55.2<sup>8</sup><sub>5</sub>"N, longitude 074°59'40.08<sup>7</sup><sub>7</sub>"W. <sup>CONCUR</sup>  
\*(TIFT), 23<sup>4</sup> OBSTN,  
SEE ALSO SECTION I.D. OF THE EVALUATION REPORT.

N35. Contacts #3505.55S and #3111.02S

Reported Latitude: 38°47'53.61" N (#3505.55S)  
Reported Longitude: 074°59'37.33" W

Reported Latitude: 38°47'52.57" N (#3111.02S)  
Reported Longitude: 074°59'37.36" W

Source: H-10446  
Least Depth: 23<sup>7</sup> for 3505.55S and 23<sup>4</sup> for 3111.02S  
side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstr (A))~~

Contacts #3505.55S and #3111.02S originate with ~~prior~~ survey H-10446 (1992) and are ~~shown as~~ dangerous submerged obstructions.

Survey requirements were to verify or disprove the two <sup>CONTACTS</sup> ~~Obstr (A)~~ (23<sup>7</sup> for 3505.55S and 23<sup>4</sup> for 3111.02S) located by WHITING during prior survey H-10446 (1992<sup>93</sup>).

Contacts #3505.55S and #3111.02S were investigated with side scan sonar on the 50-meter range scale. WHITING determined that these contacts are the same item. A position was calculated for the single target using side scan sonar investigation records from survey FE-386SS. Echosounding was then used to pinpoint a drop position for divers. <sup>2369</sup> Once the item was located, a position and least depth (fix #529, position DN 199, least depth DN 201) were determined during dive operations.

A submerged obstruction was located in latitude 38°47'52.37"N, longitude 074°59'37.52"W with a pneumatic gauge least depth of <sup>23</sup>23.5 meters (corrected to predicted MLLW). The surrounding depths are 24.5 to 26.0 meters (corrected to ~~predicted~~ MLLW). The item located is a structure buoy laying on its side, oriented north-northeast by south-southwest. The buoy's counterweight is on the south-southwest end and is sanded into the bottom. The least depth stands approximately 1.2 meters off the bottom on the edge of a big scour area. Side scan sonargrams from FE-386SS position an anchor block approximately 30 meters from the sunken buoy, bearing 140°T. The anchor block is a less significant target.

WHITING recommends that the ~~Obstr (A)~~ for contacts #3505.55S and #3111.02S be deleted and an obstruction with a known least depth by diver of <sup>23.5</sup>23.5 meters be charted at latitude 38°47'55.23"N, longitude 074°59'40.08"W. <sup>CONCUR</sup> <sub>37.63</sub> <sup>52.39</sup>

SEE ALSO SECTION I.D. OF THE EVALUATION REPORT.



N36. Contact #1580.10S

Reported Latitude: 38°47'36.19" N  
Reported Longitude: 075°01'22.47" W  
Source: H-10446  
Least Depth: 21<sup>5</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #1580.10S originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) ~~and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 21<sup>5</sup> meters (21<sup>5</sup> Obstn (A))~~.

Survey requirements were to verify or disprove the ~~21<sup>5</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992<sup>93</sup>).

Contact #1580.10S was investigated with additional side scan sonar lines (fixes 164-171, FE-386SS) and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #530, DN 203) were determined during dive operations. <sup>4390</sup>

A submerged obstruction was located in latitude 38°47'35.6<sup>5</sup>°N, longitude 075°01'22.90°W with a pneumatic gauge least depth of 21.4<sup>5</sup> meters (corrected to predicted MLLW). The surrounding depths are 22.5<sup>0</sup> to 25.0<sup>0</sup> meters (corrected to predicted MLLW). The item located is a structure buoy laying on its side, oriented on an east-west axis. The buoy's counterweight is on the western end and has an undamaged 55-gallon drum labeled "lube oil" wedged underneath. The least depth is located on the eastern end at the top of the buoy; the least depth is approximately 2.4 meters off the bottom.

Side scan sonargrams from ~~FE-386SS~~ show two additional buoys and two anchors within a western, 50-meter half-circle centered on the position for contact #1580.10S. Another buoy is found approximately 60 meters from contact #1580.10S, on a bearing of 060° T. Item #1580.10S is the most significant contact in the cluster. The grouping of contacts is less than 3.3 millimeters in size (centered on contact #1580.10S) at a charted scale of 1:40,000. The cluster can be represented by charting contact #1580.10S alone, as described in section 7.3.3 of the Field Procedures Manual (FPM) for Hydrographic Surveying. <sup>CONCUR</sup>

WHITING recommends that ~~the 21<sup>5</sup> Obstn (A) be deleted and an obstruction with a known least depth by diver of 21.54 meters be charted at latitude 38°47'35.6<sup>5</sup>°N, longitude 075°01'22.90°W.~~ <sup>CONCUR</sup>  
\*(10 FT), 21<sup>4</sup> OBSTR,

SEE ALSO SECTION I.D. OF THE EVALUATION REPORT.

N37. Contacts #3499.06S and #3506.34S

Reported Latitude: 38°48'03.44" N (#3499.06S)  
Reported Longitude: 074°59'46.57" W

Reported Latitude: 38°48'02.40" N (#3506.34S)  
Reported Longitude: 074°59'44.77" W

Source: H-10446  
Least Depth: 23<sup>1</sup> for 3499.06S and 24<sup>0</sup> for 3506.34S  
side scan sonar estimated

Datum: NAD 83  
Feature: dangerous submerged obstruction  
(~~Obstn (A)~~)

Contacts #3499.06S and #3506.34S originate with ~~prior~~ survey H-10446 (1992) and are ~~shown as~~ dangerous submerged obstructions.

Survey requirements were to verify or disprove the two <sup>CONTACTS</sup> ~~Obstn (A)~~ (23<sup>1</sup> for 3499.06S and 24<sup>0</sup> for 3506.34S) located by WHITING during ~~prior~~ survey H-10446 (1992).

Both contacts were adequately investigated by the present survey. Echosounding was used to pinpoint a diver drop position for contact #3499.06S. Once the item was located, a position and least depth (fix #531, DN 203) were determined during dive operations. 4391

A submerged obstruction was located in latitude 38°48'02.91<sup>2</sup>N, longitude 074°59'46.74<sup>5</sup>W with a pneumatic gauge least depth of 22.2<sup>2</sup> meters (corrected to predicted MLLW). The surrounding depths are 23.9<sup>24.1</sup> to 24.9<sup>25.4</sup> meters (corrected to predicted MLLW). The structure buoy is laying on its side, oriented on an east-west axis. The top (east end) of the buoy extends approximately 2.4 meters off the bottom. The base of the buoy tapers into the bottom and has a large gaping hole.

Contact #3506.34S was located near its reported position by side scan sonar on the 50-meter range scale and is identified as an anchor block. Contact #3506.34S is approximately 40 meters from contact #3499.06S (sunken buoy), bearing 115°T. The anchor block is a less significant contact.

WHITING recommends that the ~~23<sup>1</sup> Obstn (A)~~ be deleted and an obstruction with a known least depth by diver of 22.2<sup>2</sup> meters\* be charted at latitude 38°48'02.91<sup>2</sup>N, longitude 074°59'46.74<sup>5</sup>W. CONCUR  
WHITING recommends that the ~~24<sup>0</sup> Obstn (A)~~ be deleted and contact #3506.34S not be charted as an obstruction. CONCUR

\*(13FT), 22<sup>2</sup>OBSTR,

SEE ALSO SECTION I. D. OF THE EVALUATION REPORT.

N38. Contact #654.04PS

Reported Latitude: 38°48'14.71" N  
Reported Longitude: 075°04'02.96" W  
Source: H-10446  
Least Depth: 14<sup>9</sup> m echosounder estimated  
Datum: NAD 83  
Feature: submerged obstruction  
(Obstn)

Contact #654.04PS originates with ~~prior~~ survey H-10446 (1992) and is ~~shown as~~ a submerged obstruction with an echosounder estimated least depth of 14<sup>9</sup> meters (14<sup>9</sup> Obstn).

Survey requirements were to verify or disprove the 14<sup>9</sup> Obstn located by WHITING during ~~prior~~ survey H-10446 (1992).

Contact #654.04PS was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #532, DN 176) were determined during dive operations.

A submerged wreck was located in latitude 38°48'14.<sup>80</sup>79"N, longitude 075°04'02.90"W with a pneumatic gauge least depth of 14.<sup>2</sup> meters (corrected to ~~predicted~~ MLLW). The surrounding depths are 14.9 meters to 18.5 meters. Divers found extensive wreckage consisting of metal plating and twisted metal beams. Diver gauge measurements were observed at numerous suspect least depth sites throughout the wreck. All of the sites measured were either equal to, or deeper than the diver's gauge observed depth at the site of the pneumatic gauge measurement. However, divers are uncertain that the entire wreck was investigated due to conditions of limited visibility.

The item found by divers at latitude 38°48'14.<sup>80</sup>79"N, longitude 075°04'02.90"W, ~~during survey FE-386SS~~ fits the description of and is identified as AWOIS #1145, the GYPSUM PRINCE. This item was the only significant contact located by WHITING inside the search radius for AWOIS #1145. AWOIS #1145 is currently charted as a dangerous "Wreck" cleared to 40 feet at position 38°48'17.20"N, 075°04'02.84"W on charts 12214, 12216, and 12304.

The hydrographer believes that given the very low visibility and the very high currents, the large size of the wreck and the fact that the item was demolished by blasting to a jumble of wreckage, it is impossible to determine a least depth over this wreck with divers or with a vertical beam echosounder. CONCOR

~~WHITING recommends that the 14.<sup>2</sup> pneumatic depth gauge depth supersede the 14<sup>9</sup> Obstn shown on survey H-10446 and that the 40-foot wire drag clearance from H-9758 WD be brought forward~~  
SEE NEXT PAGE FOR CHARTING RECOMMENDATION.

~~onto surveys FE-386SS and H-10446. WHITING recommends that the dangerous "Wreck" cleared to 40-foot charted at latitude 38°48'17.20"N, longitude 075°04'02.84"W be removed from all affected charts, <sup>REMOVED</sup> AND THE 14' OBSTN AND BE CHARTED. A dangerous wreck cleared to 40-foot should be charted at the FE-386SS position of 38°48'14.79"N, 075°04'02.90"W on all affected charts. CONCUR~~

IT IS ALSO RECOMMENDED THAT A WRECK WITH A KNOWN DEPTH OF 14' m, (46 FT) 14'WK, AND AREA LIMITS, BE CHARTED AS SHOWN ON PRESENT SURVEY.  
N39. Contact #1260.40S

Reported Latitude: 38°48'29.25" N  
Reported Longitude: 075°02'53.69" W  
Source: H-10446  
Least Depth: 24<sup>1</sup> m echosounder estimated  
Datum: NAD 83  
Feature: submerged obstruction  
(Obstn)

Contact #1260.40S originates with ~~prior~~ survey H-10446 (1992) <sup>93)</sup> and is ~~shown as~~ a submerged obstruction with an echosounder estimated least depth of 24<sup>1</sup> meters (24<sup>1</sup> Obstn).

Survey requirements were to verify or disprove the 24<sup>1</sup> Obstn located by WHITING during ~~prior~~ survey H-10446 (1992) <sup>93)</sup>.

Contact #1260.40S was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #539, DN 226) were determined during dive operations. 4389

A submerged derrick barge was located in latitude 38°48'29.34<sup>5</sup>N, longitude 075°02'54.13"W with a pneumatic gauge least depth of 22.76 meters (corrected to predicted MLLW). The average surrounding depth is 28 meters. Divers found the submerged derrick barge laying northeast-southwest, approximately 12.2 meters wide and 27.4 meters long. Divers found the least depth near the southwest end of the barge. The pneumatic gauge least depth was taken on a pipe extending 1 meter above the center axle of the turning gear for the crane. The gear is approximately 4.6 meters in diameter and is laying flat on the deck of the barge. There is a house cabin approximately 4.5 meters northeast of the gear, with a diver's gauge least depth of 24.4 meters. An anchor windlass is located approximately 4.5 meters to the northeast of the house cabin. The windlass has line leading from a gypsy head into the bottom in a southeasterly direction.

The item found by divers at latitude 38°48'29.34<sup>5</sup>N, longitude 075°02'54.13"W, during survey FE-386SS fits the description of and is identified as AWOIS #8226, the MARS 54 barge. This barge was the only significant contact located by WHITING inside the search radius for AWOIS #8226. AWOIS #8226 is currently charted as a

dangerous 75-foot cleared least depth "Wreck" at position 38°48'28.99"N, 075°02'53.72"W on charts 12214, 12216, and 12304.

WHITING recommends that the 24<sup>1</sup> *Obstn* from H-10446 be deleted, and that the dangerous "Wreck" cleared to 75 feet charted at position 38°48'28.99"N, 075°02'53.72"W be deleted from all affected charts. A wreck with a known least depth by diver of 22.7<sup>6</sup> meters\* should be charted at latitude 38°48'29.34<sup>5</sup>N, longitude 075°02'54.13"W. *CONCUR*  
\*(74 FT), 22<sup>6</sup>WK,

N40. Contact #1396.83P

Reported Latitude: 38°48'45.40" N  
Reported Longitude: 075°02'51.03" W  
Source: H-10446  
Least Depth: 22<sup>9</sup> m side scan sonar estimated  
Datum: NAD 83  
Feature: dangerous submerged obstruction  
~~(Obstn (A))~~

Contact #1396.83P originates with ~~prior~~ survey H-10446 (1992<sup>93</sup>) and is shown as a dangerous submerged obstruction with a side scan sonar estimated least depth of 22<sup>9</sup> meters ~~(22<sup>9</sup> Obstn (A))~~.

Survey requirements were to verify or disprove the ~~22<sup>9</sup> Obstn (A)~~ <sup>CONTACT</sup> located by WHITING during ~~prior~~ survey H-10446 (1992<sup>93</sup>).

Contact #1396.83P was investigated and echosounding was used to pinpoint a drop position for divers. Once the item was located, a position and least depth (fix #540, DN 227) were determined during dive operations. <sup>4440</sup>

A submerged crane was located in latitude 38°48'45.44"N, longitude 075°02'51.41"W with a pneumatic gauge least depth of 22.5<sup>3</sup> meters (corrected to predicted MLLW). The average surrounding depth is 28.7 meters. Divers found a submerged crane laying northeast-southwest, approximately 40 meters long. Divers found the least depth on the northwest end, near the crane's counterweight. The crane tapers into the sand to the southwest.

The item found by divers at latitude 38°48'45.44"N, longitude 075°02'51.41"W ~~during survey FE-386SS~~ fits the description of and is identified as AWOIS #8227, the MARS 54 crane. This crane was the only significant contact located by WHITING inside the search radius for AWOIS #8227. AWOIS #8227 is currently charted as a dangerous 65-foot cleared least depth "Obstr" at position 38°48'45.07"N, 075°02'51.14"W on charts 12214, 12216, and 12304.

WHITING recommends that the ~~22<sup>9</sup> Obstn (A)~~ from H-10446 be deleted, and that the dangerous "Obstr" cleared to 65 feet charted at

position 38°48'45.07"N, 075°02'51.14"W be deleted from all affected charts. <sup>OBSTRUCTIONS</sup> A wreck with a known least depth by diver of 22.5<sup>3</sup> meters\* should be charted at latitude 38°48'45.44"N, longitude 075°02'51.41"W. CONCUR  
\*(TSF), 223 OBSR,

O. COMPARISON WITH THE CHART SEE ALSO SECTION 7.9. OF THE EVALUATION REPORT.

The charted hydrography originates with prior surveys previously discussed in the Evaluation Report for H-10446 (1992) and requires no further consideration.

There were no previously unknown dangers to navigation located during this survey warranting a Notice to Mariners.

P. ADEQUACY OF SURVEY SEE ALSO SECTION 9. OF THE EVALUATION REPORT.

This survey is complete and adequate to resolve the included items assigned for the purpose of supplementing survey H-10446 (1992), and for updating the charts of the survey area.

Q. AIDS TO NAVIGATION SEE ALSO SECTION 7.10. OF THE EVALUATION REPORT.

The floating aids to navigation located in the survey area were adequately discussed in the Evaluation Report for H-10446 (1992).

R. STATISTICS

Number of Positions.....	342
Main-scheme Sounding Lines (Nautical Miles).....	28.7
Crosslines (Nautical Miles).....	None
Square Nautical Miles Surveyed.....	1.1
Days of Production.....	87
Detached Positions.....	39
Bottom Samples.....	10
Tide Stations Installed.....	None
Current Stations.....	None
Number of CTD Casts.....	2
Magnetic Stations.....	None

S. MISCELLANEOUS

No anomalies in either tide or current and/or unusual magnetic variations were encountered in the survey area. Ten bottom samples were taken to supplement findings from prior survey H-10446. The oceanographic log sheet is included in the separates

submitted with this survey. Bottom samples were not submitted to the Smithsonian Institution.

T. RECOMMENDATIONS SEE ALSO SECTION 9. OF THE EVALUATION REPORT.

All sounding data meets 1:20,000 accuracy standards. Positions determined for wrecks and obstructions meet 1:10,000 accuracy standards and can be applied to a chart of the same scale.

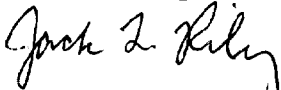
Recommendations concerning specific items are located in section N of this report.

U. REFERRAL TO OTHER REPORTS

The following reports have been submitted to N/CG244 and will be forwarded to N/CG243 as part of OPR-D368-WH-93:

Coast Pilot Report  
Chart Inspection Report  
User Evaluation Report

Submitted by:



Jack L. Riley, ENS, NOAA

#1

### ITEM INVESTIGATION REPORT

~~386SS~~  
SURVEY FE-386SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12214 Edition 37th Date 6/27/92

DESCRIPTION/SOURCE: H-10446 (3128.825)

HISTORICAL POSITION: Latitude 38°46'23.8"  
(H-10446) Longitude 074°58'39.5"  
Datum NAD 83

SSS POSITION: Lat 38°46.3950'N  
1.635 Long 074°58.6600'W  
~~88.903~~  
90.613

#### SURVEY REQUIREMENTS:

#### METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers SEITZ, VERNAUER, BERNKOWITZ  
Time of Dive: Commenced 1654 Z Completed 1720  
Current .25 E Visibility 1' Bottom Type MUD-SILT

RESULTS OF INVESTIGATION: DIVERS DESCENDED BUOY #1 DROPPED @ SSS POSITION ABOVE. CONDUCTED A 50' CIRCLE SEARCH AND FOUND CONCRETE BOULDER 45' EAST OF BUOY DROP. DIMENSIONS 5' DIAMETER 3'-3 1/2' OFF BOTTOM. MAN-MADE CONCRETE BOULDER. DIVER LEAST DEPTH 60'. NO OTHER CONTACTS AROUND BOULDER.

POSITION: Date (M/D/Y) 6/6/93 Time (UTC) 175450 Position No. 4360  
38°46'23.70"N Latitude 38°46.3950'N Longitude 074°58.6600'W  
74°58'39.61"W 38°46'23.70" 074°58'39.61"  
CORAN C: CR1 ( 9960 ) W: 157919 X: 271118 Y: 426238 Z: 592337  
SNR 903 930 908 934 689

LEAST DEPTH: Date (M/D/Y) 6/7/93 Time (UTC) 1711Z  
Method of Least Depth: Pressure  
Measured Least Depth: 1.60.8 2.60.4 3.60.4 Avg. 60.6 Units FT  
Corrected Least Depth 17.87 Units meters (predicted tides) (58 FT)  
uncorrected (18.5m)

#### CHARTING RECOMMENDATION

SEE SECTION N1., PAGE 43 OF THIS REPORT.



#30#2

~~Now position numbers~~ ~~4361 = 501 = 16.8 Reduced to MLLW~~  
~~4362 = 502 = 16.8 Reduced to MLLW~~  
~~4360 = 500 = 20.8 Reduced to MLLW~~

### ITEM INVESTIGATION REPORT

FE-386SS

SURVEY ~~FE-386SS~~

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12214 Edition 37th Date 6/27/92

DESCRIPTION/SOURCE: H-10446 (3128.865)

HISTORICAL POSITION: Latitude 38°46'24.04"N SSS POSITION: Lat 38°46.3967'N  
(H-10446) Longitude 074°58'40.62"W 1.675 Long 074°58.6767'W  
Datum NAD 83 90.665 (3128.865)

#3 WEST END

SURVEY REQUIREMENTS: LEAST DEPTH, DESCRIPTION. 1.665 LAT: 38°46.397'N  
90.695 LON: 74°58.668'W

#2 EAST END

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) \_\_\_\_\_

DIVE DATA: Divers BENKOWITZ, VERLAKVIC  
Time of Dive: Commenced 1539 Completed 1626  
Current 0.2E Visibility 1-2'; 3-4' Bottom Type SILT, SAND

RESULTS OF INVESTIGATION: DIVERS DESCENDED BUOY #3 ON TO WESTERN EDGE  
OF A WRECKAGE; 5-6' OFF BOTTOM, LEAST DEPTH DIVER GAUGE SB MAJORITY OF WRECK  
SCATTERED  
SANDED IN, SOME METAL FRAMING ON WEST END, MOSTLY WOOD. BOTTLES SCATTERED IN WRECK AREA,  
TUBES BROUGHT TO SURFACE. BOTTLES HAD PRINTING ON BOTTOM "BRISTOL N.H. BRICKETS & CO. GLASSWORKS"  
SWEET SEARCH TO EAST END OF WRECKAGE LOCATED CONCRETE MOUND, LIKE A BOULDER 3-4' OFF BOTTOM, 1' DIAM.  
DIVER DEPTH 60'. (SUSPECT BUOY SITE 2). MAJORITY OF WRECK STOOD 3' OFF BOTTOM, TAPERING IN TO SAND ON  
EAST END. MAXIMUM BREADTH 10M. MAIN, WEST END STOOD 5-6' OFF BOTTOM. ORIENTATION OF WK 260/080 DEG.

\*CHAIN LINK (ANCHOR CHAIR?) ALSO LOCATED ON WEST END OF WRECKAGE; SUSPECT BOW. 4361  
POSITION: Date (M/D/Y) 6/7/93 Time (UTC) 165432 Position No. D2102 (SD1)  
Latitude 38°46.4031'N Longitude 074°58.6688'W  
(38°46.4019'N) (074°58.6614'W)  
LORAN C: CRE (9960) W: 15782.6 X: 2776.0 Y: 426839 Z: 59233.7  
920 273 920 943 750

LEAST DEPTH: Date (M/D/Y) 6/7/93 Time (UTC) 16203  
Method of Least Depth: PNEUMO  
Measured Least Depth: 1. 58.8 2. 59.0 3. 58.8 Avg. 58.8 Units FT  
Corrected Least Depth 58.8 Units 58.8 (predicted tides) (55 FT)  
uncorrected (17.90m)

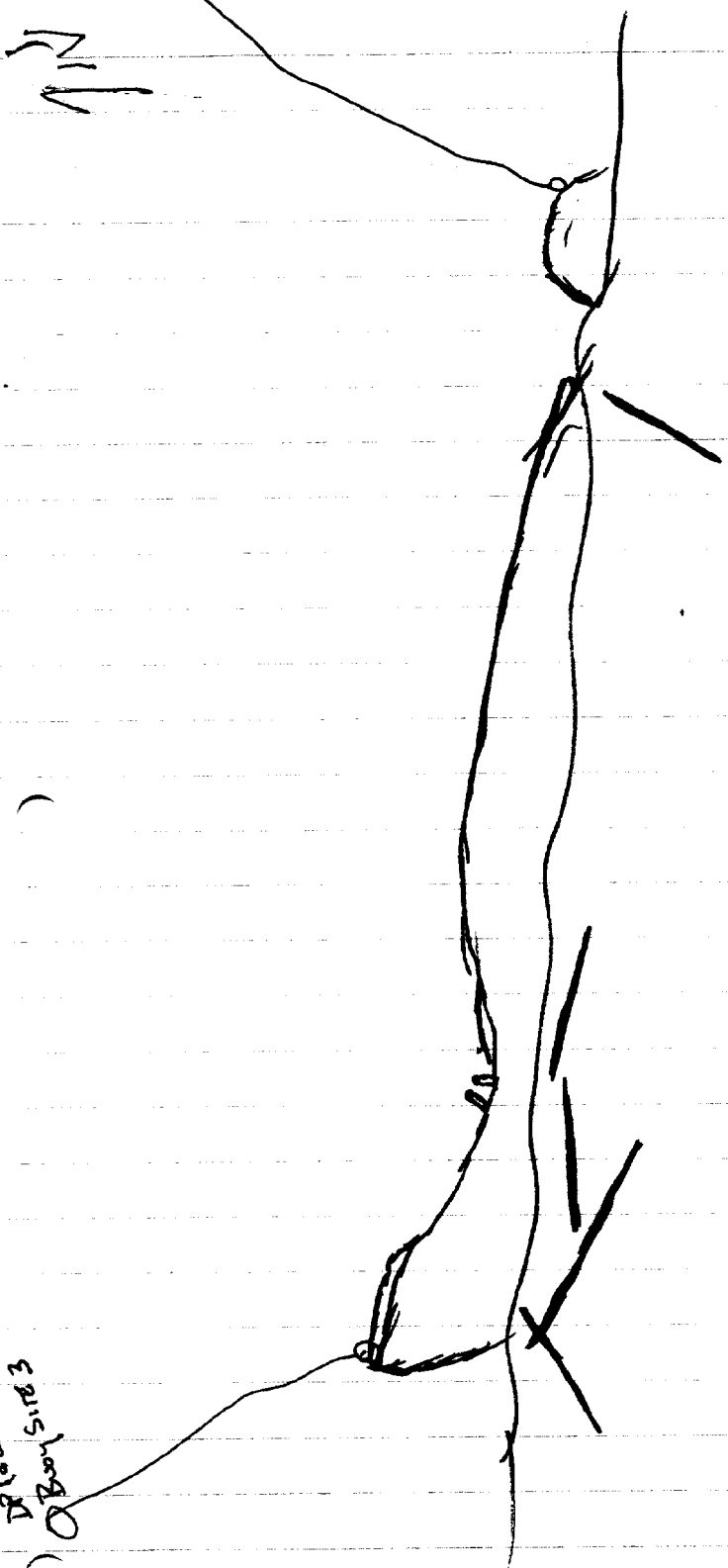
#### CHARTING RECOMMENDATION

SEE SECTION N2., PAGE 43 OF THIS REPORT  
WIK Reduced to a 16.8 = MLLW  
OK 268

Baum 51183

11/11

DP 102  
Baum 51183



(67)

~~FS/PMC 10/05/13-~~  
~~H-10446 (3128 86 - Rind)~~  
~~FE 386 = 5015502 309 158~~  
~~FE 386 DP 102 - pos no sat~~  
~~FE 386 DP 102 - pos no sat~~

~~FIX 503 IS NOW 4363~~  
~~PLOTTED 22.7 Reduced to MLLW~~

### ITEM INVESTIGATION REPORT

FE-386SS

SURVEY ~~FE-380SS~~

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12214 Edition 37th Date 6/27/92

DESCRIPTION/SOURCE: H-10446 (2322.86S)

HISTORICAL POSITION: Latitude 38°47'42.48"N SSS POSITION: Lat 38°47.7175'N  
Longitude 074°58'37.17"W 83.36S Long 074°58.6392'W  
Datum NAD 83 (85.69S)

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

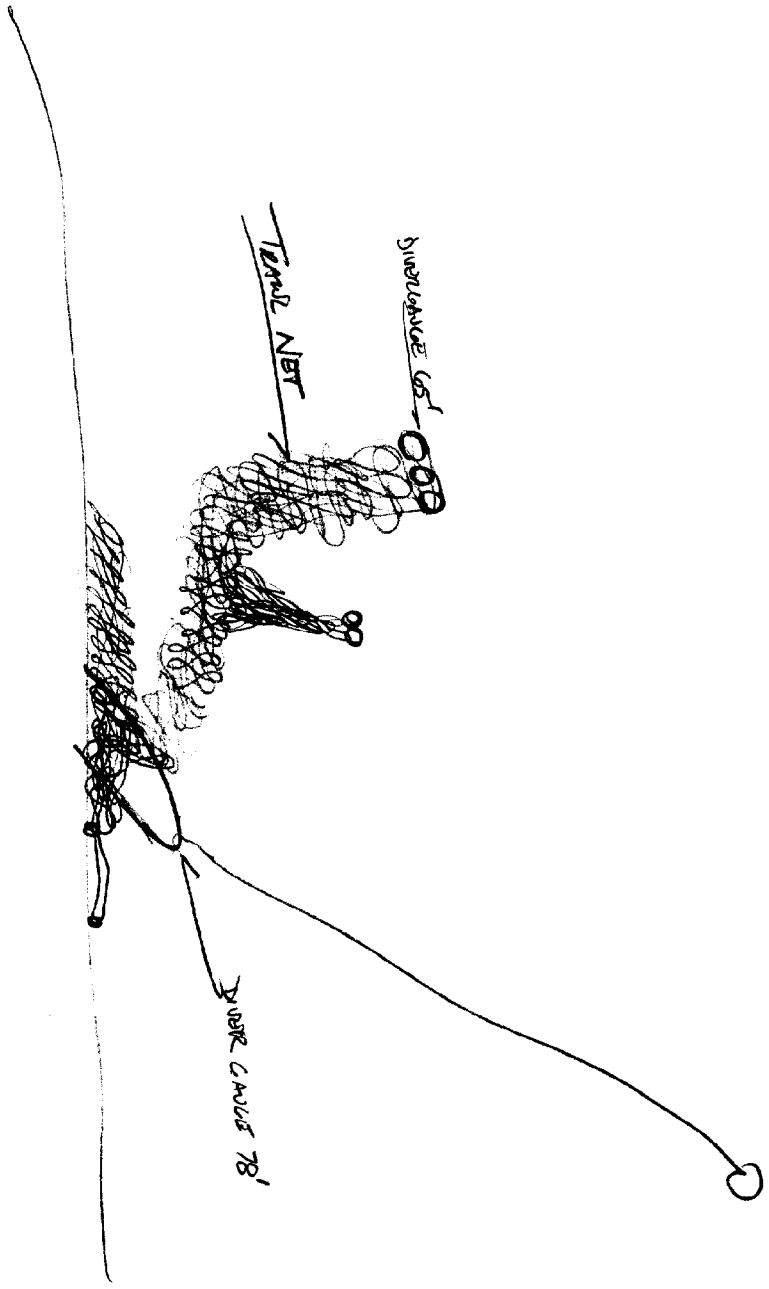
DIVE DATA: Divers Riley, Veronique  
Time of Dive: Commenced 1654 Z Completed 1718 Z  
Current \_\_\_\_\_ Visibility 0-1 Bottom Type SILT & SHELL

RESULTS OF INVESTIGATION: DIVERS DESCENDED A BUOY DROPPED ON ABOVE SSS POSITION. DIVERS CONDUCTED A 25 FT RADIUS CIRCLE SEARCH AND FOUND A PROPELLER BLADE MADE OF (BRASS)? THE BLADE PROTRUDED FROM THE BOTTOM AT AN ANGLE OF 45°. THE WIDTH OF THE BLADE WAS 4 FT, LENGTH 6 FT. ATTACHED TO THE PROP BLADE WAS A TRAWL NET WHICH EXTENDED 17 FT OFF THE BOTTOM. BOTTOM DEPTH WAS 83 FT. DIVER LEAST DEPTH ON PROP, 78 FT, ON NET 65 FT. SEVERAL ORANGE FLOATS SUSPENDED NET IN WATER COLUMN. WITHIN 20 FT OF PROP. BLADE A <sup>submerged</sup> TELEPHONE CABLE WAS SPOTTED. APPROXIMATELY 5-10 FT OF CABLE WAS EXPOSED. NO OTHER CONTACTS WERE LOCATED

POSITION: Date (M/D/Y) 6/8/93 Time (UTC) 1736.12 Z Position No. 4363  
38 47 43.35 X Latitude 38°47.7223 N Longitude 074°58.6392 W  
74 58 38.07 X (ORAN-C: GRI) 990 ) W. 1572.8 X. 27115.0 Y. 42638.7 Z. 59239.9  
MASTER 890 460 880 940 730

LEAST DEPTH: Date (M/D/Y) 6/8/93 Time (UTC) 1704 Z  
Method of Least Depth: PNEUMO 78.2 78.2  
Measured Least Depth: 78.2 3 Avg. 78.2 Units FT  
Corrected Least Depth: 78.2 Units meters (predicted tides)  
Uncorrected (23.8 m) → 22.7 Reduced to MLLW

CHARTING RECOMMENDATION  
SEE SECTION N.3., PAGE 44 OF THIS REPORT. (74 FT)  
OBSTN  
(80)



~~504 IS NOW 4364~~ ~~12760~~

#2

### ITEM INVESTIGATION REPORT

FE-386SS

SURVEY ~~FE-388SS~~

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12214 Edition 37th Date 6/27/92

DESCRIPTION/SOURCE: H-10446 (2345.12 PS)

HISTORICAL POSITION: Latitude 38°48'00.24"N SSS POSITION: Lat 38°48.0108'N  
Longitude 074°58'48.62"W 79.445 Long 074°58.8100'W  
Datum NAD83 (81.535)

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder        Side Scan        Diver X Other (specify)       

DIVE DATA: Divers VERLAQUE, RILEY

Time of Dive: Commenced 1813 Z Completed 1842 Z

Current 0.5 EBB Visibility 1-2 FT Bottom Type SILT

RESULTS OF INVESTIGATION: <sup>ABOVE</sup> DIVERS DESCENDED BUOY DROPPED ON SSS POSITION. THE BUOY WAS DROPPED NEAR THE SOUTHWEST END OF THE OBJECT. DIVERS FOUND A METAL STRUCTURE RESEMBLING A CRANE BOOM. DIVERS SWAM NORTHEAST ALONG STRUCTURE WHICH TAPERED INTO THE BOTTOM. LEAST DEPTH TAKEN AT SOUTHWEST END WHICH STOOD 5-6 FT OFF BOTTOM. DIVER GAUGE LEAST DEPTH, WAS 52 FT.

POSITION: Date (M/D/Y) 6-8-93 Time (UTC) 1830 Position No. 243-4

38 48 00.51  
74 58 48.61  
Latitude 38°48.0084'N Longitude 074°58.8701'W (674°58'48.61")  
LORAN C: CHI (9960) W: 15705 X: 27164 Y: 42449 Z: 59240.8  
MASTER 890 340 880 910 650

LEAST DEPTH: Date (M/D/Y) 6-8-93 Time (UTC) (1830)

Method of Least Depth: PNEUMO

Measured Least Depth: 1. 52.4 2. 52.7 3. 52.6 Avg. 52.6 Units FT

Corrected Least Depth 52.6 Units meters (predicted tides)

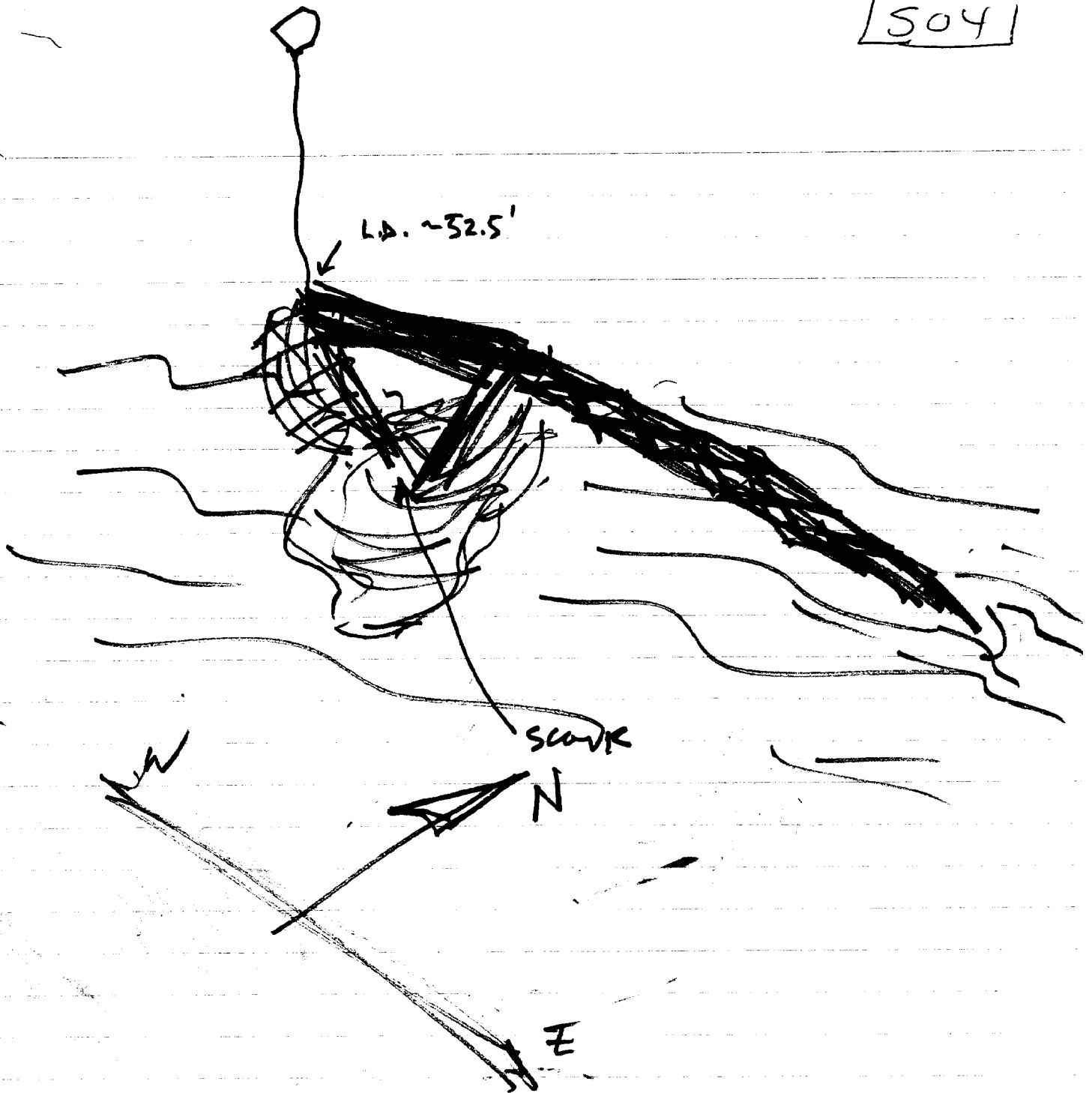
uncorrected (10.0 m) 15.0 Reduced to MLLW  
(50 FT)

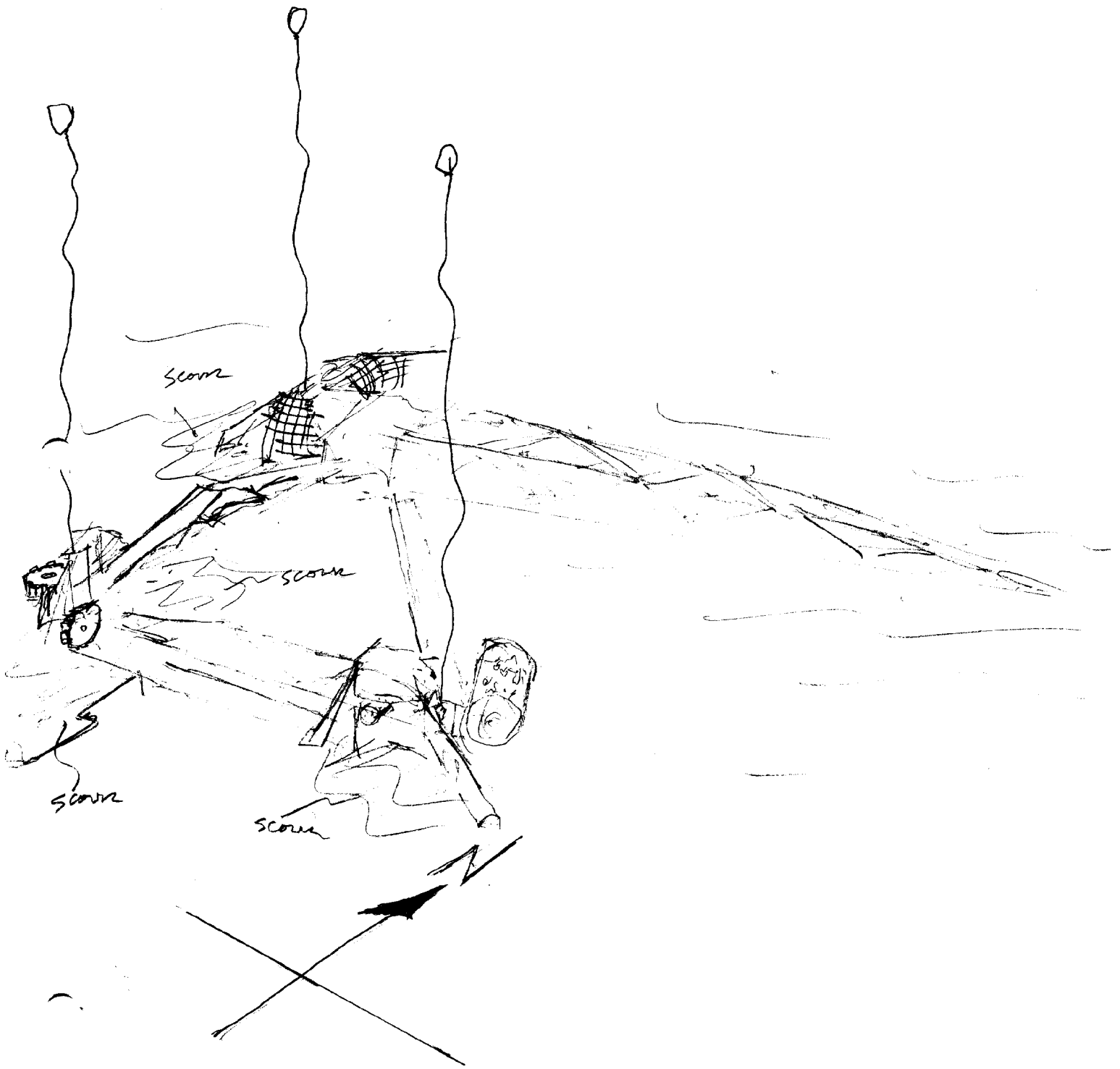
CHARTING RECOMMENDATION

SEE SECTION N<sup>o</sup>., PAGE 45 OF THIS REPORT.

(82)

15041





DIVER SKETCH

84

### ITEM INVESTIGATION REPORT

FE-386SS

SURVEY ~~FE-386SS~~

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (3183.565)

OBJECT NAME 3183.565:

HISTORICAL POSITION: Latitude 38° 49' 16.4" N  
Longitude 075° 01' 33.0" W  
Datum NAD 83

SSS POSITION: Lat 38° 49.2717' N  
Long 075° 01.5650' W

27.46P  
31.03P  
33.34S

3183.565  
Lat 38° 49.2950' N  
Long 075° 01.5511' W

SURVEY REQUIREMENTS:

27.45P  
31.05P  
33.33S

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY, VERLAQUE

Time of Dive: Commenced 1930Z Completed 1948S

Current 0.2E Visibility 10' Bottom Type LT SAND

RESULTS OF INVESTIGATION:

DIVERS DESCENDED ONTO NUO BOOY (3183.565) STANDING VERTICALLY OFF BOTTOM 12'-14'. BOOY-SOUNDING 3' SURROUNDING BOTTOM DEPTHS 54'-56'. DIVERS CONDUCTED A 25-M CIRCLE SEARCH.

LOCATED CHAIN TOPPED IN 3' DIAMETER TENDING INTO SAND; 9' OFF

BOTTOM HEADING 060° AMC FROM BOOY; 20M FROM BOOY. (3183.565) DIVER GAGE ON BOOY 43'. LEAST DEPTH BY PNEUMO TAKEN HERE. DIVER GAGE ON CHAIN 53'. 6/10/93

POSITION: Date (M/D/Y) 6/10/93 Time (UTC) 1532Z Position No. FIX # 506

Latitude 38° 49.2717' N Longitude 75 01.5650' W  
UNCORRECTED (13.1m) 996 W: 15805.7 X: 27135.0 Y: 42654.6 Z: 59238.0

LEAST DEPTH: Date (M/D/Y) 6/10/93 Time (UTC) 1940Z

Method of Least Depth: PNEUMO  
Measured Least Depth: 1. 42.8 2. 43.0 3. 43.0 Avg. 43.0 Units FT  
Corrected Least Depth 13.1 Units meters (predicted tides) (4 FT)  
uncorrected (13.1m) Reduced to 12.2 meters

CHARTING RECOMMENDATION

SEE SECTION N5., PAGE 46 OF THIS REPORT.



ITEM INVESTIGATION REPORT

FE-386SS

SURVEY ~~FE-386SS~~

Item Number 8228

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) Y

Chart No. (largest scale) 12216 Edition 3rd Date 2/20/92

DESCRIPTION/SOURCE: H-10446 (1469.415); CL 470/83

HISTORICAL POSITION: Latitude 38°48'56.66" N POSITION: Lat 38°48.9500' N  
Longitude 075°02'51.38" W (50.765) Long 075°02.8575' W  
Datum NAD 83 58.64 P

(H-10446)

SURVEY REQUIREMENTS: Least depth

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) \_\_\_\_\_

DIVE DATA: Divers Riley Verlaque

Time of Dive: Commenced 1752 Completed 1808

Current 0.2 F Visibility 3-5' Bottom Type PEBBLES/SAND

RESULTS OF INVESTIGATION: DIVERS DESCENDED BODY ONTO WIK

SOUTH SIDE. BULKHEAD - SUSPECT SIDE OF VESSEL - WOODEN TOP OF BULKHEAD  
STOOD 10' OFF BOTTOM. DIVER GAUGE 80' ON SE CORNER RIBS NW-SE DIRECTION  
OTHER SIGNIFICANT CORNER N-W CORNER 12' OFF BOTTOM - 80' DIVER  
GUAGE. E-W ORIENTATION - ENDS TAPER INTO SAND.  
LEAST DEPTH 2.9? TAKEN ON N-W CORNER.



POSITION: Date (M/D/Y) 6/10/93 Time (UTC) 155845 Position No. 436  
Latitude 38°48'56.66" N Longitude 75°02.8575' W  
LORAN C1 C2P 9160 ) W: 5810.3 X: 27141.5 Y: 42652.1 Z: 59232.4  
578 905 995 785

LEAST DEPTH: Date (M/D/Y) 6/10/93 Time (UTC) 18032  
Method of Least Depth: PNEUMO  
Measured Least Depth: 1. 80.0 2. 80.0 3. 80.2 Avg. 80.0 Units FT  
Corrected Least Depth 23.8 units meters (predicted tides) (76 FT)  
uncorrected (24.4 m)

CHARTING RECOMMENDATION  
SEE SECTION 16. PAGE 46-47 OF THIS REPORT

**ITEM INVESTIGATION REPORT**

FE-386SS

SURVEY ~~FE-386SS~~

Item Number 1158

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) Y

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (2060.255); NM 53/36 (STEAMER 'LONG ISLAND')

HISTORICAL POSITION: Latitude 38°49'35.74" N SSS POSITION: Lat 38°49.5967' N  
 (2060.255) Longitude 075°02'34.73" W 39.58P Long 075°02.5833' W  
 Datum NAD 83 41.89P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY, BERKOWITZ

Time of Dive: Commenced 1403 UTC Completed 1428 UTC

Current 0.2 KNOTS Visibility 10' Bottom Type LT BAY SAND

RESULTS OF INVESTIGATION:

FOUND SCATTERED DEBRIS - METAL RAILING, 1" MANILLA LINE, FISH NETTING. NW OF APPROX. 20' NW OF RAILING, FOUND WOOD BEAMS AND A METAL RECTANGULAR COMPARTMENT APPROXIMATELY ~~PREDICTED~~ 3'x3' SQUARE ON PROJECTING EDGE, ABOUT 5' HIGH. APPROX. 35'  $\phi$  0.50" FROM RAILING FOUND <sup>LB SITE</sup> METAL COMPARTMENT, POSSIBLY PART OF STORM BOILER; EXTENDED ~16' OFF BOTTOM WITH A 4" DIAMETER PIPE/ELBOW ~~BOOM~~ PROTRUDING OUT OF COMPARTMENT. A LARGE ANCHOR WAS FOUND LEANING AGAINST THE WEST SIDE OF THE COMPARTMENT.

POSITION:

Date (M/D/Y) 6/19/93 Time (UTC) 192528 Position No. 4368 508 3

38°49'36.78" N

Latitude 38°49.5967' N Longitude 075°02.5920' W 075°02'34.32"

LORAN-C: GRI ( 9960 ) W: 15800.0 X: 27141.3 Y: 42657.6 Z: 59236.4

MASTER 950 S/N 580 999 910 770

LEAST DEPTH:

Date (M/D/Y) 6/19/93 Time (UTC) 1418

Method of Least Depth: PNEUMO

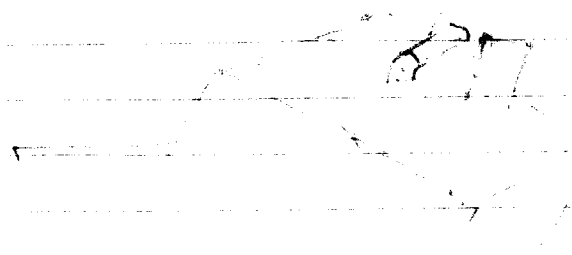
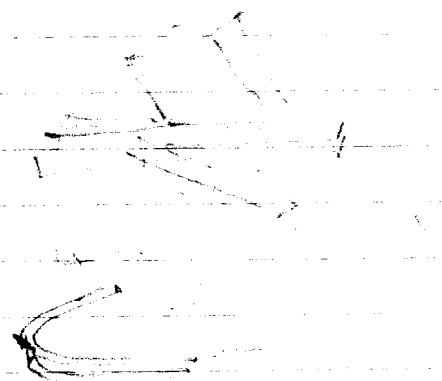
Measured Least Depth: 1. 74.2 2. 73.9 3. 74.0 Avg. 74.0 Units FT

Corrected Least Depth 21.8 Units meters (predicted tides) (71 FT)

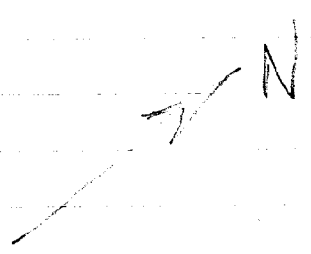
uncorrected (22.6m)

CHARTING RECOMMENDATION

SEE SECTION N 7, PAGE 48 OF THIS REPORT.



At 11:00



At 11:00  
Sketch

ITEM INVESTIGATION REPORT

SURVEY FE-38655

Item Number 1149

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) Y

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (3252.315); H9758/76 - OPR-SIS. R/H. 76 (MACOMBER) <sup>BF</sup>

HISTORICAL POSITION: Latitude 38°48'44.83"N SSS POSITION: Lat 38°48.7492'N  
(H-10446) Longitude 075°04'25.22"W 190.725 Longitude 075°04.4150'W  
Datum NAD 83 193.77P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY/SILVERMAN

Time of Dive: Commenced 1419 UTC Completed 1443 UTC

Current 0.1 kts Visibility 6 FT Bottom Type br S, slt, sh

RESULTS OF INVESTIGATION:

FOUND SCATTERED DEBRIS - WOOD BEAMS/PLANKS, HAWSER LINE (E-W dir) ON WEST END - METAL ANCHOR WINDLASS, METAL ENGINE PARTS  
LEAST DEPTH TAKEN ON LARGE METAL RECTANGULAR COMPARTMENT (CORNER/ EDGE UP) APPROXIMATELY 35FT W OF LD SITE, FOUND ANOTHER METAL COMPARTMENT LYING FLAT ON BOTTOM IN 65FT OF WATER MEASURING 3FT HIGH, 10FT SQUARE. DIVER GAUGE ON LEAST DEPTH APPROX. 57FT

POSITION:

38°48'45.11"

Date (M/D/Y) 6/20/93 Time (UTC) 145715 Position No. 4369  
Latitude 38°48.7497'N Longitude 075°04.4194'W 075°04.26.20  
LORAN-C: GRI ( 9960 ) W: 15817.0 X: 27149.6 Y: 42647.0 Z: 59226.4  
MASTER 940 S/N 575 999 900 770

LEAST DEPTH:

Date (M/D/Y) 6/20/93 Time (UTC) 1440  
Method of Least Depth: Automatic Acoustic  
Measured Least Depth: 1. 57.2 2. 57.2 3. 57.3 Avg. 57.23 Units FT  
Corrected Least Depth 16.54 Units meters (predicted tides) (54 FT)  
Uncorrected 17.4m

CHARTING RECOMMENDATION

SEE SECTION NB.) PAGE 49 OF THIS REPORT.

# ITEM INVESTIGATION REPORT

SURVEY FE-386SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (3491.645)

HISTORICAL POSITION: Latitude 38°46'39.35"N  
(H-10446) Longitude 075°01'09.97"W  
Datum NAD 83

SSS POSITION: Lat 38°46.6564'N  
145.54P Long 075°01.1687'W  
147.56S

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY / BERKOWITZ

Time of Dive: Commenced 1503 UTC Completed 1530 UTC

Current 0.5 KNOTS Visibility 4' Bottom Type drk Brns, SH

## RESULTS OF INVESTIGATION:

<sup>2 LARGE SECTIONS OF</sup>  
DIVERS DESCENDED ON A SUNKEN PIPELINE LAYING IN A NW-SE DIRECTION.  
SWIMMING ALONG THESE DIVERS LOCATED MORE PIPE TO THE WEST EAST.  
A LD WAS ACQUIRED ON A <sup>ON THE SEPARATE OF THE</sup> LARGELY FRACTURED METAL TANK EXTENDING UP 10'  
FROM THE BOTTOM AT A 45° ANGLE. TANK WAS ~6' DIAMETER WITH EVIDENCE  
OF LARGE FRACTURED ZONE WITH GAPING HOLES AND CRACKS

POSITION:  
38°46'39.45"

Date (M/D/Y) 06/21/93 Time (UTC) 161903 Position No. 4370  
Latitude 38°46.6570'N Longitude 075°01.1635'W 076°01'09.812  
LORAN-C: GRI ( 9960 ) W:15802.5 X:27126.5 Y:42628.3 Z:59227.0

LEAST DEPTH:

Date (M/D/Y) 6/21/93 Time (UTC) 1520

Method of Least Depth: PNEUMO

Measured Least Depth: 1. 71.0 2. 70.0 3. 70.5 Avg. 70.5 Units FT.

Corrected Least Depth 70.5 units meters (predicted tides) (67 FT)  
Uncorrected (21.6m)

## CHARTING RECOMMENDATION

SEE SECTION N9, PAGE 49 OF THIS REPORT

**ITEM INVESTIGATION REPORT**

**SURVEY** FE-38655

Item Number N/A Danger to Nav. Letter Issued (Y/N) N  
 Charted (Y/N) N  
 Chart No. (largest scale) 12216 Edition 23 rd Date 2/22/92

**DESCRIPTION/SOURCE:** H-10446 (3474.40P: ANCHOR, 3474.26S: BUOY)

**HISTORICAL POSITION:** <sup>Anchor:</sup> Latitude 38°47'14.90"N (3474.40P) Longitude 075°03'30.46"W H-10446 Datum NAD 83  
**SSS POSITION:** <sup>Anchor:</sup> Lat 38°47.2400'N Long 075°03.5125'W  
229.565  
231.755

**SURVEY REQUIREMENTS:** LEAST DEPTH

<sup>Buoy:</sup> Lat 38°47.2183'N Long 075°03.0025'W  
229.665  
231.645  
075°03.4858'W

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers Rivoy / BERKOWITZ  
 Time of Dive: Commenced 1510 UTC Completed 1626 UTC  
 Current 0.2 kts Visibility 5' Bottom Type drk Br S, Sh, P

**RESULTS OF INVESTIGATION:**

Buoy (3474.26S) FOUND LAYING ON SIDE IN A NNW-SSE ORIENTATION APPROXIMATELY 7 FEET HIGH. BUOY WAS A STRUCTURE BUOY WITH NO EVIDENCE OF A COUNTERWEIGHT BELOW THE FLOAT - CHAIN LED FROM A PAD EYE MOUNTED ON THE SIDE OF THE FLOAT AND INTO THE BOTTOM. DIVER GAUGE LEAST DEPTH OF 59' AT 1530 UTC.

**POSITION:** Date (M/D/Y) 6/22/92 Time (UTC) 142842 Position No. 4371  
38°47'13.56"N Latitude 38°47.2259'N Longitude 075°03.4825'W 075°03'28.95" W  
 LORAN-C: GRI ( 9960 ) W: 15812.2 X: 27140.7 Y: 42630.2 Z: 59222.2  
 MASTER 915 S/N 530 970 920 730

**LEAST DEPTH:** Date (M/D/Y) 6/22/92 Time (UTC) 1530  
 Method of Least Depth: PNEUMO  
 Measured Least Depth: 1. 59.1 2. 58.8 3. 58.8 Avg. 58.9 Units ft  
 Corrected Least Depth 16.98 Units meters (predicted tides) (55FT)  
 Uncorrected (18.0m)

**CHARTING RECOMMENDATION** as appropriate  
 SEE SECTION N 10.) PAGE 50 OF THIS REPORT.

ITEM INVESTIGATION REPORT

SURVEY FE-386SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (728.805)

HISTORICAL POSITION: Latitude 38°47'27.26"N  
(H-10446) Longitude 075°03'13.61"W  
Datum NAD83

FE-386SS  
SSS POSITION: Lat 38°47.4542'N  
238.755 Long 075°03.2242'W  
(247.76P)

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers BERKOWITZ / SEITZ

Time of Dive: Commenced 1700 UTC Completed 1714 UTC

Current 0.1 KTS Visibility 4-5' Bottom Type drk B.S., Sh

RESULTS OF INVESTIGATION:

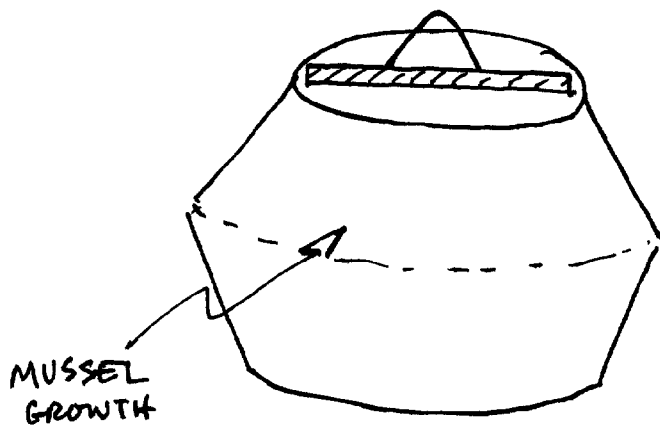
DIVERS LOCATED A CONCRETE BLOCK - SHAPE DESCRIBED BY A HEXAGON OF REVOLUTION. OBJECT WAS 5.5 FT HIGH AND THE DIAMETER WAS APPROX. 5 FT. IN THE MIDDLE AND 3 FT AT THE TOP AND BOTTOM. TOP SURFACE HAD A TRIANGULAR METAL PAD/EYE ATTACHED TO A 1/2 INCH WIDE x 3 FT LONG METAL RIB CENTERED ON IT. OBJECT HAD A SIGNIFICANT AMOUNT OF LIVE MUSSELS GROWTH COVERING IT.

POSITION: Date (M/D/Y) 6/23/93 Time (UTC) 144817 Position No. (4372/512) 4  
Latitude 38°47'27.26"N Longitude 075°03'22.1"W 076°03'13.38"  
LORAN-C: GRI ( 9960 ) W: 15810.6 X: 27139.7 Y: 42635.3 Z: 59225.8  
MASTER 912 S/N 555 990 935 765

LEAST DEPTH: Date (M/D/Y) 6/23/93 Time (UTC) (1707)  
Method of Least Depth: PNEUMO GAUGE  
Measured Least Depth: 1.60.8 2.60.8 3.61.3 Avg. 61.0 Units ft.  
Corrected Least Depth 17.65 Units meters (predicted tides) (57 FT)  
Uncorrected (18.6m)

CHARTING RECOMMENDATION  
SEE SECTION III., PAGE 5/ OF THIS REPORT.

(Signature)





ITEM INVESTIGATION REPORT

SURVEY FE-38655

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (875.5BP)

HISTORICAL POSITION: Latitude 38°47'39.05"N SSS POSITION: Lat 38°47.6475'N  
(H-10446) Longitude 075°03'00.60"W (241.843) Long 075°03.0000'W  
Datum NAD 83 244.80P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers BERKOWITZ / SEITZ  
Time of Dive: Commenced 1626 UTC Completed 1642 UTC  
Current 0.1 KTS Visibility 4' Bottom Type dk B S, Sh

RESULTS OF INVESTIGATION:  
DIVERS LOCATED A ROCK 2 1/2 FT HIGH AND 2 FT IN DIAMETER. ROCK HAD EXTENSIVE MARINE GROWTH AND HAD A LARGE MUSSEL SHELL BED NEARBY. APPROXIMATELY 8 FEET TO THE EAST OF THE ROCK, A 1 INCH DIAMETER BLACK CABLE WAS FOUND WITH ABOUT 8 FEET EXPOSED - BOTH ENDS WERE BURIED INTO THE SAND. DIVER GAUGE LEAST DEPTH WAS 65' IN 67' OF WATER (1630 UTC)

POSITION: Date (M/D/Y) 6/23/93 Time (UTC) 150549 Position No. 513  
38°47'38.88" Latitude 38°47.6480"N Longitude 075°03.0036"W 076°03'00.38"  
LORAN-C: GRI ( 9960 ) W: 15811.3 X: 27139.7 Y: 42633.0 Z: 59224.2  
MAYBE 910 S/N 560 980 980 765

LEAST DEPTH: Date (M/D/Y) 6/23/93 Time (UTC) 1635  
Method of Least Depth: PNEUMO GAUGE  
Measured Least Depth: 1. 64.9 2. 64.8 3. 65.1 Avg. 65 Units ft.  
Corrected Least Depth 18.76 Units Meters (predicted tides) (61 FT)  
uncorrected (19.8m)

CHARTING RECOMMENDATION  
SEE SECTION N12, PAGE 52 OF THIS REPORT.



ITEM INVESTIGATION REPORT

SURVEY FE-38655

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (280.47P)

HISTORICAL POSITION: Latitude 38°46'11.0"N (H-10446) Longitude 075°02'45.1"W Datum NAD83

SSS POSITION: Lat 38°46.1883'N 111.649 114.525 Long 075°02.7500'W

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder Side Scan Diver X Other (specify)

DIVE DATA: Divers BERKOWITZ / LOGAN

Time of Dive: Commenced 1738 UTC Completed 1755 UTC

Current 0.1 KNOTS Visibility 4-5' Bottom Type br S G Si

RESULTS OF INVESTIGATION:

DIVERS FOUND 2 LARGE CONCRETE BLOCKS MEASURING 4 FT X 4 FT X 4 FT EACH BLOCKS WERE LYING ROUGHLY END TO END SEPARATED BY 1 FT ON A SW - NE AXIS. SEVERAL OTHER SMALL BLOCKS WERE LYING AROUND THE AREA, ALL WITHIN 20 FT. OF EACH OTHER. LOTS OF MUSSEL SHELLS AROUND TOO.

POSITION:

38°46'11.46"

Date (M/D/Y) 6/24/93 Time (UTC) 144948 Position No. 4374 514 Latitude 38°46.1910'N Longitude 075°02.7490'W 075°02'44.94" LORAN-C: GRI ( 9960 ) W: 15808.6 X: 27134.1 Y: 42618.9 Z: 59219.7 S/N MASTER: 887 475 999 970 730

LEAST DEPTH:

Date (M/D/Y) 6/24/93 Time (UTC) 1748

Method of Least Depth: PNEUMO GAUGE

Measured Least Depth: 1. 66.0 2. 65.9 3. 65.9 Avg. 65.9 Units ft

Corrected Least Depth 19.1 meters (predicted tides) (62 FT) uncorrected 20.1m

CHARTING RECOMMENDATION

SEE SECTION N13, PAGE 53 OF THIS REPORT

M16

**ITEM INVESTIGATION REPORT**

**SURVEY** FE-38655

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

**DESCRIPTION/SOURCE:** H-10446 (672.22P AND 792.275 — SAME ITEM)

38°46'49.50"

**HISTORICAL POSITION:** Latitude \_\_\_\_\_  
Longitude \_\_\_\_\_  
Datum \_\_\_\_\_

**SSS POSITION:** Lat 38° 46.8250' N  
Long 075° 02.4683' W  
075° 02' 28.10"

**SURVEY REQUIREMENTS:** LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers BERKOWITZ / LOGAN

Time of Dive: Commenced 1821 UTC Completed 1835 UTC

Current 0.1 KTS Visibility 6' Bottom Type br S G Si

**RESULTS OF INVESTIGATION:**

DIVERS FOUND AN ANCHOR BLOCK WITH CHAIN ATTACHED. BLOCK MEASURED 3 FT HIGH X ≈ 6 FT LONG X 5 FT WIDE. OBJECT WAS COVERED WITH HEAVY MARINE GROWTH AND THE SURROUNDING BOTTOM CONSISTED OF MUSSELS. DIVERS ALSO FOUND A BLACK CABLE 1/2" IN DIAMETER STICKING OUT FROM UNDER THE BLOCK.

**POSITION:** Date (M/D/Y) 6/24/93 Time (UTC) 150755 Position No. 4375  
38° 46' 49.72" Latitude 38° 46.8286' N Longitude 075° 02.4702' W 075° 02' 28.21"  
 LORAN-C: GRI ( 9960 ) W: 15808.0 X: 27134.1 Y: 42626.3 Z: 59223.6  
 S/N MASTER 880 475 975 950 740

**LEAST DEPTH:** Date (M/D/Y) 6/24/93 Time (UTC) 1830  
 Method of Least Depth: PNEUMO GAUGE  
 Measured Least Depth: 1. 60.0 2. 59.8 3. 59.8 Avg 59.9 Units FT  
 Corrected Least Depth 17.43 Units meters (predicted tides) (57 FT)  
 uncorrected 18.3m

**CHARTING RECOMMENDATION**

SEE SECTION N14, PAGE 53 OF THIS REPORT.



ITEM INVESTIGATION REPORT

SURVEY FE-386SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (933.695)

HISTORICAL POSITION: Latitude 38°47'20.66"N SSS POSITION: Lat 38°47.3442'N  
Longitude 075°02'35.62"W (131.66P) Long 075°02.5917'W  
Datum NAD 83 134.56P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder        Side Scan        Diver X Other (specify)       

DIVE DATA: Divers RILEY/SILVERMAN  
Time of Dive: Commenced 1746 UTC Completed 1811 UTC  
Current 0.1 kts Visibility 6' Bottom Type       

RESULTS OF INVESTIGATION:

DIVERS LOCATED TWO STRUCTURE BUOYS LAYING SIDE BY SIDE IN (ROUGHLY) OPPOSITE DIRECTIONS. WESTERNMOST BUOY HAD A CHAIN LEADING FROM ITS TOP (NORTHERN) END INTO A MUSSEL BED ON THE BOTTOM.

POSITION: Date (M/D/Y) 6/24/93 Time (UTC) 155501 Position No. 4376  
38°47'20.66" Latitude 38°47.3443'N Longitude 075°02.5936'W (516)  
LORAN-C: GRI ( 9960 ) W: 15809.0 X: 27136.0 Y: 42632.1 Z: 59225.7  
S/N MASTER: 950 520 980 910 760

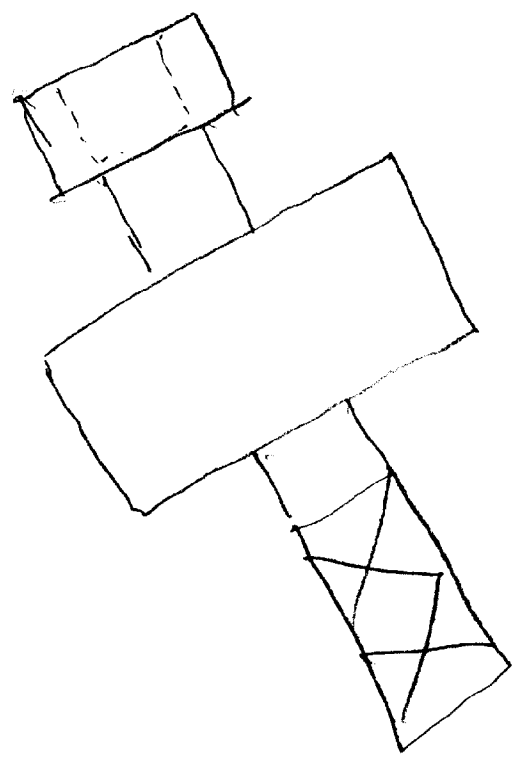
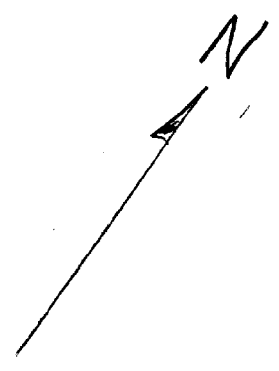
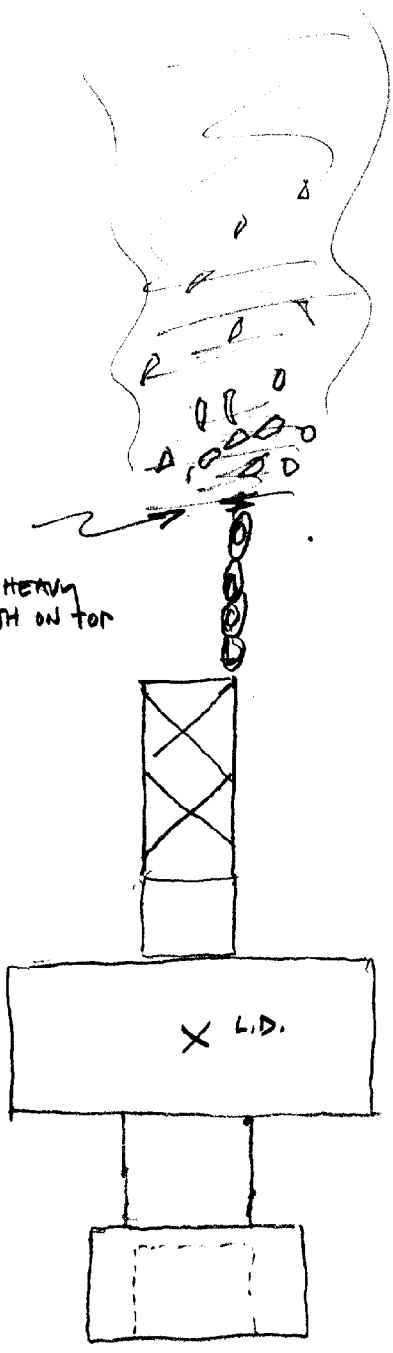
LEAST DEPTH: Date (M/D/Y) 6/24/93 Time (UTC) 1800  
Method of Least Depth: PNEUMO GAUGE  
Measured Least Depth: 1.65.0 2.64.8 3.65.0 Avg. 64.9 Units ft.  
Corrected Least Depth 12.81 Units meters (predicted tides) (61 FT)  
Uncorrected 19.8m

CHARTING RECOMMENDATION

SEE SECTION N.15, PAGE 54 OF THIS REPORT.

NAD

CHAIN  
LOADING INTO  
BOTTOM WITH HEAVY  
MUSSEL GROWTH ON TOP



# ITEM INVESTIGATION REPORT

SURVEY FE-386SS

Item Number 1150

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) \_\_\_\_\_

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (3240.36P); H9758/76 OPR-515-R/H-76

HISTORICAL POSITION: Latitude 38°48'46.22"N SSS POSITION: Lat 38°48.7758'N  
(H-10446) Longitude 075°04'04.33"W Longitude 201.25P Long 075°04.0775'W  
Datum NAD 83 Datum 203.65P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) \_\_\_\_\_

DIVE DATA: Divers BERKOWITZ / LOGAN

Time of Dive: Commenced 1258 UTC Completed 1332 UTC

Current 0.1 KTS Visibility 4' Bottom Type \_\_\_\_\_

## RESULTS OF INVESTIGATION:

DIVERS FOUND 3 LARGE WOODEN RIBS PROTRUDING FROM THE BOTTOM ABOUT 5 FEET HIGH AT A 30° ANGLE FROM VERTICAL. THE RIBS WERE APPROXIMATELY 6-8 FEET APART IN AN E-W LINE. SCATTERED DEBRIS CONSISTING OF BRICK, COAL, AND WOOD ~~LOAD~~ LED FROM THE 3 RIBS EASTWARD. SOME OF THE BRICKS HAD EVIDENCE OF RE-BAR STEEL STRENGTHENING

POSITION: Date (M/D/Y) 6/25/93 Time (UTC) 1348Z Position No. 4371  
38°48'46.72"N Latitude 38°48.7787'N Longitude 075°04.0684'W 075°04'04.10"  
LORAN-C: GRI ( 9960 ) W: 15815.7 X: 271426 Y: 426426 Z: 59227.8  
MASC: 910 395 982 950 663

LEAST DEPTH: Date (M/D/Y) 6/25/93 Time (UTC) 1317  
Method of Least Depth: PNEUMO GAUGE 55.0 55.0  
Measured Least Depth: 1. 55.0 2. 55.0 3. 55.0 Avg: 55.0 Units FT  
Corrected Least Depth 16.4 Units meters (predicted tides) (54 FT)  
Uncorrected 16.8m

## CHARTING RECOMMENDATION

SEE SECTION N16., PAGE 55 OF THIS REPORT.

(99)

✓ N/A

**ITEM INVESTIGATION REPORT**

**SURVEY** FE-386SS

Item Number N/A Danger to Nav. Letter Issued (Y/N) N  
 Charted (Y/N) N  
 Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

**DESCRIPTION/SOURCE:** H-10446 (290.195)

**HISTORICAL POSITION:** Latitude 38° 48' 17.45" N **SSS POSITION:** Lat 38° 48.2908' N  
 Longitude 075° 04' 37.03" W 184.775 Long 075° 04.6200' W  
 Datum NAD83 (18T.86P)

**SURVEY REQUIREMENTS:** LEAST DEPTH

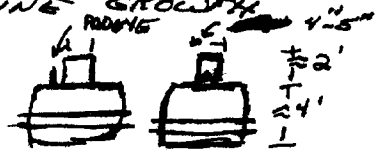
**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers SEITZ, BERKOWITZ

Time of Dive: Commenced 1400 Completed 1418  
 Current 0.4 KT Visibility 0 Bottom Type SAND & SHELL CRUST

**RESULTS OF INVESTIGATION:** DIVERS DESCENDED BUOY DROPPED AT ABOVE SSS POSITION. A <sup>CYLINDRICAL</sup> ~~ROUND~~ METAL OBJECT 6 FT OFF THE ~~BTT~~ BOTTOM IN 68 FT OF WATER. ~~DIAMETER OF OBJECT WAS 5 1/2 FT. WAS FOUND. DIAMETER-DIAMETER-5 1/2 FT. OBJECT WAS, HEAVILY COVERED WITH MARINE GROWTH.~~ MAIN CYLINDER WAS 6-5/8 FT IN DIAMETER ABOUT 4 FT HIGH WITH 2 METAL RIBS NEAR THE BOTTOM STICKING OUT 3/4" TO 1". ON TOP OF THE MAIN CYLINDER WAS A SMALLER CYLINDER ABOUT 2 FT HIGH, 4-5" DIAMETER. A PADBYE WAS ALSO LOCATED ON TOP OFFSET FROM THE SMALL CYLINDER. 154356 ✓



**POSITION:** Date (M/D/Y) 6-26-93 Time (UTC) 1412 Position No. (518) 4378  
 Latitude 38° 48.2908' N Longitude 075° 04.6200' W (075° 04' 37.58")  
 LORAN-C: GRI (1960) W: 15817.4 X: 27149.6 Y: 42641.7 Z: 59223.5  
 MASTER 910 525 975 923 720

**LEAST DEPTH:** Date (M/D/Y) 6-26-93 Time (UTC) (1412)  
 Method of Least Depth: PNEUMO  
 Measured Least Depth: 1.617 2.618 3.620 Avg. 61.8 Units FT  
 Corrected Least Depth 18.87 Units meters (predicted tides) (60 FT)  
 uncorrected 18.8 m

**CHARTING RECOMMENDATION**

SEE SECTION N17, PAGE 56 OF THIS REPORT.

(100)

(MIS)



DIVERS DESCENDED BOOY  
 DROPPED @ ABOVE <sup>355</sup> POSITION A ROUND OF METAL  
~~355~~ OBJECT PROTRUDING OUT  
 2 FT BOTTOM DGED 2 FT  
 IN 6 FT OF WATER SAND  
 GRAVEL & SHELL BOTTOM  
 DIAMETER 5 FT STRONG CURRENT  
 0 VIS.



519 is now 4379

### ITEM INVESTIGATION REPORT

SURVEY FE-38655

Item Number N/A Danger to Nav. Letter Issued (Y/N) N  
Charted (Y/N) N  
Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (3183.725)

HISTORICAL POSITION: Latitude 38°49'20.96"N SSS POSITION: Lat 38°49.3489'N  
(H-10446) Longitude 075°01'38.09"W 27.77P Long 075°01.6317'W  
Datum NAD83 30.57P  
33.66S

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers Riley / SILVERMAN

Time of Dive: Commenced 15 1620 UTC Completed 1632 UTC  
Current 0.2 KTS Visibility 3' Bottom Type SOFT SAND

RESULTS OF INVESTIGATION:

DIVERS FOUND A STRUCTURE BUOY LYING ON ITS SIDE. THE FLOTT  
END OF THE BUOY WAS SANDED INTO THE BOTTOM. LEAST DEPTH WAS  
TAKEN ON THE TOP END OF THE BUOY.

POSITION: Date (M/D/Y) 6/28/93 Time (UTC) 140907 Position No. 530 (MPB)  
38 49.349 Latitude 38°49'20.99"N Longitude 075°01'37.99"W 075°01.633  
LORAN-C: GRI ( ) W: \_\_\_\_\_ X: \_\_\_\_\_ Y: \_\_\_\_\_ Z: \_\_\_\_\_

38 49 21.00  
75 1 37.99

LEAST DEPTH: Date (M/D/Y) 6/28/93 Time (UTC) 1625  
Method of Least Depth: PNEUMO GAUGE  
Measured Least Depth: 1. 35.8 2. 36.0 3. 36.0 Avg. 35.9 Units ft  
~~Corrected Least Depth: 10.3 Units (predicted tides)~~  
Uncorrected 10.9m corrector -6 meters

CHARTING RECOMMENDATION  
SEE SECTION N26, PAGE 62 OF Recorder JR / (MPB) Checker J  
THIS REPORT.

10.3 Reduced to MLLW.  
(102)

520 is now 4380

ITEM INVESTIGATION REPORT

SURVEY FE-386SS

Item Number N/A Danger to Nav. Letter Issued (Y/N) N  
Charted (Y/N) N  
Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (2593.82P)

HISTORICAL POSITION: Latitude 38°49'20.01"N SSS POSITION: Lat 38°49'33.94"N  
(H-10446) Longitude 075°01'39.72"W 36.54P Long 075°01'66.33"W  
Datum NAD83 30.56 S 6617  
33.67P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:  
Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY / SILVERMAN  
Time of Dive: Commenced 1529 UTC Completed 1600 UTC  
Current 0.5-1.0KTS Visibility 0-1' Bottom Type SOFT SAND

RESULTS OF INVESTIGATION:

DIVERS FOUND A STRUCTURE BUOY LYING ON ITS SIDE. THE BUOY'S FLOAT WAS BURIED 1/3 OF THE WAY INTO THE BOTTOM. THE LEAST DEPTH MEASUREMENT WAS TAKEN ON THE TOP END OF THE BUOY. THE BUOY WAS SITUATED ON THE SOUTH SIDE OF A SAND RIDGE

POSITION: Date (M/D/Y) 6/28/93 Time (UTC) 142644 Position No. 519  
38 49 20.42 Latitude 38°49'20.42"N Longitude 075°01'39.79"W  
75 01 39.80 LORAN-C: GRI ( ) W: \_\_\_\_\_ X: \_\_\_\_\_ Y: \_\_\_\_\_ Z: \_\_\_\_\_

LEAST DEPTH: Date (M/D/Y) 6/28/93 Time (UTC) 1550  
Method of Least Depth:  
Measured Least Depth: 1.33.0 2. 33.2 3. 33.2 Avg. 33.1 Units ft  
Corrected Least Depth 1.33.0 Units ft (predicted tides)  
uncorrected: 1.03.1 m corrector 4 meters

CHARTING RECOMMENDATION Recorder (NPS) Checker JH  
SEE SECTION N27., PAGE 63 OF THIS REPORT  
9.6 reduced to MCLW  
(103)

~~521 IS NOW 4381~~

**ITEM INVESTIGATION REPORT**

SURVEY WH-20-4-92

ITEM NUMBER N/A DANGER TO NAV. LETTER ISSUED (Y/N) N

CHART NO (largest scale) 12216 EDITION 23rd DATE 2/22/92

HISTORY: H-10446 (2599.03P)

HISTORICAL POSITION: Latitude 38° 48' 53.37" N (38° 48.890' N)  
Longitude 075° 01' 09.72" W (075° 01.162' W)  
Datum NAD83

SSS: 22.735, 25.60P FE-38655: 38° 48.8925' 8900  
SURVEY REQUIREMENTS: 075° 01.1583' 1587

**METHOD OF INVESTIGATION:**

Echosounder      Side Scan      Diver X Other (specify)     

**RESULTS OF INVESTIGATION:**

DIVERS FOUND A WOODEN BEAM 40 FEET LONG, LAYING IN A 120° - 300° ORIENTATION. NW END WAS STUCK IN BOTTOM AND BEAM MADE A 10° ANGLE WITH THE HORIZONTAL -- SE END WAS 4 FT OFF BOTTOM BEAM WAS 2' x 2'. DIVERS GAUGE L.D. OF 56 FEET ON SE END

38 48 53.54  
75 01 09.27

NEW POSITION: Date (M/D/Y) 6/29/93 Time (UTC) 145628  
Latitude 38° 48' 53.54" N Longitude 075° 01' 09.27" W position 521

LORAN-C: GRI (9900) W: 15803.9 X: 27131.7 Y: 42650.5 Z: 59237.5  
MASTER 888 S/N 520 916 950 780 729  
474 912

LEAST DEPTH: Date (M/D/Y) 6/29/93 Time (UTC) 1707

L.D. Method of Least Depth: PNEUM GAUGE  
16.8m Measured Least Depth 56.6, 56.6, 56.6 Units FT Avg. 56.6  
(55 FT) Corrected Least Depth 17.3m Units METERS  
uncorrected 17.3m corrected 17.3m

CHARTING RECOMMENDATION: Recorder JLR Checker JH  
SSS SECTION N28, PAGE 64 OF THIS REPORT.

~~16.8 Reduced to MLLW.~~

# ITEM INVESTIGATION REPORT

**SURVEY** FE-386SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216

Edition 23rd

Date 2/22/92

**DESCRIPTION/SOURCE:** 1851.525 (H-10446) - Buoy  
~~1851.525~~ - anchor

**HISTORICAL POSITION:** Latitude 38°47'36.82"N  
 (H-10446) Longitude 075°01'12.24"W  
 (1851.525) Datum NAD83

**SSS POSITION:** Lat 38°47.6067'N  
 152.83S Long 075°01.2083'W  
 (155.87P) Buoy

**SURVEY REQUIREMENTS:** LEAST DEPTH

152.76S (anchor) Lat 38°47.6225'N  
 155.79P Lon 75°01.2167W

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers Riley, Verlaque

Time of Dive: Commenced 1654 Completed 1700

Current SLACK Visibility 4-5' Bottom Type SAND

**RESULTS OF INVESTIGATION:** Divers descended buoy drop on PN of center 155.87P structure ~~buoy~~ 20ft long NE SW laying flat on the bottom. Least depth by diver gauge 65'. Least depth on NE end @ base of buoy. Buoy stood 5-6' off bottom. Buoy layed in scour.

**POSITION:** 8 Date (M/D/Y) 7/15/93 Time (UTC) 181605 Position No. 4382  
38°47'36.24" Latitude 38°47.6044'N Longitude 75°01.2049'W 075°01.1959  
75°01.12.30 LORAN-C: GRI ( 980 ) W: 15803.2 X: 27129.9 Y: 42635.9 Z: 592313  
SNA874 478 936 861 750

**LEAST DEPTH:** Date (M/D/Y) 2/15/93 Time (UTC) 1658  
 Method of Least Depth: PNEUMO  
 Measured Least Depth: 1.64.2 2.64.2 3.64.2 Avg. 64.2 Units FT  
 Uncorrected Depth 19.6 (meters)  
 Tide Corrector 0.4 meters Corrected Least Depth 19.2 (meters)  
 (63 FT)

Recorder JSV/NPB Checked By JH

SEE SECTION N29, PAGE 64 OF THIS REPORT FOR CHARTING RECOMMENDATION.

(105)

# ITEM INVESTIGATION REPORT

**SURVEY** FE-386SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

**DESCRIPTION/SOURCE:** 1095.48P (H-10446)

**HISTORICAL POSITION:** Latitude 38° 48' 32.17" N (H-10446)  
**SSS POSITION:** Lat 38° 48.5383' N  
Longitude 075° 03' 23.88" W (250.78S)  
Datum NAD 83 (253.68P)

**SURVEY REQUIREMENTS:** LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder        Side Scan        Diver X Other (specify)       

**DIVE DATA:** Divers Riley, Voulas

Time of Dive: Commenced 1752 Completed 1810

Current — Visibility 3' Bottom Type SAND/SILT

**RESULTS OF INVESTIGATION:** DIVERS DESCENDED ON BUOY DROP AT PN 250.78S  
DIVERS FOUND STRUCTURE BUOY LAYING 030/210 DIRECTION; 30° ANGLE OFF  
BOTTOM. LEAST DEPTH BY DIVER ON TOP END OF BUOY @ 030° END <sup>WASH.</sup> LEAST DEPTH  
STOOD APPROX 10' OFF BOTTOM. BOTTOM BASE OF BUOY WAS SAND TAPERED INTO BOTTOM  
AND HAD GAPING HOLE. TOP OF BUOY HAD DOME - POSSIBLY LIGHT OR RALON.  
BUOY DIMENSIONS LENGTH 20' <sup>WASH.</sup> WIDTH 6-7'.

**POSITION:** Date (M/D/Y) 7/6/93 Time (UTC) 18141 Position No. 528  
Latitude 38° 48' 31.96" N Longitude 75° 03' 23.51" W (075° 03' 23.51")  
LORAN-C: GRI ( 9960 ) W: 15812.7 X: 27143.2 Y: 42645.2 Z: 59228.7  
<sub>SNR 872 451 914 921 685</sub>

**LEAST DEPTH:** Date (M/D/Y) 7/6/92 Time (UTC) 1904  
Method of Least Depth: PNOMO  
Measured Least Depth: 1.74.0 2.74.0 3.74.0 Avg. 74.0 Units FT  
Uncorrected Depth (22.6) (meters)  
Tide Corrector -0.2 meters Corrected Least Depth 22.2 (meters)  
(72 FT)

Recorder JR/MDB Checked By JA

SEE SECTION N31., PAGE 66 OF THIS REPORT FOR CHARTING  
RECOMMENDATION.

(106)

# ITEM INVESTIGATION REPORT

**SURVEY** FE-386 SS

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 1226 Edition 23rd Date 2/22/92

**DESCRIPTION/SOURCE:** 3478.76 P (H-10446)

. 240

**HISTORICAL POSITION:** Latitude 38°47'16.15"N (H-10446) **SSS POSITION:** <sup>FE-386SS</sup> Lat. 38°47.2667'N  
 Longitude 075°02'26.73"W 126.245 Long 075°02'44.6"W  
 Datum NAD 83 128.655

**SURVEY REQUIREMENTS:** LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers RILEY / VERLAGE  
 Time of Dive: Commenced 1906 UTC Completed 1932 UTC  
 Current 0.5 EBB Visibility 1-2' Bottom Type SAND, SILT

**RESULTS OF INVESTIGATION:**

DIVERS LOCATED AN OLD STRUCTURE BUOY LYING ON ITS SIDE 240°M/060°M  
 LEAST DEPTH ON CYLINDRICAL BUOY FLOAT, CLOSE TO 240° END — DIAMETER'S  
 GAUGE I.D. OF ≈ 78.5 FEET. BUOY HAS MARINE GROWTH COVERING IT,  
 EVIDENCE OF BUOY LIGHT NEAR TOP END (060°M) — BROKEN GLOBE AND A 1/2"  
 BLACK WIRE. BUOY COUNTERWEIGHT WAS ALSO VISIBLE, EVEN WITH THE  
 BOTTOM (EXTREME SW END)

POSITION: 38°47'16.52" Date (M/D/Y) 7/17/93 Time (UTC) 1956 Position No. 4385  
 Latitude 38°47'27.4"N Longitude 75°02'45.19"W 75°02'27.11"  
 LORAN-C: GRI ( 920 ) W: 15808.2X 27135.1 Y: 4263.3 Z: 57225.7  
 SWR 478 907 892 782

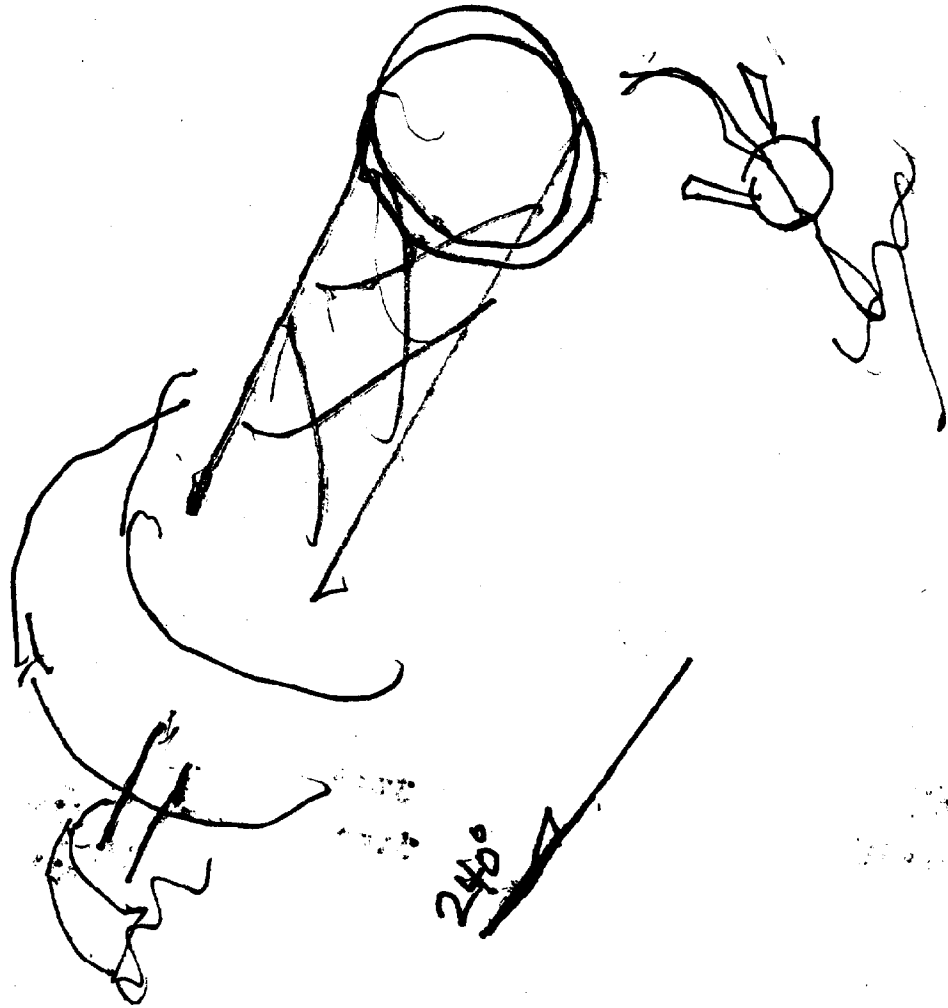
**LEAST DEPTH:** Date (M/D/Y) 7/17/93 Time (UTC) 1920  
 Method of Least Depth: PROBND  
 Measured Least Depth: 1. 78.0 2. 78.2 3. 78.0 Avg. 78.0 Units FT  
 Uncorrected Depth 23.8 (meters)  
 Tide Corrector .5 meters Corrected Least Depth 23.3 (meters)  
 (76 FT)

Recorder MDP Checked By JH

SEE SECTION N32, PAGE 61 OF THIS REPORT FOR CHARTING  
 RECOMMENDATION

147

1525



108

DIVING OPERATIONS

TE: \_\_\_\_\_

UNIT: \_\_\_\_\_

LOCATION: \_\_\_\_\_

DIVEMASTER: \_\_\_\_\_  
 TENDERS: \_\_\_\_\_  
 \_\_\_\_\_

SCIENTISTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DIVE PLAN: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

MAX. DEPTH: \_\_\_\_\_  
 MAX. TIME: \_\_\_\_\_

EQUIPMENT USED: \_\_\_\_\_  
 \_\_\_\_\_

CONDITIONS:  
 WIND: \_\_\_\_\_  
 SEAS: \_\_\_\_\_  
 CURRENT: \_\_\_\_\_  
 VISIBILITY: \_\_\_\_\_  
 AIR TEMP.: \_\_\_\_\_  
 WATER TEMP: \_\_\_\_\_

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE		TIME		BOTTOM TIME	DEPTH	GROUP
				IN	OUT	PRESSURE CHANGE	IN			
RILEY				3200			1906			
VERLANE				3100			1952			
							1906			
							1952			

POST DIVE COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DIVEMASTER: \_\_\_\_\_



# ITEM INVESTIGATION REPORT

**SURVEY** FE-38655

Item Number 2425

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) Y

Chart No. (largest scale) 12216

Edition 25<sup>th</sup>

Date 2/22/92

**DESCRIPTION/SOURCE:** FE-38655; 1003.50S  
1014.85S

**HISTORICAL POSITION:** Latitude 38° 51' 21.2" N **SSS POSITION:** Lat 38° 51.3533' N  
Longitude 75° 05' 33.65" W 1003.50S Long 75° 05.5608' W  
Datum NAD 83 1014.85S

**SURVEY REQUIREMENTS:** LEAST DEPTH; POSITIVE ID.

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers VERLAQUE, RILEY

Time of Dive: Commenced 1228 Z Completed 1248 Z

Current .5 Ebb Visibility 3' Bottom Type SAND/SILT

**RESULTS OF INVESTIGATION:** DIVERS DESCENDED BUOY AT TN 1003.50S  
CONDUCTED 25-M CIRCLE SEARCH. LOCATED ANCHOR CHAIN E-NE FROM DROP

POSITION @ 20 METERS. DIVERS SWIFT TO NW END OF CHAIN, CONDUCTED 5-M  
CIRCLE SEARCH & FOUND NOTHING ELSE. CHAIN STOOD 1/2 - 1' OFF BOTTOM AT <sup>NW</sup> END.  
91' DIVER GAUGE. DIVERS SWIFT IN SE DIRECTION TO OTHER END OF CHAIN & DEPLOYED  
INFLATABLE BUOY. CONDUCTED 5M CIRCLE SEARCH NOTHING FOUND. DIVER GAUGE 92.1500

**POSITION:** Date (M/D/Y) 2/17/93 Time (UTC) 1310Z Position No. 213  
Latitude 38° 51.3533' N Longitude 75° 05.5608' W 075° 05' 32.80"  
LORAN-C: GRI ( 9160 ) W: 15823.9 X: 27162.4 Y: 42675.92:59235.1

**LEAST DEPTH:** Date (M/D/Y) 7/17/93 Time (UTC) 1235 Z  
Method of Least Depth: PNEUMO  
Measured Least Depth: 1. 90.8 2. 91.0 3. 91.0 Avg. 91.0 Units FT  
Uncorrected Depth 27.7 (meters)  
Tide Corrector .9 meters Corrected Least Depth 26.8 (meters)  
(87 FT)

Recorder SSV/WPB Checked By JH

SEE SHEET 2 OF 2 APPENDED TO THE EVALUATION REPORT FOR PLOTTED DATA.  
SEE SECTION N33, PAGE 67 OF THIS REPORT FOR CHARTING RECOMMENDATION.  
(109)

# ITEM INVESTIGATION REPORT

**SURVEY** FE-38655

Item Number N/A Danger to Nav. Letter Issued (Y/N) N  
 Charted (Y/N) N  
 Chart No. (largest scale) 1224 Edition 37th Date 6/27/92

**DESCRIPTION/SOURCE:** 3505.765 (H-10446)

**HISTORICAL POSITION:** Latitude 38°47'56.387" N SSS POSITION: Lat 38°47.9226' N  
 (H-10446) Longitude 074°59'39.569" W 262.095 Long 074° 59.6675' W  
 Datum NAD83 266.175 (26 METERS)  
 11.02P

**SURVEY REQUIREMENTS:** LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers Riley / BERKOWITZ, Riley / VERLAGE  
 Time of Dive: Commenced 1250 UTC Completed 1312 UTC  
 Current 0.10 Flood Visibility 6 FEET Bottom Type SAND, SILT, SHELL

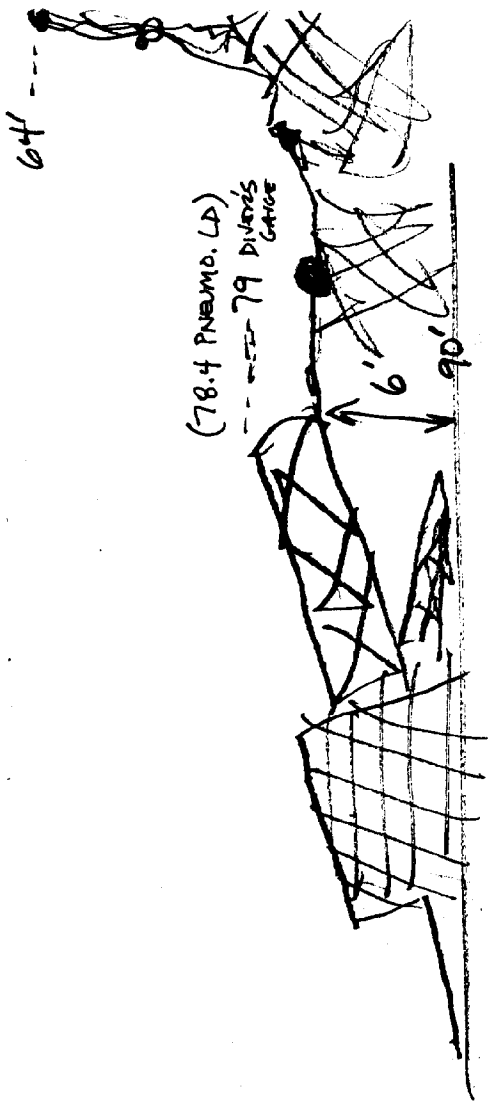
**RESULTS OF INVESTIGATION:** DIVERS DESCENDED BUOY, DROPPED @ ABOVE SSS POSITION. DIVERS LOCATED A SUBMERGED STRUCTURE BUOY  $\approx$  15 FEET EAST OF DROP POSITION. THE ORIENTATION OF THE STRUCTURE BUOY IS 240°-060° MAGNETIC — BASE OF BUOY ON WSW END. LEAST DEPTH WAS TAKEN ON THE TOP END OF THE BUOY (060°M END) — DIVERS GAUGE OF 79 FEET IN 90 FEET OF WATER. TOP END OF BUOY IS 25 FEET IN DIAMETER AND HAS 6 FEET OF CLEARANCE FROM THE BOTTOM (LD  $\approx$  11 FEET OFF BOTTOM). TRAILING EASTWARD FROM THE TOP END OF THE BUOY IS A TRAWL NET SUPPORTED IN THE WATER COLUMN WITH 1' DIAMETER PLASTIC FLOATS. DIVER GAUGE LD ON TRAWL NET IS 64 FEET.

**POSITION:** Date (M/D/Y) 7/28/93 Time (UTC) 12:23:14 Position No. FX 528  
 Latitude 38°47'55.232" N Longitude 074°59'40.880" W  
 LORAN-C: GRI ( 9960 ) W: 15799.0 X: 2121.1 Y: 42640.4 Z: 59237.6  
 944 7/21/93 389 912 926 780

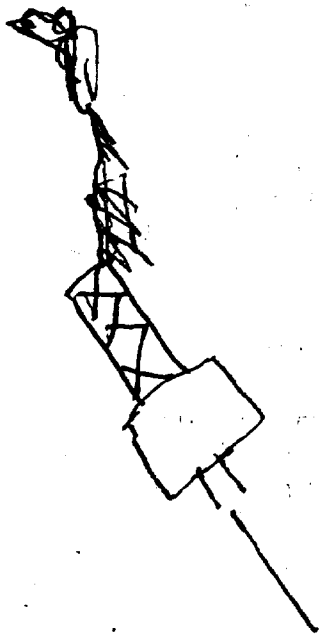
**LEAST DEPTH:** Date (M/D/Y) 7/10/93 Time (UTC) 1523 PNEUMO GAUGE 78.4  
 Method of Least Depth: DIVERS GAUGE @ RILEY / BERKOWITZ  
 Measured Least Depth: 1. 77.0 2. 80.0 3. 78.4 Avg. 78.5 Units FEET  
 Uncorrected Depth 23.9 (meters) 23.4  
 Tide Corrector +2.05 Corrected Least Depth 22.7 (meters)  
 (77 FT)

Recorder MPB Checked By \_\_\_\_\_

SEE SECTION N34, PAGE 68 OF THIS REPORT FOR CHARTING RECOMMENDATION.



SIDE



TOP VIEW

(III)

# ITEM INVESTIGATION REPORT

**SURVEY** FE-38655

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12214

Edition 37<sup>th</sup>

Date 6/27/92

**DESCRIPTION/SOURCE:** 3525.55 S (H-10446)

**HISTORICAL POSITION:** Latitude 38° 47' 53.61" N **SSS POSITION:** Lat 38° 47.825' N  
H-10446 Longitude 74° 59' 37.33" W 261.77 S Long 74° 59.622' W  
 Datum NAD 83 266.393  
 1065 P (26M)

**SURVEY REQUIREMENTS:** LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers VERLAQUE/SILVERMAN ; VERLAQUE BERKOWITZ  
 Time of Dive: Commenced 1246 Completed 1255  
 Current .3 FL Visibility 2-3' Bottom Type SILT

**RESULTS OF INVESTIGATION:** DIVERS DESCENDED ONTO BUOY 30°/210° ORIENTATION  
TOP @ 030°. DIVAL GAUGE 83'. BUOY STANDS 4' OFF BOTTOM ON LEVGE OF SCOWL.  
COUNTER WEIGHT SIGHTED N TO SAND. BUOY 6-7' WIDE 25' LONG W/ COUNTER  
4' OF CHAIN LINK AT BASE OF BUOY CONNECTED TO COUNTER WEIGHT.  
SCOWL HOLE 4 METERS WEST OF BUOY.

**POSITION:** Date (M/D/Y) 7/18/93 Time (UTC) 131136 Position No 4389  
529  
 38°47'52.39" Latitude 38° 47.825' N Longitude 074° 59.6254' W  
 74°59'37.53" LORAN-C: GRI ( 9960 ) W: 15796.8 X: 27120.7 Y: 42699.9 Z: 592376  
945 55 910 964 770

**LEAST DEPTH:** Date (M/D/Y) 7/20/93 7/10/93 Time (UTC) 1255 2106  
 Method of Least Depth: DIVER PNEUMO 78.0  
 Measured Least Depth: 1.78.0 2.78.0 3.78.0 Avg. 83 Units FT  
 Uncorrected Depth (23.78) (meters)  
 Tide Corrector +2 -1.0 Corrected Least Depth 22.8 (meters)  
23.5 (75 FT)

Recorder JM MPE Checked By \_\_\_\_\_

SEE SECTION N35, PAGE 69 OF THIS REPORT FOR CHARTING RECOMMENDATION.

# ITEM INVESTIGATION REPORT

**SURVEY** FE-38655

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

**DESCRIPTION/SOURCE:** 1580.10S (H-10446)

**HISTORICAL POSITION:** Latitude 38°47'36.19"N  
 (H-10446) Longitude 075°01'22.47"W  
 Datum NAD83

**FE-38655 SSS POSITION:** Lat 38°47.6017'N  
 167.03 S  
 161.64 P  
 169.73 P  
 164.56 S  
 Long 075°01.3703'W

**SURVEY REQUIREMENTS:** LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers RILEY/VERLAQUE

Time of Dive: Commenced 1637 Completed 1454

Current 0.1 KTE Visibility 5 FT Bottom Type BROWN SAND W/SHRUB

**RESULTS OF INVESTIGATION:** DIVERS DESCENDED BUOY DROPPED AT ABOVE SSS POSITION AND FOUND A SUBMERGED STRUCTURE BUOY. LEAST DEPTH WAS AT TOP OF BUOY (EAST EAST END, E-W ORIENTATION). TOP WAS 8 FT OFF BOTTOM IN 83 FT OF WATER. BUOY DIMENSIONS, 25 FT LONG, 12 FT COUNTERWEIGHT WITH A 55 GAL DRUM WEDGED UNDERNEATH. DIVERS BROUGHT LABEL FROM DRUM TO SURFACE. 30 FT OF ANCHOR & CHAIN ATTACHED TO THE BUOY LET TENDED TO THE WEST, INTO THE SAND.



**POSITION:** Date (M/D/Y) 7-22-93 Time (UTC) 142434 Position No. 4390  
530  
 Latitude 38°47.5941 Longitude 075°01.3917 W  
 75°01'22.91" LORAN-C: GRI ( ) W: X: Y: Z:

**LEAST DEPTH:** Date (M/D/Y) 7-22-93 Time (UTC) 1645  
 Method of Least Depth: PHUOMO  
 Measured Least Depth: 1.74 2.74 3.74 Avg. 74.0 Units FT  
 Uncorrected Depth 22.6 (meters)  
 Tide Corrector -1.12 Corrected Least Depth 21.5 (meters)  
 (70 FT)

Recorder MPZ Checked By \_\_\_\_\_

SEE SECTION N36.) PAGE 70 OF THIS REPORT FOR CHARTING RECOMMENDATION.

ITEM INVESTIGATION REPORT

FE-38655

SURVEY ~~CH-204-93~~

Item Number N/A

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) N

Chart No. (largest scale) 12214 Edition 37<sup>TH</sup> Date 6/27/92

DESCRIPTION/SOURCE: 3009.03P (H-10466)

HISTORICAL POSITION: Latitude 38° 48' 03.00" N SSS POSITION: Lat. 38° 48' 05.06" N  
Longitude 074° 59' 47.06" W Long 074° 59' 78.14" W  
Datum NAD 83 262.675  
265.425  
11.70P

SURVEY REQUIREMENTS: LEAST DEPTH

METHOD OF INVESTIGATION:  
Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY/VERLAQUE  
Time of Dive: Commenced 1610 Completed 1618  
Current 0.1 KT F Visibility 6 FT Bottom Type BROWN SAND W/SHELL

RESULTS OF INVESTIGATION: DIVERS DESCENDED BUOY DROPPED AT ABOVE SSS POSITION AND FOUND A SUBMERGED STRUCTURE BUOY WITH A LARGE HOLE IN THE FLOAT SECTION. BUOY HAD AN E-W ORIENTATION. TOP END (EAST END) WAS 8 FT OFF THE BOTTOM. DIVER GAUGE LEAST DEPTH WAS 78 FT. DEPTH AT TOP END WAS 85 FT.

POSITION: Date (M/D/Y) 7-22-93 Time (UTC) 145809 Position No. 4391  
581  
38°48'02.95" Latitude 38° 48' 07.81" N Longitude 074° 59' 77.9" W  
74°59'46.75" LORAN-C: GRI ( ) W: X: Y: Z:

LEAST DEPTH: Date (M/D/Y) 7-22-93 Time (UTC) 1614  
Method of Least Depth: PNEUMO  
Measured Least Depth: 1.77.2 2.77.4 3.77.4 Avg. 77.3 Units ft  
Uncorrected Depth 23.6 (meters)  
Tide Corrector -1.87 Corrected Least Depth 22.8 (meters)

Recorder UPZ Checked By \_\_\_\_\_

SEE SECTION 1037, PAGE 71 OF THIS REPORT FOR CHARTING RECOMMENDATIONS.

114

ITEM INVESTIGATION REPORT

SURVEY FE-386SS

Item Number 1145

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) \_\_\_\_\_

Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

DESCRIPTION/SOURCE: H-10446 (654.04PS); H9758/76 OPR-515-R/H-76 (GYPSUM PRINCE)

HISTORICAL POSITION: Latitude 38°48'16.3" N  
(H-10446) Longitude 075°04'02.48" W  
Datum NAD 83

SSS POSITION: Lat 38°48.2908' N  
227.39P Long 075°04.0517' W  
206.655 (NAD) SOUTH END:  
227.535 (SOUTH) Lat 38°48.2450' N

SURVEY REQUIREMENTS: LEAST DEPTH

Long 075°04.0550' W

METHOD OF INVESTIGATION:

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver X Other (specify) \_\_\_\_\_

DIVE DATA: Divers RILEY / BERKOWITZ / LOGAN

Time of Dive: Commenced 1841 UTC Completed 1912 UTC

Current 0.2 KTS Visibility 6-8' Bottom Type \_\_\_\_\_

RESULTS OF INVESTIGATION:

DIVERS FOUND EXTENSIVE WRECKAGE - METAL PLATING, BEAMS, SCATTERED.  
DIVER GAUGE L.D. OF 50' FOUND AT NUMEROUS LOCATIONS AROUND WRECK  
LD/PNEUMO TAKEN ON SOUTH END

POSITION: Date (M/D/Y) 6/25/93 Time (UTC) 1945Z Position No. 518  
Latitude 38°48.2465' N Longitude 075°04.0483' W  
75°04'02.90" LORAN-C: GRI ( 9960 ) W: 15815.2 X: 27146.3 Y: 42641.5 Z: 59225.3  
S/N MASTER 920 420 975 930 710

LEAST DEPTH: Date (M/D/Y) 6/25/93 Time (UTC) 1900  
L.D. Method of Least Depth: PNEUMO GAUGE  
14.1m Measured Least Depth: 1.49.8 2.49.8 3.50.0 Avg. 49.9 Units ft  
(46 FT) Corrected Least Depth 1.49.8 Units meters (predicted tides)  
Uncorrected 15.2m tide corrector no

CHARTING RECOMMENDATION

SEE SECTION N38, PAGE 72 OF THIS REPORT.

# ITEM INVESTIGATION REPORT

**SURVEY** FE-38655

Item Number 8226

Danger to Nav. Letter Issued (Y/N) N

Charted (Y/N) Y

Chart No. (largest scale) 12216

Edition 23<sup>rd</sup>

Date 2/22/92

**DESCRIPTION/SOURCE:** 1260.40 S (H-10446), CL 470/83 (MANS 54 BARGE)

**HISTORICAL POSITION:** Latitude 38° 48' 29.62" N  
H-10446 Longitude 75° 02' 53.73" W  
 Datum NAD83

**SSS POSITION:** Lat 38° 48.4867' N  
 Long 75° 02.8925' W  
 Easting 6336.3  
 Northing 29 940

**SURVEY REQUIREMENTS:** DIVER LEAST DEPTH

**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver  Other (specify) N

NE  
 SW LAT: 38° 48.4783' N  
 LW: 75° 02.8923' W  
 E: 6316.5  
 N: 29958.5  
66.593  
61.705  
73.437

**DIVE DATA:** Divers CRESWELL / VERLAQUE

Time of Dive: Commenced 1735 Completed 1755

Current SLACK Visibility 6-8' Bottom Type SAND



**RESULTS OF INVESTIGATION:** DIVERS DESCENDED BODY DROPPED AT ABOVE, NAME FOUND A SUBMERGED DEMOLISHED BARGE, 40' WIDE X 90' LONG. DIVERS SWEEP SEARCHED RANGE END TO END FINDING LEAST DEPTH AT NEAR SW END (DIVER DEPTH 77'). LEAST DEPTH TAKEN ON A PIPE STANDING 3' FROM CENTRAL AXIL OF TURNING GEAR FOR CRANE. GEAR WAS 15' ACROSS FLAT ON DECK. HOUSE CABIN 15' NE OF GEAR LEAST DEPTH 80' BY DIVER GAUGE. 15'

NE OF HOUSE; WINDLASS WITH LINE STILL ON CAPSTAN. LINE RAN DOWN INTO SAND SEEM. RANGE ORIENTED NE-SW. LEAST DEPTH NEAR SW END. GENERAL BOTTOM DEPTHS 94-97'. GENERAL DEPTHS ON RANGE 84'.

**POSITION:** Date (M/D/Y) 8/14/93 Time (UTC) 0247 Position No. 4389  
 Latitude 38° 48' 29.345" N Longitude 075° 02' 54.13" W  
 LORAN-C: GRI ( 9960 ) W: 1584 X: 27140.5 Y: 42646 Z: 59230.0  
890 417 903 924 729

**LEAST DEPTH:** Date (M/D/Y) 8/14/93 Time (UTC) 1745Z  
 Method of Least Depth: PROMO  
 Measured Least Depth: 1.76.2 2.76.2 3.75.9 Avg. 76.1 Units ft  
 Uncorrected Depth 23.2 (meters) 21.7 fm  
 Tide Corrector +1.5 -0.56 Corrected Least Depth 24.7 (meters) 22.4 fm  
74 FT

Recorder EMB Checked By JM

SEE SECTION N 39, PAGE 74 OF THIS REPORT FOR CHARTING RECOMMENDATION.



X  
**ITEM INVESTIGATION REPORT**

**SURVEY** FE-386 SS

Item Number B227 Danger to Nav. Letter Issued (Y/N) N  
 Charted (Y/N) N  
 Chart No. (largest scale) 12216 Edition 23rd Date 2/22/92

**DESCRIPTION/SOURCE:** 1396.83 P (H-10446), CL 470/83 (MARS 54 CRANE)

**HISTORICAL POSITION:** Latitude 38°48'45.40"N (H-10446) Longitude 075°02'51.03"W Datum NAD83  
**SSS POSITION:** Lat 38°48.7525'N Long 075°02.8617'W  
56.755 59.63P  
 S: 6382.1 N: 25465.7

**SURVEY REQUIREMENTS:** LEAST DEPTH

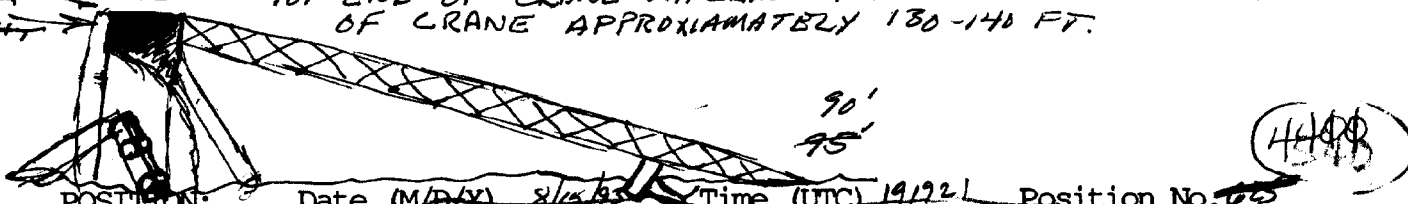
**METHOD OF INVESTIGATION:**

Echosounder \_\_\_\_\_ Side Scan \_\_\_\_\_ Diver \_\_\_\_\_ Other (specify) \_\_\_\_\_

**DIVE DATA:** Divers CRESWELL/VENKATRAJ  
 Time of Dive: Commenced 1810 Completed 1831  
 Current SLACK Visibility 5-7 FT Bottom Type SAND

**RESULTS OF INVESTIGATION:** DIVERS DESCENDED BUOY DROPPED AT ABOVE EASTING, NORTHING AND FOUND A SUBMERGED CRANE. LEAST DEPTH AT NW END, ORIENTATION OF CRANE NW-SE. BOTTOM OF CRANE WAS AT NW END. DIVER SWEEP TO THE SE AND FOUND TOP END OF CRANE TAPERING INTO THE SAND. LENGTH OF CRANE APPROXIMATELY 130-140 FT.

LEAST DEPTH  
 COUNTER  
 WEIGHT

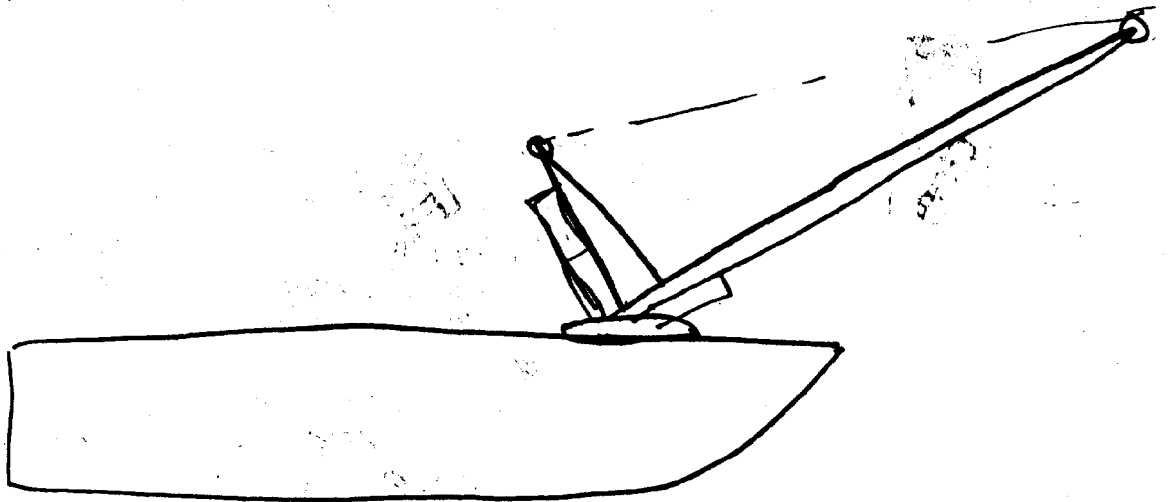
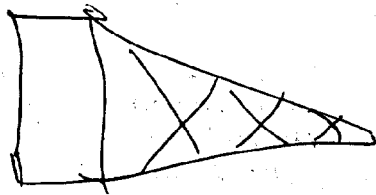


**POSITION:** Date (M/D/Y) 2/15/92 Time (UTC) 1912L Position No. 005  
 Latitude 38°48'45.44"N Longitude 075°02'51.41"W  
 LORAN-C: GRI ( 9960 ) W: 15810.7 X: 27140.8 Y: 42647.9 Z: 59231.3  
911 480 912 895 723

**LEAST DEPTH:** Date (M/D/Y) 2/15/92 Time (UTC) 1820Z  
 Method of Least Depth: PNEUMO  
 Measured Least Depth: 2.75.0 2.74.8 3.14.8 Avg. 24.9 Units FT  
 Uncorrected Depth 22.8 (meters) 21.7 m  
 Tide Corrector -0.8 Corrected Least Depth 21.4 (meters) 22.7 fsw  
(73 FT)

Recorder EMJ Checked By JMR

SEE SECTION N40, PAGE 74-75 OF THIS REPORT FOR CHARTING RECOMMENDATION.



Station No ? No	Type	Lat	Lon	H	Chart	Freq	Vel Code	MM/DD/YY	Station Name
1	G	038:46:36.421	075:05:15.867	0	250	298.0	0	09/03/92	CAPE HENLOPEN (DGPS)
2	G	036:55:37.530	075:00:23.324	0	250	289.0	0	09/03/92	CAPE HENRY (DGPS)
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/91	


Control Station Table saved to disk



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

April 6, 1993

MEMORANDUM FOR: Bob Brehmer  
Operations Division  
U.S. Army Corps of Engineers  
Philadelphia District

FROM:  Commander Andrew A. Armstrong, III, NOAA  
Commanding Officer

SUBJECT: Wreck in Approaches to Delaware Bay

REFERENCE: Our Telephone Conversation of 6 April, 1993

Attached is the information I have on the recently discovered wreck in the southern approaches to Delaware Bay. This is the information provided to the U.S. Coast Guard for Notices to Mariners. It was disseminated in Notice to Mariners number 3/93. When our divers examine the wreck and determine a least depth, I will send you the details.

Attachment

cc:  
AMC1  
N/CG241  
N/CG244





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

December 3, 1992

*NM 3/93  
dated 16 Jan 93  
"depth of 50' added"*

Commander, Fifth Coast Guard District  
Aids to Navigation Branch  
Federal Building, 431 Crawford Street  
Portsmouth, VA 23704-5004

Dear Sir:


While conducting hydrographic survey operations in the approaches to Delaware Bay, an uncharted wreck was discovered with side scan sonar (SSS). The wreck is inside the precautionary area approximately 1.2 nautical miles north of buoy "DC". Attached, are a Danger to Navigation Report and a chartlet indicating the location of the wreck.

Differential GPS and SSS were used to determine the wreck's position.

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

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

Sincerely,

  
Andrew A. Armstrong  
Commander, NOAA  
Commanding Officer

Attachments

cc: AMC1  
N/CG2  
N/CG244  
DMAHTC



**REPORT OF DANGER TO NAVIGATION**

**Hydrographic Survey Registry Number:** H-10446  
**State:** Delaware  
**General Locality:** Approaches to Delaware Bay  
**Sublocality:** 3.5 NM east of Cape Henlopen  
**Project Number:** OPR-D168-WH

The following item was found during hydrographic survey operations by the NOAA ship WHITING. This item is a potential danger to navigation.

**Object Discovered:**

An uncharted wreck having approximate dimensions 5 x 14 meters was found with side scan sonar.

**Covers/Uncovers/Bases:**

Evaluation of the side scan sonargram revealed an approximate least depth of 15.4 meters (~~50~~ feet) corrected to MLLW using predicted tide correctors. <sup>54</sup>

**Affected Nautical Charts:**

Chart Number	Edition		Reported Depth	Chart Datum	Geographic Position	
	No.	Date			Latitude	Longitude
12200	40	5/9/92	<del>50</del> ft	NAD 83	38°44'48.2" N	74°57'32.7" W
12304	30	8/10/91	same	same	47.40 same	41
12214	37	6/27/92	same	same	same	same

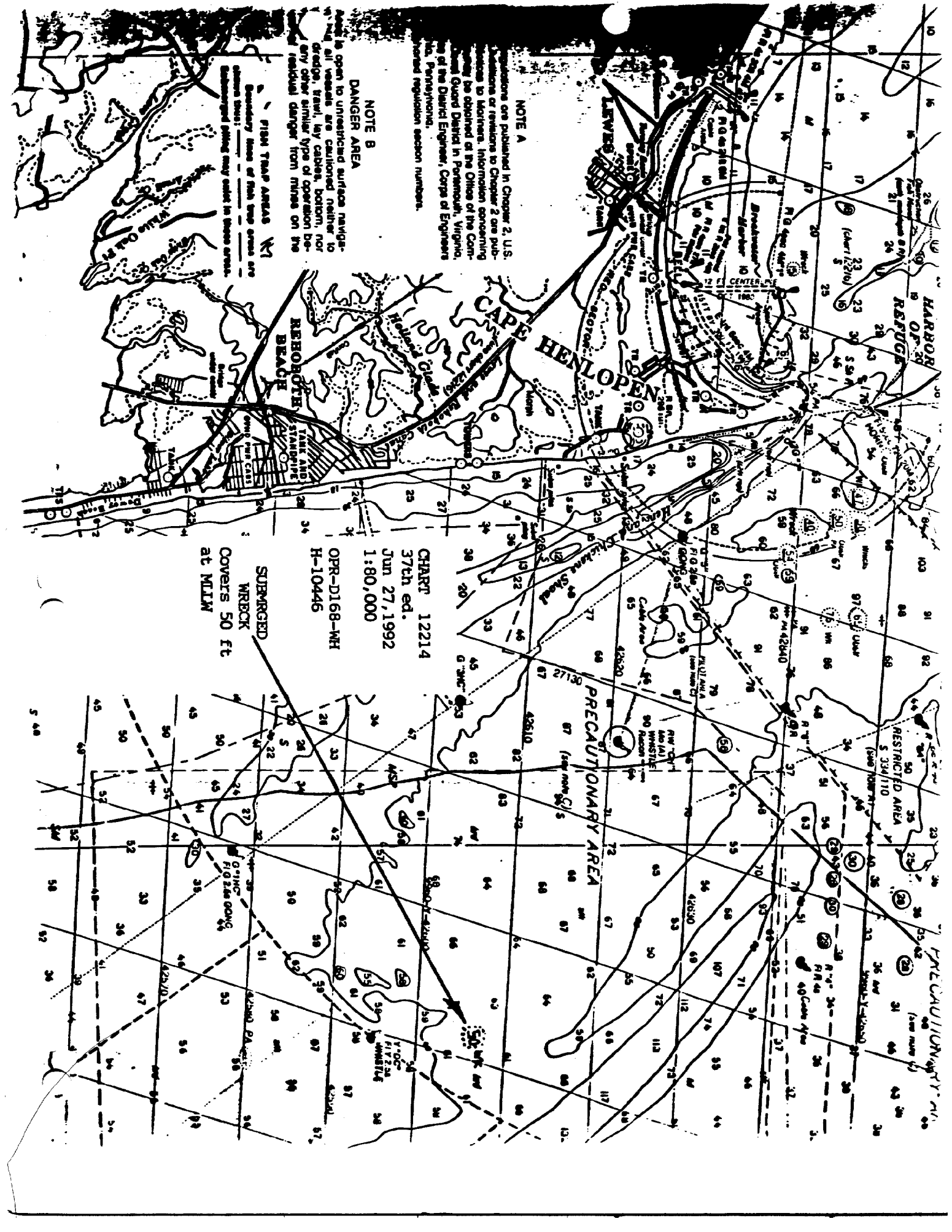
Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

**NOTE A**  
 Regulations one published in Chapter 2, U.S. Code, or revisions to Chapter 2 are published in the Federal Register. Information concerning these regulations may be obtained at the Office of the Commandant, Coast Guard District in Portsmouth, Virginia, or the District Engineer, Corps of Engineers, Philadelphia, Pennsylvania.  
 Revised regulation section numbers.

**NOTE B**  
**DANGER AREA**

Areas is open to unattended surface navigation, all vessels are cautioned neither to dredge, trawl, lay cables, bottom, nor any other similar type of operation because of residual danger from mines on the bottom.


**FISH TRAP AREAS**  
 Boundary lines of fish trap areas are shown by a dashed line.  
 Submerged fishing gear is shown by a solid line.



**APPROVAL SHEET  
FIELD EXAMINATION SURVEY  
OPR-D368-WH  
1993  
WH-20-6-93  
FE-386SS**

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 complete and adequate for the intended purpose of resolving items located in 1992 during H-10446 and for application to nautical charts.

Approved By:

  
Andrew A. Armstrong, III  
Commander, NOAA  
Commanding Officer





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Office of Ocean and Earth Sciences  
Rockville, Maryland 20852

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE:** December 29, 1992

**MARINE CENTER:** Atlantic

**HYDROGRAPHIC PROJECT:** OPR-D168-WH

**HYDROGRAPHIC SHEET:** H-10446

**LOCALITY:** Delaware, Atlantic Ocean, 3.5 NM East of Cape Henlopen

**TIME PERIOD:** October 23 - November 23, 1992

**TIDE STATION USED:** 855-7380 Lewes (Ft. Miles), Breakwater Harbor,  
Delaware Lat. 38° 46.9'N Lon. 75° 07.2'W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 2.51 ft.

**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 4.3 ft.

**REMARKS:** RECOMMENDED ZONING

Apply a -0 hr 30 min time correction and a x0.96 range ratio  
to Lewes Breakwater Harbor, Delaware (855-7380).

Note: Times are tabulated in Eastern Standard Time.

  
CHIEF, DATUMS SECTION





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Office of Ocean and Earth Sciences  
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 19, 1993

MARINE CENTER: Atlantic

HYDROGRAPHIC PROJECT: OPR-D368-WH

HYDROGRAPHIC SHEET: FE-386SS

LOCALITY: Approaches to Delaware Bay

TIME PERIOD: May 21 - August 14, 1993

TIDE STATION USED: 855-7380 Lewes (Ft. Miles), Breakwater Harbor,  
Delaware Lat.  $38^{\circ} 46.9'N$  Lon.  $75^{\circ} 07.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.51 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.3 ft.

REMARKS: RECOMMENDED ZONING

Apply a -0 hr 30 min time correction and a x0.96 range ratio  
to Lewes Breakwater Harbor, Delaware (855-7380).

Note: Times are tabulated in Eastern Standard Time.

*William M. H. H.*  
-----  
ACTING CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10446

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RAND McNALLY ATLAS	U.S. LIGHT LIST			
DELAWARE (title)											1
DELAWARE BAY (title)											2
HENLOPEN, CAPE (title)											3
											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved:

*Charles E. Harrison*  
Chief Geographer - N/C62x5

MAR - 2 1993

01/19/94

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10446

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	3516
NUMBER OF SOUNDINGS	27589

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	194	04/22/93
VERIFICATION OF FIELD DATA	372	12/27/93
ELECTRONIC DATA PROCESSING	148	
QUALITY CONTROL CHECKS	39	
EVALUATION AND ANALYSIS	137	01/06/94
FINAL INSPECTION	31	01/05/94
TOTAL TIME	921	
ATLANTIC HYDROGRAPHIC SECTION APPROVAL		01/19/94

---

**COAST AND GEODETIC SURVEY  
ATLANTIC HYDROGRAPHIC SECTION  
EVALUATION REPORT**

SURVEY NO.: H-10446                      FIELD NO.: WH-20-4-92

Delaware, Atlantic Ocean, 3.5 NM East of Cape Henlopen

SURVEYED: 23 October 1992 through 15 August 1993

SCALE: 1:10,000                      PROJECT NO.: OPR-D168-WH-92  
1:10,000 scale page                      OPR-D368-WH-93  
size plot

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, EG&G Model 260 Side Scan Sonar, Pneumatic Depth Gauge

CONTROL: MAGNAVOX MX4200D Differential GPS Receiver/MAGNAVOX MX50R Beacon Receiver (Differential Global Positioning System), ASHTECH GPS Sensor/MAGNAVOX MX50R Beacon Receiver (DGPS)

Chief of Party.....A. A. Armstrong III

Surveyed by.....S. R. Barnum  
.....C. B. Greenawalt  
.....J. S. Verlaque  
.....J. G. Clayton  
.....R. A. Fletcher  
.....D. E. Bixby  
.....L. P. Henn  
.....J. L. Riley  
.....N. O. Silverman  
.....M. P. Zipperer  
.....E. W. Berkowitz  
.....J. A. Seitz  
.....F. R. Cruz  
.....E. A. Myers  
.....S. R. Parker

Automated Plot by.....XYNETICS 1201 Plotter (AHS)

1. INTRODUCTION

a. Under the authority of Project Instructions, OPR-D368-WH-93, dated 23 February 1993, additional work was conducted on this survey. Field examination survey FE-386SS (1993) was generated to verify or disprove contacts located by the present survey. This survey has been incorporated into the present survey. The field examination number has been rescinded. The Descriptive Report for FE-386SS (1993) has been incorporated into the present survey Descriptive Report.

b. Positions of all sunken buoys and buoy anchors located by the NOAA Ship WHITING during the 1992 and 1993 field seasons were requested by Mr. John Walters, (804)-398-6230, Fifth Coast Guard District, Office of Aids to Navigation, Portsmouth, Virginia. Mr. Walters stated that the Coast Guard intended to remove the sunken buoys and buoy anchors. Several sunken buoys and buoy anchors are shown on the smooth sheet as obstructions. It is recommended that the compiler ascertain the disposition of each of these items prior to placing them on the next edition of the chart. A copy of the letter is attached to this report.

c. This is a combined basic hydrographic/side scan sonar survey. A RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar. A pneumatic depth gauge was used to determine least depths during dive operations.

d. A 1:10,000 scale smooth sheet and a 1:10,000 scale page size plot were generated during office processing. The 1:10,000 scale page size plot is attached to this report.

e. No unusual problems were encountered during office processing.

f. Notes in the Descriptive Report were made in red during office processing.

## 2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections H. and I. of the Descriptive Report.

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. The smooth sheet has been annotated with ticks showing the computed mean shift between the survey datum and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27 datum move the projection lines 0.405 seconds (12.50 meters or 1.250 mm at the scale of the survey) north in latitude, and 1.330 seconds (32.11 meters or 3.211 mm at the scale of the survey) east in longitude.

To place the 1:10,000 scale page size plot on the NAD 27 datum move the projection lines 0.404 seconds (12.46 meters or 1.246 mm at the scale of the survey) north in latitude, and

1.348 seconds (32.51 meters or 3.251 mm at the scale of the survey) east in longitude.

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

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement and comply with the criteria found in sections 4.6.1. and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard depth curves were drawn in their entirety. Dashed curves were drawn to show additional bottom relief.

c. The development of the bottom configuration and determination of least depths is considered adequate.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports conform to the requirements of the HYDROGRAPHIC MANUAL, SIDE SCAN SONAR MANUAL, and FIELD PROCEDURES MANUAL.

5. JUNCTIONS

H-10444 (1992) to the southeast  
H-10476 (1993) to the south  
H-10489 (1993) to the northeast

A standard junction was effected between the present survey and surveys H-10444 (1992-93), H-10476 (1993) and H-10489 (1993). There are no contemporary surveys to the northwest or west. Present survey depths are in harmony with the charted hydrography to the northwest and west.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrography

H-9136 (1970) 1:20,000  
H-9154 (1970) 1:10,000  
H-9176 (1970) 1:10,000

The prior surveys listed above cover the present survey area in its entirety. These prior surveys are adequately discussed in section M., pages 10 through 13, of the Descriptive Report and need no further discussion.

The present survey is adequate to supersede the above prior surveys within the common area.

b. Wire Drag

H-9173WD (1970) 1:20,000  
H-9758WD (1976) 1:20,000

1) There are no hangs or groundings originating with prior survey H-9173WD (1970) that fall within the common area of the present survey.

There are no conflicts between the prior survey effective clearance depths and present survey soundings.

2) Seven hangs and one obstruction located by side scan sonar originate with prior survey H-9758WD (1976). The items are adequately discussed in sections M., pages 10-13, and N., pages 46, 49, 55, and 73 of the Descriptive Report and need no further discussion.

There are no conflicts between the prior survey effective clearance depths and the present survey soundings.

7. COMPARISON WITH CHART 12304, (34th. Ed., 24 October 1992)  
12214, (37th. Ed., 27 June 1992)  
12216, (23rd. Ed., 22 February 1992)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and requires no further consideration. The hydrographer makes an adequate chart comparison on pages 11-15, 19-32, and 40-118 of the Descriptive Report.

b. Dangers to Navigation

The hydrographer identified a danger to navigation and submitted information for inclusion in Local Notice to Mariners, to Commander (oan), Fifth Coast Guard District, Portsmouth, Virginia, and to National Ocean Service (NOS), Chart Information Section, N/CG222, Rockville, Maryland. A copy of the letter is appended to the hydrographer's report. No additional comments concerning the hazards are required.

c. Aids to Navigation

There are six floating aids to navigation shown on the present survey. These aids appear adequate to serve their intended purpose.



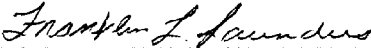
8. COMPLIANCE WITH INSTRUCTIONS


This survey complies with the Project Instructions.

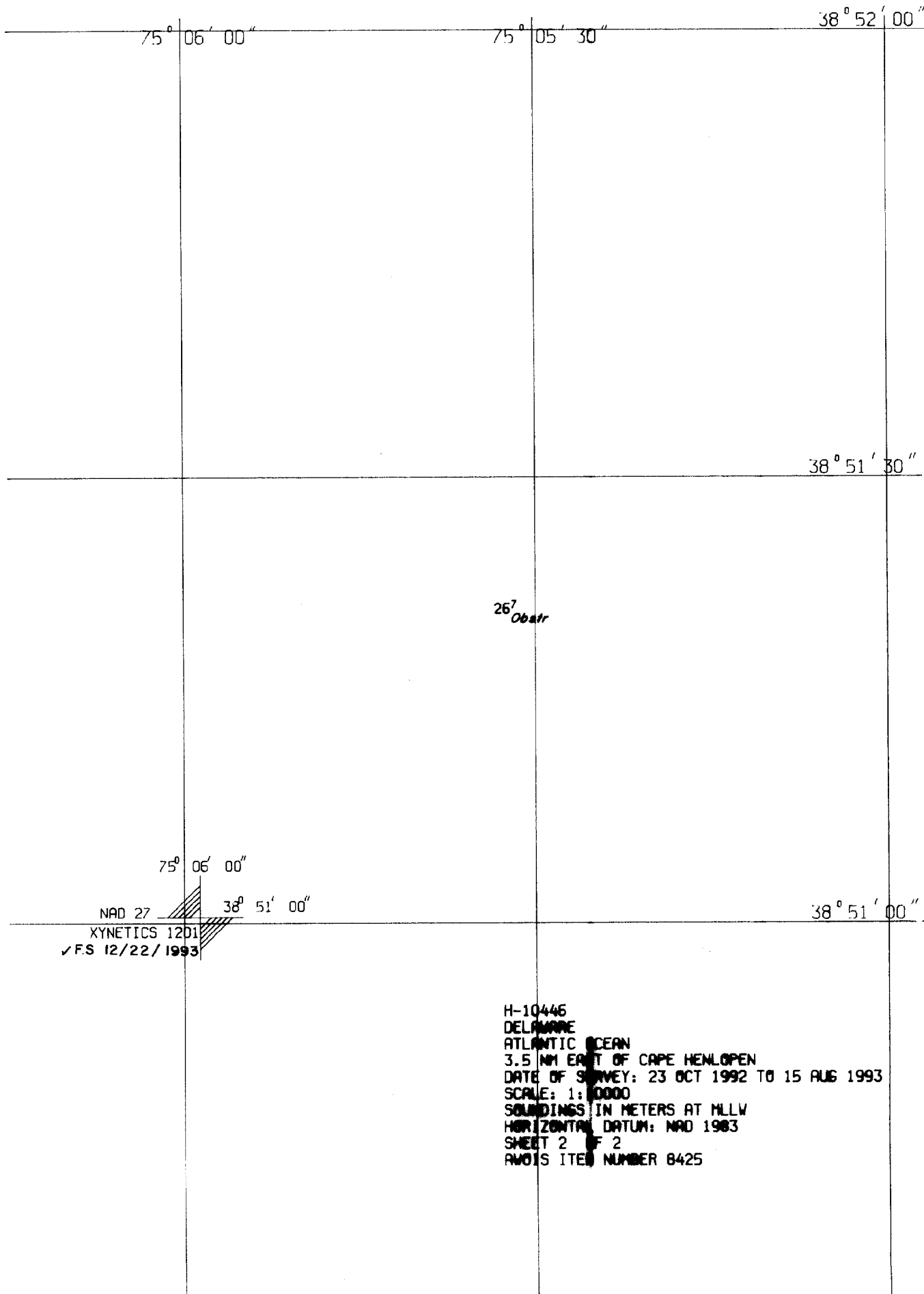
9. ADDITIONAL FIELD WORK

This is an adequate basic hydrographic/side scan sonar survey. No additional work is recommended for this report.

WHITING Processing Team  
Verification and Evaluation and Analysis

  
\_\_\_\_\_  
Franklin L. Saunders  
Cartographic Technician

  
\_\_\_\_\_  
Norris A. Wike  
Cartographer



267  
*Obatr*

75° 06' 00"  
NAD 27  
KINETICS 1201  
✓ F.S 12/22/1993  
38° 51' 00"

H-10446  
DELAWARE  
ATLANTIC OCEAN  
3.5 NM EAST OF CAPE HENLOPEN  
DATE OF SURVEY: 23 OCT 1992 TO 15 AUG 1993  
SCALE: 1:10000  
SOUNDINGS IN METERS AT MLLW  
HORIZONTAL DATUM: NAD 1983  
SHEET 2 OF 2  
AWOIS ITEM NUMBER 8425

+

T

T



September 30, 1993

Mr. John Walters  
Fifth Coast Guard District  
Aids to Navigation Branch  
Federal Building  
431 Crawford Street  
Portsmouth, VA 23704-5004

Dear Mr. Walters,

This office is in the process of reviewing hydrographic surveys conducted by the NOAA Ship WHITING at the approaches to Delaware Bay. As you are aware, field work was conducted during the fall of 1992 and the summer of 1993. The WHITING has finished field work in the area for 1993 and will be returning in the spring of 1994.

As Lieutenant Commander George White discussed with you in July, the WHITING has conducted dive investigations on a number of items which were deemed "significant" obstructions by NOAA standards: features with heights greater than 1 meter in water depths less than 20 meters, and heights greater than 10 percent of the depth in depths over 20 meters. Some of these features were found to be debris from sunken navigational aids. As you requested, I am providing locations and descriptions of derelict buoys and anchors to facilitate their removal.

The lists that follow are organized by categories on survey sheet areas which are shown on the attached chartlet. Items are classified into three categories;

Category 1: items that the NOAA Ship WHITING has positively identified with dive investigations this year. Accuracy of these positions are on the order of 3 meters.

Category 2: items located last year that were investigated for a second time with side scan sonar (SSS) this year. Dive investigations were not conducted on these items, since they were deemed to have insignificant heights. However, most of these items are suspected to be remains of buoys. The accuracy of these positions are on the order of 20 to 30 meters.

Category 3: items determined by the ship to be in the vicinity of prior charted buoys. No further investigations were conducted this year, since heights were deemed insignificant. The accuracy of these positions are on the order of 20 to 30 meters.



The enclosed listing "Buoys, Blocks and Contacts" list the features located by the NOAA Ship WHITING. Under the title "**^NAME^**," category 1 lists a description of either Block or Buoy. Categories 2 and 3 use the title "contact" instead of "**^NAME^**", and the corresponding description is the contact number as it is found in the digital records. Category 1 items have the least depth of the item in feet listed. Category 2 and 3 list the contact heights, as scaled from SSS records sonargrams. The "**DEPTH OF WATER**" lists the approximate surrounding depths around each of the contacts. At the end of each item listed, there is the letter "P" or a number. The "P" represents items that were plotted on the accompanying mylar overlay of chart 12214. A number following the item indicates that the feature has not been plotted due to its close proximity to a more significant feature. The number refers to the listing number of the more significant feature which was plotted.

The enclosed mylar plot is an overlay of chart 12214 (1:80,000) and shows items or contacts that were located in the survey area. Items are plotted in Black, Red and Blue respective to the above categories. The plot also shows the survey areas that have been assigned. The following table shows the status of each survey.

<b>SHEET</b>	<b>SURVEY</b>	<b>PROJECT</b>	<b>STATUS</b>
<b>A</b>	<b>H-10446</b>	<b>WH-20-04-92 *</b>	<b>SMOOTH SHEET</b>
<b>B</b>	<b>H-10444</b>	<b>WH-20-03-92 *</b>	<b>SMOOTH SHEET</b>
<b>C</b>	<b>H-10476</b>	<b>WH-20-07-93 #</b>	<b>POSITION VERIF.</b>
<b>D</b>	<b>H-10440</b>	<b>WH-20-02-92 *</b>	<b>COMPLETED</b>
<b>E</b>	<b>H-10475</b>	<b>WH-20-04-93 #</b>	<b>POSITION VERIF.</b>
<b>F</b>	<b>H-10439</b>	<b>WH-20-01-92 *</b>	<b>COMPLETED</b>
<b>G</b>	<b>H-10464</b>	<b>WH-20-01-93 #</b>	<b>SOUNDING VERIF.</b>
	<b>* OPR-D168-WH-92</b>	<b># OPR-D368-WH-93</b>	

Note: Some of the surveys listed as "completed" above have been supplemented by 1993 field examinations. These field examinations are still being processed. These field examinations should remove the "Obstruction (A)" notes shown on smooth sheets.

Please notify my office if any of these features are ultimately removed. We will require proper documentation to keep them from appearing on the chart.

Data are attached for survey areas H-10439, H-10444 and H-10446. No obstructions were found in H-10440. Data for the remaining surveys will be forwarded as they become available. All of the data provided should be considered preliminary. Only Category 1 features have been fully verified. We expect all WHITING surveys to be completely processed by March, 1994. At that time, I will forward a copy of all surveys (plotted in feet) to your office. Feel free to contact me if you have any questions.

Sincerely,



Nicholas E. Perugini  
Lieutenant Commander, NOAA  
Chief, Atlantic Hydrographic Section

Enclosures

LIST OF ENCLOSURES

- Listing of Category 1, 2, and 3 "Buoys, Blocks and Contacts"
- Chartlet showing Delaware Bay survey sheets
- Mylar overlay of chart 12214 showing positions of prominent features. (Chart Tube)
- Preliminary Copies of surveys 10444, 10446, 10439, 10440 (Chart Tube)

# Buoys, Blocks, and Contact

## CATEGORY 1 FEATURES

CARTO TABLE NO. 2 19 Aug 1993 09:09:18

Plotted  
P/#

3 #	CATEGORY I	M-10439	Black Ink	Lat =	Long =	P/#
4 #	NAME	LEAST DEPTH FT.	DEPTH OF WATER FT.	Lat =	Long =	
5	BLOCK*	62	62-65	Lat = 038/47/19.58	Long = 074/55/00.07	P
7 #	CATEGORY I	M-10441		Lat =	Long =	
8	BLOCK*	41	43-44	Lat = 038/47/16.87	Long = 074/55/31.78	9
9	BUOY*	34	43-44	Lat = 038/47/16.44	Long = 074/55/32.65	P
10	BLOCK*	39	43	Lat = 038/47/16.58	Long = 074/55/29.81	9
11	BLOCK*	37	39-40	Lat = 038/48/19.81	Long = 074/55/18.26	12
12	BLOCK*	35	38-40	Lat = 038/48/21.86	Long = 074/55/12.16	P
13	BLOCK*	38	40-41	Lat = 038/48/19.78	Long = 074/55/09.88	12
14	BLOCK*	39	40-41	Lat = 038/48/20.88	Long = 074/55/01.38	P
16 #	CATEGORY I	M-10446		Lat =	Long =	
17	BLOCK*	58	60-62	Lat = 038/46/23.78	Long = 074/51/29.61	P
18	BUOY*	40	41-52	Lat = 038/49/16.39	Long = 075/01/34.17	P
19	BUOY*	55	52-64	Lat = 038/47/13.55	Long = 075/03/28.55	P
20	BLOCK*	57	61-62	Lat = 038/47/27.25	Long = 075/03/13.53	P
21	BLOCK*	60	65-71	Lat = 038/46/11.46	Long = 075/02/44.34	P
22	BLOCK*	55	63-61	Lat = 038/46/49.72	Long = 075/02/09.01	P
23	BUOYS-2*	61	62-66	Lat = 038/47/20.66	Long = 075/02/55.66	P
24	BUOY*	78	83-87	Lat = 038/48/19.64	Long = 075/01/45.64	P

Category 1 features have been verified by WHITING divers to be the remains of submerged buoys or blocks.

CATEGORY 2 FEATURES

CARTO TABLE NO. 2 19 Aug 1993 09:12:29

26 #	CATEGORY-2	N-10446	Red Ink	Lat =	Long =
27	CONTACT	HEIGHT	DEPTH OF WATER (feet)	Lat =	Long =
28	229.565°	2.6	58.7	Lat = 038/47/14.53	Long = 075/03/30.88 28
29	129.285°	6.2	73.1	Lat = 038/47/09.72	Long = 075/02/20.60 P
30	261.715°	1.3	74.1	Lat = 038/47/51.98	Long = 074/59/35.96 28
31	262.155°	1.3	72.1	Lat = 038/47/56.08	Long = 074/59/10.53 28
32	265.425°	5.9	72.1	Lat = 038/47/55.80	Long = 074/59/15.72 28
33	265.585°	5.2	73.1	Lat = 038/48/02.43	Long = 074/59/15.53 28
34	54.21P°	7.5	90.2	Lat = 038/48/58.60	Long = 075/02/16.15 38
35	155.79P°	2.9	61.8	Lat = 038/47/37.38	Long = 075/01/13.81 38
36	161.74P°	1.3	76.4	Lat = 038/47/35.60	Long = 075/01/23.26 38
37	167.835°	4.9	74.1	Lat = 038/47/36.30	Long = 075/01/22.70 38
38	157.185°	2.6	77.8	Lat = 038/47/36.52	Long = 075/01/22.75 38
39	161.685P°	<del>2.6</del> NOT SOUNDING	74.1	Lat = 038/47/36.29	Long = 075/01/21.25 P
40	164.50P°	12.7	67.5	Lat = 038/47/36.63	Long = 075/01/22.87 38
41	164.565°	9.8	69.2	Lat = 038/47/37.02	Long = 075/01/24.15 38
42	164.59P°	2.9	63.6	Lat = 038/47/37.63	Long = 075/01/22.87 38
43	169.81P°	2.6	75.4	Lat = 038/47/39.53	Long = 075/01/23.61 38
44	173.115°	6.5	75.1	Lat = 038/47/45.91	Long = 075/01/24.36 38
45	33.63P°	3.2	34.4	Lat = 038/49/19.94	Long = 075/01/36.23 15
46	70.435°	4.0	35.1	Lat = 038/49/10.81	Long = 075/01/34.65 24

Category 2 features are those which have been developed by side scan sonar but were deemed insignificant. However, they are suspected to be the remains of buoys or blocks. They may not have been investigated due to their close proximity to other more prominent features.



ID	CATEGORY-3	H-10444	Blue Ink	Lat	Long	
49 CONTACT	HEIGHT	DEPTH OF WATER (MT)		Lat =	Long =	
50	6505.015*	0.0	35.7	Lat = 038/48/04.60	Long = 074/54/52.20	12
51	6630.155*	0.0	35.4	Lat = 038/48/20.00	Long = 074/55/07.70	12
52	6663.685*	3.2	32.4	Lat = 038/48/19.90	Long = 074/55/08.80	12
53	6663.775*	0.0	32.1	Lat = 038/48/20.10	Long = 074/55/10.30	12
54	6663.855*	0.0	31.1	Lat = 038/48/22.10	Long = 074/55/12.00	12
55	6687.545*	1.6	32.8	Lat = 038/48/20.40	Long = 074/55/13.20	12
56	6687.555*	0.0	32.8	Lat = 038/48/21.20	Long = 074/55/13.00	12
57	6687.675*	0.0	33.1	Lat = 038/48/19.70	Long = 074/55/10.10	12
58	6687.755*	0.0	32.8	Lat = 038/48/19.60	Long = 074/55/09.20	12
59	6690.885*	0.0	32.8	Lat = 038/48/20.70	Long = 074/55/13.50	12
60	6690.185*	0.0	33.7	Lat = 038/48/21.70	Long = 074/55/12.70	12
61	6690.225*	0.0	33.1	Lat = 038/48/19.70	Long = 074/55/10.30	12
62	6690.375*	0.0	34.4	Lat = 038/48/19.80	Long = 074/55/09.80	12
63	6724.427*	0.0	34.4	Lat = 038/48/22.20	Long = 074/55/12.30	12
64	6907.077*	0.0	31.1	Lat = 038/48/22.80	Long = 074/55/13.80	12
65	6907.187*	0.0	32.4	Lat = 038/48/20.30	Long = 074/55/10.90	12
66	6907.285*	0.0	33.4	Lat = 038/48/19.70	Long = 074/55/09.80	12
67	6909.785*	0.0	36.4	Lat = 038/48/04.70	Long = 074/54/52.60	12
68	6958.105*	0.0	37.4	Lat = 038/48/04.70	Long = 074/54/53.30	12
69	6958.745*	5.2	33.7	Lat = 038/47/07.40	Long = 074/55/08.50	9
70	7001.515*	5.5	34.4	Lat = 038/47/16.30	Long = 074/55/08.20	9
71	7001.655*	0.0	34.1	Lat = 038/47/06.57	Long = 074/55/08.35	9
72	7001.835*	0.0	34.4	Lat = 038/47/06.57	Long = 074/55/08.00	9
73	7014.535*	0.0	35.1	Lat = 038/48/02.05	Long = 074/52/13.30	P
74	7014.555*	0.0	34.4	Lat = 038/48/02.07	Long = 074/52/13.30	14
75	7030.155*	3.1	40.0	Lat = 038/48/02.05	Long = 074/52/13.30	P

CATEGORY 3 features are those which were deemed insignificant based on side scan sonar information, or their proximity to more significant contacts.

"p" = plotted  
 Number shows more significant  
 Contact

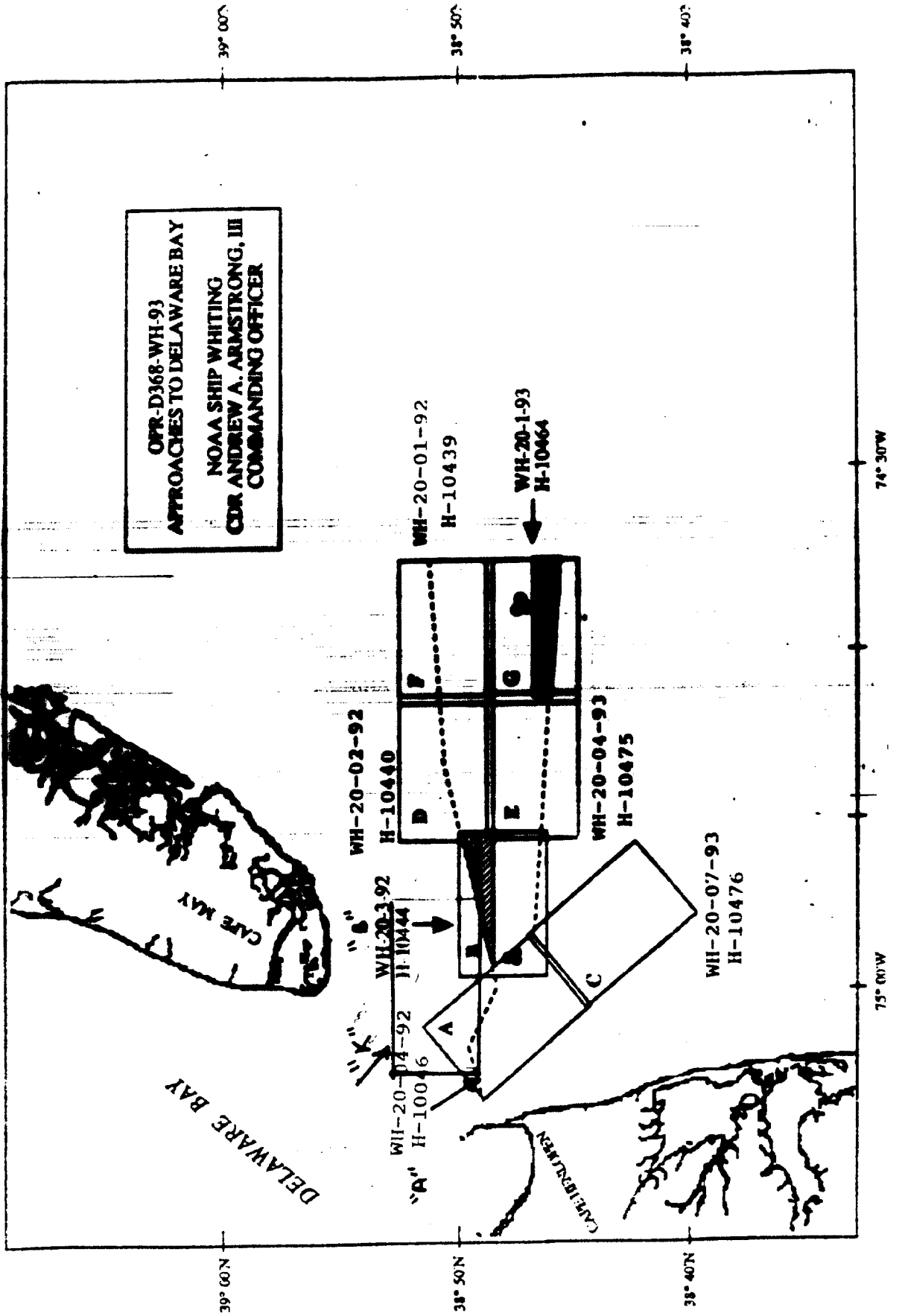
	HT (FT)	DPHT (FT)	Lat	Long	
76 6893.185*	1.6	31.4	038/49/15.61	074/54/59.30	P
77 6893.24P*	0.0	33.7	038/49/14.46	074/54/58.26	76
78 6896.045*	4.9	34.1	038/49/00.34	074/54/53.68	P
79 3002.635*	7.5	74.4	038/48/03.30	074/59/46.80	93
80 3009.03P*	8.5	73.1	038/48/02.20	074/59/45.30	93
81 3110.125*	6.8	74.4	038/48/02.70	074/59/46.70	93
82 3506.395*	0.0	73.8	038/48/02.50	074/59/46.20	93
83 3536.345*	3.6	74.4	038/48/02.30	074/59/44.70	93
84 3499.065*	5.2	73.1	038/48/03.40	074/59/46.50	93
85 3426.885*	3.2	75.1	038/48/02.70	074/59/45.20	93
86 3835.135*	0.3	78.8	038/48/03.70	074/59/47.50	93
87 3426.195*	4.9	78.8	038/47/55.70	074/59/48.48	93
88 3426.23P*	1.6	75.7	038/47/55.80	074/59/48.50	93
89 3885.768*	7.5	78.8	038/47/55.30	074/59/48.30	93
90 3585.825*	3.2	77.4	038/47/57.20	074/59/48.80	93
91 3834.455*	1.6	75.4	038/47/55.50	074/59/48.70	93
92 003.265*	6.5	76.7	038/47/55.70	074/59/48.70	93
93 3009.58P*	19.3	77.4	036/47/55.00	074/59/48.20	P
94 3110.665*	6.2	77.7	038/47/55.70	074/59/48.40	93
95 3009.825*	3.9	75.4	038/47/52.50	074/59/47.10	93
96 3009.87P*	2.2	74.4	038/47/51.80	074/59/46.20	93
97 3111.025*	8.2	76.4	038/47/52.50	074/59/47.30	93
98 3111.075*	3.9	78.4	038/47/52.00	074/59/46.50	93
99 3535.555*	9.1	78.4	038/47/53.60	074/59/47.30	93
100 3535.485*	3.6	85.6	038/47/53.10	074/59/45.40	93
101 3447.60P*	5.0	75.0	038/48/00.00	074/59/45.00	93
102 3447.245*	1.4	74.4	038/48/00.00	074/59/45.00	93
103 3534.235*	5.7	75.0	038/47/52.80	074/59/47.10	93

Category 3 features are those which were deemed insignificant based on side scan sonar information, or their proximity to more significant contacts.

104	366.395°	13.7	52.1	Lat = 038/47/13.50	Long = 075/03/20.60	19
105	332.135°	0.0	51.1	Lat = 038/47/13.00	Long = 075/03/20.90	19
106	2569.62P°	0.0	34.1	Lat = 038/49/20.20	Long = 075/01/39.60	18
107	2569.67P°	0.0	40.6	Lat = 038/49/19.80	Long = 075/01/38.30	18
108	2595.82P°	8.8	31.8	Lat = 038/49/19.90	Long = 075/01/39.70	18
109	2615.445°	0.0	41.6	Lat = 038/49/20.00	Long = 075/01/39.80	18
110	2596.225°	0.0	25.2	Lat = 038/49/19.46	Long = 075/01/38.10	18
111	3183.71P°	0.0	34.7	Lat = 038/49/19.80	Long = 075/01/39.50	18
112	2615.395°	0.0	30.5	Lat = 038/49/19.40	Long = 075/01/38.40	18
113	3183.67P°	3.2	24.9	Lat = 038/49/19.30	Long = 075/01/38.00	18
114	2569.62P°	0.0	34.1	Lat = 038/49/21.80	Long = 075/01/38.10	18
115	2596.165°	0.0	35.4	Lat = 038/49/20.68	Long = 075/01/38.80	18
116	2615.445°	0.0	37.0	Lat = 038/49/20.88	Long = 075/01/36.98	18
117	1662.38P°	1.3	68.6	Lat = 038/47/37.20	Long = 075/01/12.40	118
118	1662.39P°	2.9	62.1	Lat = 038/47/38.80	Long = 075/01/12.40	P
119	3283.255°	0.0	60.0	Lat = 038/47/36.26	Long = 075/01/12.20	118
120	1851.529°	2.6	59.8	Lat = 038/47/36.88	Long = 075/01/12.20	118
121	1852.585°	1.6	58.0	Lat = 038/47/37.40	Long = 075/01/13.00	118
122	3283.175°	0.0	57.7	Lat = 038/47/37.70	Long = 075/01/13.40	118
123	1852.755°	0.0	74.1	Lat = 038/47/39.70	Long = 075/01/14.60	118
124	1755.33P°	0.0	65.9	Lat = 038/47/39.60	Long = 075/01/15.20	118
125	3283.005°	0.0	57.0	Lat = 038/47/39.80	Long = 075/01/15.20	118
126	378.14P°	1.3	55.4	Lat = 038/49/51.80	Long = 075/04/50.80	127
127	378.17P°	0.0	55.4	Lat = 038/48/51.60	Long = 075/04/51.30	P
128	480.55P°	0.0	58.0	Lat = 038/48/51.20	Long = 075/04/50.20	127
129	1873.62P°	1.6	74.4	Lat = 038/47/35.80	Long = 075/01/14.10	127
130	1873.67P°	1.3	72.0	Lat = 038/47/35.70	Long = 075/01/14.00	127
131	1873.68P°	0.8	73.9	Lat = 038/47/35.40	Long = 075/01/13.60	127

Category 3 features are those which were deemed insignificant based on side scan sonar information, or their proximity to more significant contacts.

# NOAA SHIP WHITING PROGRESS SKETCH



APPROVAL SHEET  
H-10446

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 disapproval 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. Final control, position, and sounding printouts of the survey have been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Leroy G. Cram  
Leroy G. Cram  
Chief, Hydrographic Processing Team B  
Atlantic Hydrographic Section

Date: January 19, 1994

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  
Nicholas E. Perugini, LCDR, NOAA  
Chief, Atlantic Hydrographic Section

Date: January 19, 1994

\*\*\*\*\*

Final Approval:

Approved: J. Austin Yeager  
J. Austin Yeager  
Rear Admiral, NOAA  
Director, Coast and Geodetic Survey

Date: 5/11/94

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

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10446

**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
12200	5-4-94	John Barber	<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No. 55 ENC-falls within 3E-Area. Considered fully APP'd
12214	9-12-94	R.B. Ross	<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No. 50 <i>App'd Critical Area only.</i>
12214	2/1/95	R.B. Ross	<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No. 51 <i>Applied in full thru 12216</i>
12216	2/1/95	R.B. Ross	<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No. 33 <i>applied in full</i>
12304	2/1/95	R.B. Ross	<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No. 60 <i>App'd in full thru 12216-12214</i>
13003	4/19/95	J. Stannett	<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No. <i>exam no Cori's 3E' Area</i>
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.