H10560

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.: MI-10-7-94

Registry No.: H-10560

LOCALITY

State: Louisiana

General Locality: Gulf of Mexico

Sublocality: Calcasieu Pass

19 94

CHIEF OF PARTY
CAPT N. A. Prahl

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DATE: MAR 7 1997

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NOAA FORM 77-28
(11-72)

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

REGISTRY NUMBER:

H-10560

HYDROGRAPHIC TITLE SHEET

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

FIELD NUMBER: MI-10-07-94

State: Louisiana

General locality: Gulf of Mexico

Locality: ~~Approaches to~~ Calcasieu Pass, ~~LA~~

Scale: 1: 10,000 Date of survey: 05 Aug - 08 Nov, 1994

Instructions dated: 26 July 1994 Project Number: OPR-K171-MI-94

Vessel: NOAA Ship MT MITCHELL S-222

Chief of Party: CAPT Nicholas A. Prahl, NOAA

Surveyed by: J.A. Ferguson, E.J. Van Den Ameele, T. Duffy, M.P.M. Soracco, J.D. Swallow, S.R. Williams, S.A. Shaulis, J.A. Mann, E.J.Sipos, M.W. Stukes, U.L. Gardner, P.G. Lewit, M.E. Ahern, M.J. Annis, L.A. Butler, M.T. Lathrop, and E.R. Yniguez.

Soundings taken by echo sounder, hand lead-line, or pole: DSF 6000N fathometer

Graphic record scaled by: MT MITCHELL personnel

Graphic record checked by: MT MITCHELL personnel

Protracted by: N/A Automated plot by: Zeta 936 Plotters (FIELD) ENCAD NOVAJET III PLOTTER (AHB)

Verification by: Hydrographic Surveys Branch PERSONNEL

Soundings in: Feet: ✓ Fathoms: ____ Meters: (*) at MLW: ____ MLLW: (*) :

Remarks: Basic Hydrographic Survey.

200% side scan sonar coverage of Calcasieu Channel, safety fairway and fairway anchorages.

Field Examinations of AWOIS #1326, #8924, #8930, #8931, #8932, #8933, #8934, #8935, #8939, #8960, #8961, #8962 and #8968.

Time zones used: +0 (UTC) for data collection and +0 (UTC) for tidal data.

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

MAR 7 1997

AWOIS ✓ & SURF ✓ by MBH 2/26/97

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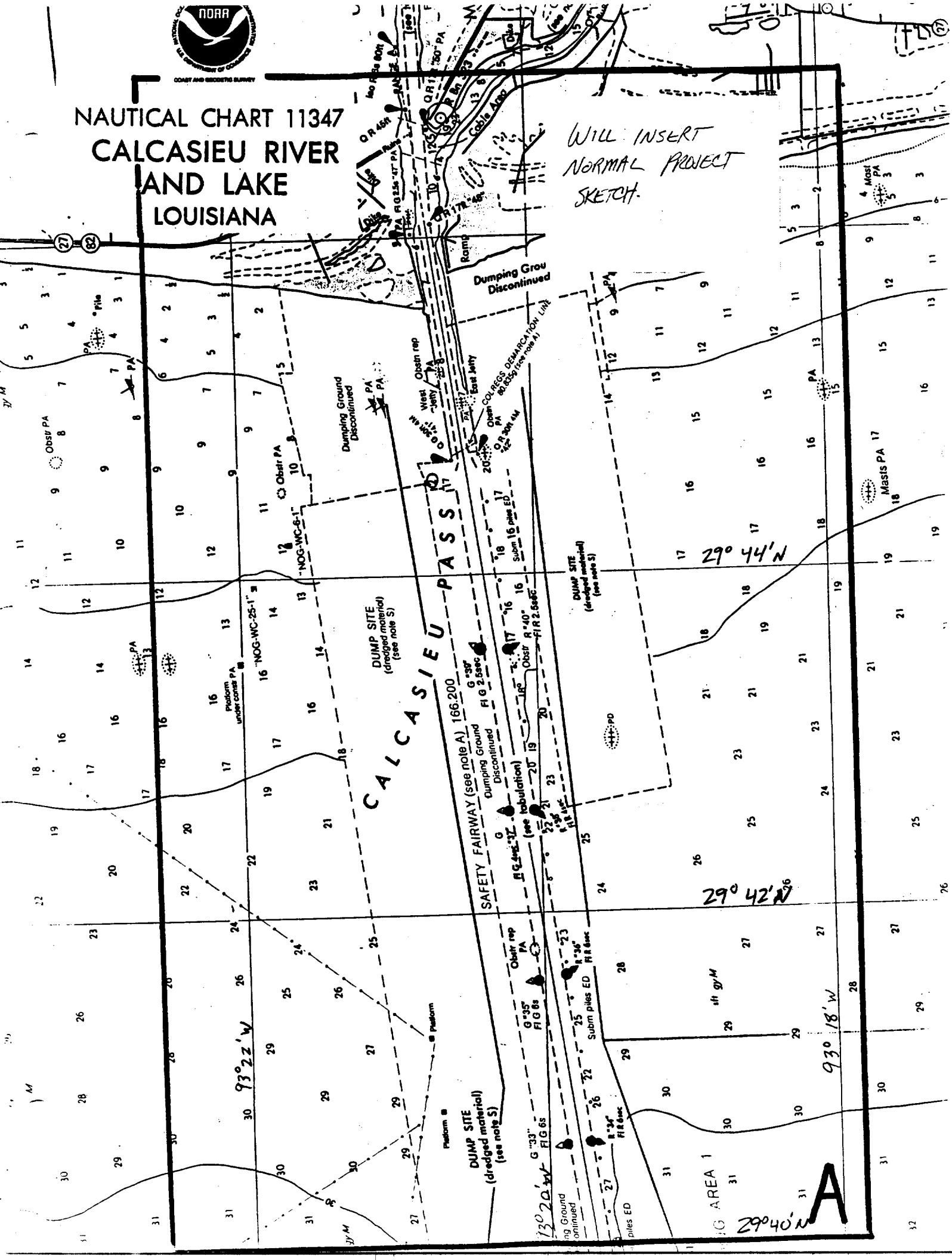
* FILED WITH THE ORIGINAL FIELD DATA.


NOAA
COAST AND GEODETIC SURVEY
NAUTICAL CHART 11347
CALCASIEU RIVER AND LAKE
LOUISIANA
WILL INSERT NORMAL PROJECT SKETCH.
CALCASIEU PASS
SAFETY FAIRWAY (see note A) 166.200
29° 44'N
29° 42'N
29°40'N
93°22'W
93°18'W
93°20'W
DUMP SITE (dredged material) (see note S)
Dumping Ground Discontinued
COLREGS DEMARCATION LINE
AREA 1
A

CAMERON TO SABINE
PROJECT SKETCH
OPR-K171-MI-94
NOAA SHIP MT MITCHELL S-222
CAPT. NICHOLAS A. PRAHL

HYDRO
100% SSS
200% SSS
CTD
ANCHORAGE

TEXAS

LOUISIANA

SABINE

TIDE GAUGE

MI-10-7-94

CAMERON

G F A B E J I O Q

AUG	SEP.	OCT	NOV		TOTAL
27	23	24	16	DAYS AT SEA	90
1648.5	1015.7	1309.7	488.4	LNM	4462.3
68.5	79.1	47.2	20.4	SQNM	215.2
2	2	3	1	CTD'S	8
6	18	12	0	DIVES	41
2	0	0	8	AWOIS RESOLVED	10
1	7	5	7	NEW ITEMS	20

29 30

29 00

94 00

93 30

93 00

DRAWN BY
YNIGUEZ AND LEWIT

A. PROJECT

A.1 This survey was conducted in accordance with Project Instructions OPR-K171-MI-94, Cameron, Louisiana to Sabine, Texas.

A.2 The original date of these project instructions is July 26, 1994.

A.3 There were no changes to these project instructions corresponding to this survey.

A.4 This report corresponds to project sheet letter "A".

A.5 Project OPR-K171-MI-94 responds to a request from the National Transportation Safety Board to obtain modern hydrography in the project area following the accident in which the F/V NORTHUMBERLAND struck and ruptured a gas transmission pipeline. Reconnaissance hydrography by the National Ocean Service (NOS) in 1991 found sufficient chart discrepancies to recommend that basic hydrography should be conducted.

B. AREA SURVEYED

B.1 This survey is located in the Gulf of Mexico, offshore of Calcasieu Pass, Louisiana. The survey includes the entrance channel to Calcasieu Pass, the safety fairway east and west of the channel, the fairway anchorage east of the channel, and adjacent waters. The frequent traffic in this area includes cargo and petroleum ships enroute to Lake Charles, Louisiana, numerous commercial fishing vessels, oil rig and platform supply boats, and pleasure craft.

B.2 The survey sheet is rectangular and is delineated to the north and south by latitudes 29° 46' 30" N and 29° 40' 00"N respectively, and to the east and west by longitudes 093° 17' 50" W and 093° 22' 45" W respectively.

B.3 Survey operations on this sheet began 05 August 1994 (DN 217) and concluded 08 November 1994 (DN 312).

C. SURVEY VESSELS

C.1 The following vessels participated in this survey:

Vessel	Electronic Data Processing Number	Primary Function
MT MITCHELL	2220	CTD casts
JENSEN LAUNCH 1004 (MI-3)	2223	Hydrography, Side Scan Sonar, Detached Positions, Bottom Samples, Dive Support
JENSEN LAUNCH 1002 (MI-4)	2224	CTD casts
JENSEN LAUNCH 1021 (MI-5)	2225	Hydrography, Side Scan Sonar, Bottom Samples
JENSEN LAUNCH 1008 (MI-6)	2226	Dive support
BOSTON WHALER (MI - 1)	2221	CTD casts; Dive Support; Visual searches

D. AUTOMATED DATA ACQUISITION AND PROCESSING

SEE ALSO THE EVALUATION REPORT.

D.1 Survey data acquisition and processing utilized the HDAPS system with the following software versions:

PROGRAM	VERSION	INSTALLATION DATE
BACKUP	2.00	14 MAR 94
BASELINE	1.14	14 MAR 94
BIGABST	2.07	14 MAR 94
BIGAUTOST	3.01	14 MAR 94
BLKEDIT	2.02	14 MAR 94
CARTO	2.15	31 AUG 94
CLASSIFY	1.05	31 AUG 94
CONTACT	2.41	12 SEP 94
CONVERT	3.63	31 AUG 94

DAS_SURV	6.74	31 AUG 94
DIAGNOSE	3.05	31 APR 94
DISC_UTIL	1.00	14 MAR 94
DP	2.15	31 AUG 94
DSNEDIT	1.02	12 SEP 94
EXCESS	4.31	31 AUG 94
FILESYS	3.27	31 AUG 94
GRAFEDIT	1.06	14 MAR 94
HIPSTICK	1.01	14 MAR 94
HPRAZ	1.26	14 MAR 94
INVERSE	2.01	14 MAR 94
LISTDATA	1.02	14 MAR 94
LOADNEW	2.10	14 MAR 94
LSTAWOIS	3.07	15 APR 94
MAINMENU	1.20	14 MAR 94
MAN_DATA	2.01	14 MAR 94
NEWPOST	6.12	31 AUG 94
PLOTALL	2.30	31 AUG 94
POINT	2.10	14 MAR 94
PREDICT	2.01	14 MAR 94
PRESURV	7.09	31 AUG 94
PRINTOUT	4.04	31 AUG 94
QUICK	2.05	31 AUG 94
RAMSAVER	1.02	14 MAR 94
REAPPLY	2.11	31 AUG 94
RECOMP	1.02	14 MAR 94
SCANNER	1.00	14 MAR 94
SELPRINT	2.05	31 AUG 94
SYMBOLS	N / A	14 MAR 94
VERSIONS	1.00	14 MAR 94
ZOOMEDIT	2.30	31 AUG 94

Because this survey contained over 200 datasets, changes to the HDAPS programs CLASSIFY, CONTACT, DP, and FILESYS were required to accommodate the large amount of data. These changes were coordinated through Lieutenant (junior grade) Heidi Johnson, NOAA of the Systems Support Section of the Hydrographic Surveys Branch, and are described in Section D.3.

A *LOTUS 1-2-3* spreadsheet was used in calculating DGPS performance checks. A copy of this spreadsheet program is included in Separate III. FILED WITH THE ORIGINAL FIELD RECORDS

D.2 Velocity corrections were determined using the programs *VELOCITY*, version 2.10, dated March 15, 1994; and *CAT*, version 2.00, dated December 18, 1992. These programs

were used to process CTD data obtained from Seacat casts.

D.3 The following changes were necessary to the HDAPS programs CLASSIFY, CONTACT, DP, and FILESYS, in order to accommodate the number of datasets in this survey, which exceeded 200.

Program	Line No.	Variable	Old 'x' Value	New 'x' Value
CLASSIFY	6600	DATA$(x)	200	300
	9650	DATA$(x)	200	300
	9660	SHOWSTRING$(x)	200	300
	9930	STANDARDLINE(x)	200	300
	9930	USERLINE(x)	200	300
CONTACT	565	DATA$(x)	200	300
DP	720	DATA$(x)	200	300
	840	CHOICES(x)	200	300
FILESYS	21100	CAT3$(x)	500	800

No other non-standard automated data acquisition and processing methods were used in this survey.

E. SIDE SCAN SONAR

E.1 Side scan sonar (SSS) operations used an EG&G Model 260-TH slant range corrected side scan recorder and a model 272-T (single frequency) towfish. Launches MI-3 (VesNo 2223) and MI-5 (VesNo 2225) both utilized this configuration. The following list summarizes the equipment serial numbers and corresponding dates of side scan sonar equipment used in this survey.

VESSEL	EQUIPMENT	SERIAL NUMBER	DATES USED
2223	Recorder	016672	05 AUG - 09 NOV
2223	Towfish	0011902	05 AUG - 09 NOV
2225	Recorder	016946	05 AUG - 09 NOV
2225	Towfish	0011591	05 AUG - 09 NOV

E.2 Side scan sonar operations used a 20° beam depression, which is the normal setting.

E.3 The frequency used for side scan sonar operations was 100 kHz. Both vessels used this frequency throughout all SSS operations.

E.4.a. Within the dredged portion of Calcasieu Channel, the 100 meter range scale was used with line spacing equal to 170 meters. In the Fairway Anchorage, the 75 meter range scale was used with line spacing equal to 100 meters. This line spacing is contrary to standard practice, and was chosen for two reasons. First, 100 meter line spacing was compatible with mainscheme hydrography line spacing of 100 meters, and utilizing soundings obtained during side scan sonar would eliminate the need to recover the area with mainscheme hydrography. Second, sonar traces in the regions were faint near the outer edge of the range scale, and reduced line spacing ensured adequate coverage and overlap. In the safety fairway and AWOIS search radii, the 50 meter range scale was used in depths between 6.0 and 8.0 meters (approximately), and the 25 meter range scale was used in depths between 3.5 and 6.0 meters (approximately). It was determined that a depth of 3.5 meters was the inshore limit of side scan sonar operations, as depths shoaler than this resulted in poor quality sonargrams.

b. Both vessels obtained confidence checks twice daily, once at the commencement of sonar operations, and again at the close of sonar operations. Legs from nearby jack-up oil rigs, and numerous trawl scours from fishing vessels, provided targets for confidence checks. These trawl scours were so numerous that it was usually possible, when using the 25 meter range scale, to obtain several confidence checks while on-line, thus eliminating the need for opening and closing confidence checks.

c. MT MITCHELL accomplished two hundred percent side-scan sonar coverage in Calcasieu Channel, safety fairway, and fairway anchorage. One hundred percent coverage was accomplished in the portions of the search areas included on the sheet corresponding to AWOIS items #8924, #8935, and #8939. Two hundred percent coverage was obtained in the search area for AWOIS #1326, the search radius for AWOIS #8932 south and east of the east Cameron Jetty, and the search radius for AWOIS #8931, excluding the portion of the radius west of the safety fairway, in which one hundred percent coverage was obtained.

d. From the commencement of survey operations on 05 August (DN 217), until 01 October (DN 274), dredging operations in Calcasieu Channel often affected the quality of sonargrams, as turbulent water and flocculent sediment interfered with the ability of the sonar pulse to travel through water. Poor quality sonargrams due to dredging operations were rejected and rerun at a later date. Dredging ceased on 01 October (DN 274).

Exceptionally heavy rains in Texas and Louisiana around 17 October (DN 290) caused flooding and high currents in the Calcasieu River. This created a halocline across the sheet at the interface of salt water from the Gulf of Mexico and fresh water from the Calcasieu River, which caused poor quality sonargrams, especially in the vicinity of Calcasieu Channel. This halocline was present from 17 October (DN 290) until the completion of

survey operations on 08 November (DN 312). Poor quality sonargrams in this region were rejected and rerun, in some cases several times. When it was apparent that the quality of these traces would not improve prior to departure from the survey area, the best quality coverage of the area was accepted.

When using the 50 and 75 meter range scales, MT MITCHELL experienced sonargrams which were faint at the outer edges of the range scale, even in water sufficiently deep for these range scales. This is attributed to a flocculent sediment suspended off of the bottom, which caused poor return of sonar pulses. This type of bottom is described in Coast Pilot 5, 1993 ed., chapter 9, paragraph 377, and was confirmed by divers during operational dives. To compensate, a lower range scale was used and line spacing was reduced to ensure sufficient overlap between adjacent swaths.

e. Both vessels (MI-3 and MI-5) used a block and electric winch attached to the stern to deploy and tow the SSS towfish.

E.5 All contacts detected during side scan sonar operations were entered into contact tables in the HDAPS system. Contacts deemed significant with a height of 0.6 meters or greater were developed further with side scan sonar by covering the item from four different directions. An estimated contact height, and easting and northing were then calculated from the side scan sonar developments. Items which continued to appear significant were selected for diving or echo-sounder development. Because of high currents and zero visibility caused by the outflow of the Calcasieu River subsequent to 17 October (DN 290), several contacts deemed significant were investigated by echo-sounder development only. Refer to Section N, *Item Investigation Reports*, for a detailed description of each item.

E.6 Overlap was checked both on-line using the real-time plot and during shipboard processing using the edited swath plots. Gaps of 100% and 200% coverage were filled by running additional SSS lines. Gaps were primarily a result of poor quality sonargrams caused by excess surface return, dredging operations, and heavy outflow from the Calcasieu River.

F. SOUNDING EQUIPMENT

SEE ALSO THE EVALUATION REPORT.

F.1 All vessels participating in this survey used a Raytheon DSF-6000N fathometer to obtain soundings. The following list summarizes the serial numbers and dates of all sounding equipment used in this survey.

VESSEL	SERIAL NUMBER	DATES USED
2223	B042N	05 AUG - 08 SEP (217-251)
	B046N	09 SEP- 08 NOV (252-312)
2225	B053N	05 AUG - 28 SEP
		07 NOV- 08 NOV
	C066	29 SEP - 22 OCT

F.2 A lead line was used in comparison with the DSF-6000N, to check the performance of the DSF-6000N. A table of lead line comparisons is included in Separate IV. FILED WITH THE ORIGINAL FIELD RECORDS

F.3 MT MITCHELL experienced difficulties when setting the gain control of the high frequency beam of the DSF-6000N in automatic in depths of approximately 5.0 meters and shoaler. The high frequency trace on the fathogram was not well defined, and the fathometer often digitized on depths shoaler than where the fathogram depicted the bottom. This was attributed to the flocculent nature of the bottom. As a result, the high frequency gain was controlled manually when working in these depths.

Initial crosslines run with MI-3 (VesNo 2223) revealed sounding discrepancies which averaged 0.4 meters shoaler than soundings obtained by MI-5 (VesNo 2225). MT MITCHELL electronics technicians discovered, when performing a simulated test of the DSF-6000N in MI-3 using the EDI, that the fathometer was reading 0.4 meters shoaler than the setting of the EDI. After the problem was corrected, MI-3 ran additional crosslines, and agreement at crossings with sounding lines run by MI-5 was excellent, with nearly all crossings agreeing within 0.3 meters. Because this difference is less than 0.6 meters, the tolerance indicated by the Hydrographic Manual, no correctors were applied to soundings to correct the problem. This applies to data collected by MI-3 from DN 217 to DN 278. The problem was corrected on DN 283. MI-3 was not used between DN 278 and DN 284. DO NOT CORRECT

F.4 The Raytheon DSF-6000N is a dual beam echosounder, with both a high frequency (100 kHz) and a low frequency (24 kHz) beam. Soundings from both the high frequency and low frequency were recorded; however only the high frequency sounding was used for plotting. Low frequency soundings were examined for spikes and nearby items, and if encountered, were inserted in the digital records and plotted. When performing echo-sounder developments, the low frequency sounding was used for a least depth in instances where the high frequency could not provide an acceptable return.

Some days the flocculent nature of the bottom caused excessive high and low frequency spikes on fathograms, which were not noticed on other days. These spikes were inserted, and sounding records were compared with overlapping sounding lines corresponding to the same area, and with side scan sonar contact records. If no correlation existed, the inserts were removed. Fathometer spikes which showed correlation to other fathometer spikes or to side scan sonar contacts were summarily developed by running additional fathometer lines,

on DN 312. In no cases were any fathometer spikes found to be significant items.

G. CORRECTIONS TO SOUNDINGS

G.1 The following is a summary of corrections applied to echo-soundings, and the methods used to obtain them. For detailed information and tables used to determine corrections to soundings, refer to the SOUNDING EQUIPMENT CALIBRATION AND CORRECTION REPORT included in Separate IV. FILED WITH THE ORIGINAL FIELD DATA.

a. The velocity of sound through water was determined by a Seacat conductivity, temperature, and density gage (serial numbers 192472-0284 & 192472-0285). The sensors on CTD unit 0284 were last calibrated on 22 December, 1993. The 0285 CTD unit was last calibrated on 15 December, 1993. On 05 August, 1994, a simultaneous independent test was made with these two units in 17 meters of water. Using the comparison utility of the *VELOCITY* program, the percent difference between the two casts was 0.00 at both the mid-depth, and the bottom of the cast.

A Data Quality Assurance test, performed using hydrometers manufactured by H-B Instrument Company, was run for each velocity cast to ensure the Seacat was within tolerance. All data were processed using *VELOCITY* Version 2.10 and *CAT* Version 2.00 software. The computed velocity correctors were entered into the HDAPS sound velocity tables and applied on-line to digitized high frequency soundings.

The following list summarizes the positions and dates of all CTD casts used to determine the speed of sound through the water, for application in this survey.

Cast #	Date	Latitude	Longitude	HDAPS Table #	Applied To Day #'s	CTD S/N
01	05 AUG 94	029/24/24 N	093/17/12 W	1	217-223	284
02	16 AUG 94	029/24/24 N	093/17/12 W	3	228-238	285
03	08 SEP 94	029/24/24 N	093/17/12 W	5	251-252	284
04	20 SEP 94	029/24/24 N	093/17/12 W	7	263-278	284
05	06 OCT 94	029/24/24 N	093/17/12 W	9	279-287	284
06	20 OCT 94	029/24/24 N	093/17/12 W	11	291-298	285
07	02 Nov 94	029/24/30 N	093/14/30 W	13	306-313	284

b. There were no variations in the instrument initial.

c. There were no other corrections to instruments.

d. Lead line comparisons were performed by all vessels used in this survey. All comparisons of the fathometer against leadline checks were within ±0.2 meters. These

differences were all attributed to human error or to wire angle; therefore no correctors were applied to echo-soundings due to fathometer error. A table of leadline comparisons from each vessel is included in Separate IV. FILED WITH THE ORIGINAL FIELD RECORDS

e. Correctors were applied to both high frequency and low frequency echo-soundings.

f. The static drafts of launches 1004 and 1021 were determined in April 1994 at the Atlantic Marine Center, Norfolk, Virginia, while the launches were in their davits. A calibrated steel tape was used to measure the distance from the transducer to an arbitrary reference line on each vessel. The launches were then placed in the water and the difference between this reference line and the water line was measured, and the static draft was subsequently determined. These correctors were applied to raw echo-soundings via the HDAPS offset tables. Because launch MI-1 (vesno 2221) did not collect soundings, it was not necessary to obtain or apply static draft correctors for this vessel.

g. Settlement and squat correctors for launch 1004 (MI-3, vesno 2223) and launch 1021 (MI-5, vesno 2225) were determined 31 March 1994 on the Elizabeth River in Portsmouth, Virginia. An observer stationed on a pier used a level to determine changes in relative height of the launches as they ran toward and away from the observer at various speeds. These correctors were applied to soundings through the HDAPS offset tables, based upon survey launch speed. Settlement and squat correctors for launch MI-1 (vesno 2221) were not required, since this vessel did not collect echo-soundings.

h. No vessels in this survey used heave, roll, and pitch sensors.

G.2 No unusual methods or instruments were used to determine corrections to echo-soundings.

G.3 There was no need for special sounding correctors in this survey.

G.4 A pneumatic depth gauge was not used in this survey.

G.5 Swell and sea state over one meter in height resulted in fathograms showing a trace of constant peaks and troughs. Since the launches were not equipped with heave, roll, and pitch sensors, MT MITCHELL personnel scanned the sea action out of the fathograms and edited the selected soundings accordingly.

G.6.a. Mean-lower-low-water (MLLW) served as the tidal datum for this survey. Predicted tide data for Sabine Pass, Texas were provided on magnetic floppy disk at the start of the survey, and were applied as correctors to echo-soundings during the course of survey operations.

Water levels were monitored by a Next Generation Water Level Measurement System (NGWLMS) sensor at Sabine Pass, Texas (station number 877-0570). This gage served as the primary water level station for datum determination, and as the solitary tide gage for this project.

b. A height correction ratio of 1.40 and a time difference of -30 minutes were applied to predicted tides information at Sabine Pass, Texas. APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING.

c. There was no zoning of tides correctors on this sheet.

H. CONTROL STATIONS SEE ALSO THE EVALUATION REPORT

H.1 The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

H.2 Four DGPS reference stations were used to control this survey. The list of horizontal control stations is located in **Appendix III.** APPENDED TO THIS REPORT.

H.3 Station USCG in Cameron, Louisiana was established by MT MITCHELL personnel to third-order class I standards by a GPS geodetic survey. Refer to the **Horizontal Control Report** submitted for this project for a description of the survey. This position was used to establish a NOAA High Frequency (HF) DGPS station for primary horizontal control of the project. The positions for the USCG beacons were provided in the GPS User's Manual. The Galveston and Port Aransas beacons are both second-order class I positions. The New Orleans beacon is a B-order position.

H.4 The USCG station mark was recovered and surveyed in Cameron, Louisiana using the North American Datum of 1983 (NAD 83).

H.5 Refer to the **Horizontal Control Report** submitted with this project for a description of station establishment.

H.6 No position anomalies, problems, or unconventional survey methods occurred during establishment of horizontal control for this project.

I. HYDROGRAPHIC POSITION CONTROL

I.1 The solitary method of sounding position control was the Differential Global Positioning System (DGPS).

I.2 In accordance with the Field Procedures Manual (FPM), the maximum expected

positional error (EPE) for this survey was 15 meters (1.5 mm at a survey scale of 1:10,000). At no time in this survey did the EPE consistently exceed 15 meters.

I.3 The NOAA-HF shore station consisted of :

Ashtech M-XII GPS receiver,	S/N 700354B2503 from 08 AUG to 10 SEP
	S/N 700354B2504 from 11 SEP to 10 NOV
L1/L2 GPS antenna,	S/N 700228D2311
Raytheon 152 transceiver,	S/N BS26421 from 08 AUG to 10 SEP
	S/N BS29239 from 11 SEP to 10 NOV

LRD-2 Long Range Data Modulator, S/N 613

Both launches (MI-3 and MI-5) contained an Ashtech GPS receiver, a Magnavox MX-50R DGPS beacon receiver for U.S.C.G. differential beacons, and a LRD-1 long range data receiver for the NOAA-HF system. The following is a list of serial numbers of the equipment used on each launch:

VESSEL #	MODEL	S/N
2223	Ashtech GPS Receiver	700417B1004
2223	Magnavox MX-50R Beacon Receiver	219
2223	LRD-1 HF Receiver	249
2223	GPS Antenna	700391A0518
2225	Ashtech GPS Receiver	700417B1129
2225	Magnavox MX-50R Beacon Receiver	036
2225	LRD-1 HF Receiver	233
2225	GPS Antenna	700391A0517

I.4 As stated in section **H.2**, four DGPS reference stations were used: USCG Galveston beacon, USCG New Orleans beacon, USCG Port Aransas beacon, and a NOAA-HF system at Cameron, LA. To ensure EPE's of less than 15 meters the following $HDOP_{max}$'s were determined using the formula from FPM section 3.4.2.

Station	ESE	EDE	MAX HDOP
NOAA HF	4	1.17	3.6
USCG Galveston	4	1.54	3.5
USCG New Orleans	4	3.86	2.7
USCG Port Aransas	4	5.15	2.3

DGPS performance checks were performed by the following method. Two launches would lay side by side, dead in the water, with their respective GPS antennas as close together as sea conditions would allow. Each launch would use an independent DGPS station. The

vessels would then simultaneously "mark" their positions by dumping the on-line HDAPS screen to the printer. Each vessel's easting and northing were then entered into a *LOTUS 1-2-3* spreadsheet, which calculated the inverse distance between positions, to ensure that it did not exceed an EPE_{max} of 15 meters. A copy of the performance checks are included in **Separate III.*** The maximum observed distance between antennas was 11.5 meters. The average number of days between performance checks was 4.9. No performance checks failed.

I.5 No calibration data was applied to the DGPS raw positioning data.

I.6.a No unusual methods of operation were employed with the DGPS equipment.

b. The primary control was the NOAA-HF system. The Coast Guard beacons were occasionally used as primary control on days when maintenance was performed on the NOAA-HF system. Coast Guard beacon use was also subject to availability. On 13 October the Galveston beacon malfunctioned and remained inoperable for the rest of the project period. No positions were adversely affected.

c. Localized thunderstorms and other weather conditions occasionally downgraded the signals of the DGPS stations and correctors would not be received for a few seconds at a time. After 30 seconds of losing correctors, HDAPS goes into a dead reckoning (DR) mode. After 30 seconds of being in DR mode, HDAPS assigns a fix number to the last logged sounding and stops data collection. Survey operations would stop until the signal returned or the control was changed. If the signal was lost for only a few seconds, and it was felt that the course was steady through the period, data collection would continue.

d. Weak beacon signals were occasionally observed when using either the New Orleans or Port Aransas beacons. This was attributed to their larger distance from the project area. Control was changed before data collection would begin when this occurred.

e. No systematic errors were observed.

f. Antenna positions were corrected for offset and layback, and referenced to the position of the DSF-6000N transducer. These correctors were located in the HDAPS Offset table, and applied on-line to the positioning algorithm. Refer to **Separate III*** for a copy of offset tables used during this survey.

g. Offset and layback distances for the boom (tow point) were located in the HDAPS Offset table and applied on-line. The values of the offsets and laybacks are included in the same tables as discussed in section f above. These values, along with the cable length, towfish height, and depth of water, were used by the HDAPS system to compute the position of the towfish. Refer to **Separate IV*** for offset tables and diagrams of each launch showing offset and layback.

* FILED WITH THE ORIGINAL FIELD RECORDS

J. SHORELINE See also the Evaluation Report.

J.1 In accordance with project instructions, the source of shoreline information for the final field sheet is from shoreline maps DM-10006 and DM-10007, Job CM-8713 (NAD 83). These maps were enlarged from a scale of 1:20,000 to 1:10,000 to conform with the scale of the field sheet.

J.2 The most prominent shoreline features within the survey limits are the jetties extending approximately 1.1 nm seaward of the shoreline which border Calcasieu Pass. These were verified by obtaining detached positions on the fixed aids-to-navigation which mark the ends of the jetties (fix numbers 1-4). Additionally, sounding lines were run parallel to the jetties, as close to the jetties as was safe and practicable. These D.P.'s and sounding lines are shown on the final field sheet. Refer to Section Q, "Aids to Navigation," for detailed information on positioning of fixed aids-to-navigation.

The shoreline maps included a number of "Notes to Hydrographer" which describe charted items that could not be located photogrammetrically. MT MITCHELL investigated all such items bounded by this survey which were seaward of the 1.0 meter curve and outside of the jetties. All such items were also assigned AWOIS investigation items. Refer to Section N, "Item Investigation Reports," for detailed information on search techniques and results.

J.3 Field notes on shoreline verification data are located on corresponding fathograms and computer printouts.

J.4 Shoreline verification was not accomplished for items inside the jetties, for items in the Calcasieu River, and for items shoreward of the 1.0 meter curve.

J.5 Shoreline details from maps DM-10006 and DM-10007 which were investigated by MT MITCHELL appear to be correct on these maps.

J.6 No discrepancies between photogrammetric and hydrographic positions for shoreline features investigated by MT MITCHELL are noted.

K. CROSSLINES

K.1 Crosslines on survey H-10560 equaled eleven percent of total mainscheme hydrographic coverage. All crosslines were run perpendicular to mainscheme lines, except three crosslines run on the range line, and either channel boundaries respectively, which had an orientation of 352°/172° T, to conform with the orientation of the channel.

K.2 Initial crosslines were run by MI-3 (VesNo 2223). These crosslines agreed excellently with mainscheme hydrography lines run by MI-3, all intersections agreeing within 0.3 meters, but differed from mainscheme lines run by MI-5 (VesNo 2225) by between 0.4 meters and 0.6 meters.

K.3 The sounding discrepancies between MI-3 and MI-5 were attributed to the error in the fathometer in MI-3, mentioned in section F.3. After electronics technicians corrected the problem, additional crosslines were run by both MI-3 and MI-5. The two vessels ran identical reference lines, on the same day, with calm sea conditions. The two vessels ran the lines at an interval of five minutes to eliminate tides and other environmental conditions as a variable. The agreement of these crosslines with one another, as well as with mainscheme lines was excellent, all agreeing within 0.3 meters.

K.4 The two vessels, MI-3 and MI-5, which collected crossline soundings also collected mainscheme hydrographic soundings.

L. JUNCTIONS See also the Evaluation Report.

L.1 The southern edge of this survey junctions with the northern edge of survey H-10561 (Scale 1:10,000, August - October, 1994). The area overlap is bounded by latitudes 29° 40' 00"N and 29° 40' 42"N.

L.2 Sounding comparisons were made by overlaying sounding plots from each of the surveys and comparing the overlap areas. The general agreement between the soundings on H-10561 and H-10560 is very good. Nearly all of the soundings agree to within 0.3 meters. Soundings not agreeing to within 0.3 meters are attributed to sea action or occur over the steep channel edge of Calcasieu Channel.

L.3 There were no significant differences found in the survey comparisons to warrant further investigation.

L.4 There are no recommended adjustments to sounding features or depth contours.

M. COMPARISON WITH PRIOR SURVEYS SEE ALSO THE EVALUATION REPORT

M.1 The following prior NOS/USC&GS surveys apply to ~~this survey~~ THE PROJECT area:

Registry Number	Scale	Year Surveyed
FE-357SS	1:20,000	1990
FE-352SS	1:20,000	1990
FE-351SS	1:20,000	1990
FE-347SS	1:20,000	1990
FE-346SS	1:20,000	1990
FE-245	1:20,000	1983
FE-244	1:20,000	1983
FE-243WD	1:20,000	1983
H-9785	1:20,000	1978
H-9627WD	1:40,000	1976
FE-326WD	1:40,000	1975
FE-337WD	1:40,000	1973
FE-203WD	1:80,000	1965
H-8796	1:40,000	1964
H-8767	1:40,000	1962
H-8739	1:80,000	1962-63
H-8738	1:40,000	1962-63
H-8712	1:40,000	1962
H-6294	1:80,000	1937
H-5418	1:40,000	1933
H-5411	1:80,000	1933
H-5315	1:40,000	1933
H-4364	1:40,000	1924

M.2 Survey H-8796 is the most recent basic hydrographic survey which covers the entire area of H-10560. Sounding agreement with survey H-8796 is excellent, with nearly all soundings agreeing within one foot (0.3 meters). In the area west and north of the west jetty, soundings from H-10560 are generally two feet (0.6 meters) deeper than H-8796. Additionally, there is a shoal area on H-8796 approximately one mile southeast of the east jetty, with a least depth of 5 feet. This shoal area was not found on H-10560; soundings covering this area showed a smooth bottom with depths of 18 and 19 feet. The shoal is not depicted on the chart. CONCUR, THE PRESENT SURVEY IS ADEQUATE TO SUPERSEDE THE PRIOR SURVEYS IN THE COMMON AREA.

M.3 All significant features from prior surveys have been addressed by this survey.

M.4 No significant deepening or shoaling since the most recent prior survey was noticed.

M.5 No contemporary non-NOS surveys have been identified which pertain to this area.

N. ITEM INVESTIGATION REPORTS SEE ALSO THE EVALUATION REPORT.

This survey contained investigations of thirteen AWOIS items. In addition, eleven new items were found.

AWOIS Item 1326

State and Locale Calcasieu Channel safety fairway, Louisiana

Charted Position Several:
1) 29°44'45.01"N 093°20'22.43"W
2) 29°44'35.42"N 093°20'22.24"W
3) 29°44'24.60"N 093°20'19.50"W
4) 29°44'15.20"N 093°20'17.80"W
5) 29°44'05.31"N 093°20'16.70"W
9) 29°43'25.72"N 093°20'09.71"W
23) 29°41'20.30"N 093°19'47.80"W

Datum: NAD 83

Feature Type: Submerged piles

Source: BP36326-27/1940--COE DWG: 18 piles, dredge survey markers, established, spaced 1000 feet apart in a row.
CL290/42-- COE DWG: 22 steel piles established, spaced 1000 feet apart in a row, parallel to centerline of channel.
BP42983/46-- COE DWG: 18 piles, dredge survey markers established, spaced 1000 feet apart in a row, parallel to channel centerline.
H8796/64 (OPR-427): USC&GS hydrographic survey, located only one pile 29°42'35.4"N, 093°20'01.2"W (NAD27).
BP69218/65 COE DWG: 16 timber piles established, 2000 feet apart in a row, parallel to channel centerline.
FE326/75: NOAA wire drag survey cleared the five southernmost piles, but did not disprove any piles.
FE243/83: NOAA wire drag survey (OPR-K667-RU/HE-83) hung on one obstruction which was within 30 meters of a charted pile in position 29°43'24.7"N, 93°20'09.5"W (NAD27). No piles disproven.
FE352SS/90: Side scan sonar survey by NOAA Ship RUDE disproved all piles except for those with positions mentioned above. Pile #1 was not investigated due to its close proximity

to the jetty. Piles #2 and #3 were not dove upon and have least depths estimated from sonargrams. Piles #4 and #23 were noted during office processing, but poor quality sonargrams prevented obtaining estimated least depths. Piles #5 and #9 were dove upon and have least depths obtained by pneumatic depth gauge.

Survey Requirements:

200% side scan sonar, echosounder development, diver investigation. Only pile #1 required a full investigation; piles #2, #3, #4, and #23 required least depths. Search area drawn on Pre-Survey Review.

Investigation Method:

MT MITCHELL searched for all seven piles by accomplishing 200% side scan sonar in the search area.

Results:

Pile #1: Located in position 29° 44' 43.020"N 093° 20' 21.499"W. This pile corresponds to item "A9" (refer to contact tables included in **Separate VII**)* This pile was not dove upon due to its close proximity to the east jetty. A detached position (fix #24) was obtained, and least depth was obtained from this fix. The close proximity of this item to the jetty precluded a full echo-sounder development of this pile. *FILED WITH THE ORIGINAL FIELD RECORDS

Pile #2: Located in position 29° 44' 34.837"N 093° 20' 21.067"W. This position is 36 meters from the 1990 survey position of the pile. This pile corresponds to contact "A11." This contact is actually two very close items, which are close enough so that on the largest scale chart of the area only one obstruction symbol could be charted in the position. Strong currents, heavy traffic, and low visibility precluded diving on this item. An echo-sounder development was attempted on DN 312, but the high currents near the jetty entrance made this impossible. The position was obtained by averaging the eastings and northings obtained from five passes over the item made with side scan sonar, and converting them to latitude and longitude. From these five passes, contact heights observed from side scan sonar were 0.5 m, 0.5m, 0.5m, 0.7m and 0.7m. The surrounding depth of water is 7.7 meters. From this information, the item is not considered a danger to navigation.

Pile #3: Only one contact was located near the position of this pile, contact 12074.06, with a height of 0.5 meters. This contact computed to be only nine meters from the 1990 survey position of the pile. The item was summarily developed on DN

312 with side scan sonar. One contact was located, contact 15142.12, with a contact height of 0.6 meters, and a distance from the prior survey position of 24 meters. The position of 15142.12 is 31 meters from the position of 12074.06. This contact appears faint on a sonargram of good quality. The contact was not located again on adjacent passes. The water depth here is 6.0 meters. Based upon this information, the item is not considered a danger to navigation.

Pile #4: This pile was disproven. The position of this pile was covered with 200% side scan sonar.

Pile #5: This pile was disproven. The position of this pile was covered with 200% side scan sonar.

Pile #9: Located in position 29° 43' 25.739"N 093° 20' 09.485"W. The item was discovered twice on side scan sonar passes, contacts 12212.79 and 12671.08, with heights of 1.2 m and 1.8 m, respectively. High currents and low visibility prevented diving upon this item. An echo-sounder development attempted by MI-3 on DN 311 was unsuccessful. The position was obtained by averaging the eastings and northing obtained from the side scan passes, and converting them to latitude and longitude. This position is 6.0 meters from the 1990 survey position of the pile. The survey depth of water in this position is 5.8 meters

Pile #23: This pile was disproven. The position of this pile was covered with 200% side scan sonar as part of the coverage of the channel and safety fairway.

Prior Survey Comparison: Survey FE352SS, conducted in 1990 by NOAA Ship RUDE, is the only prior survey which investigated this item. The following is a comparison of each pile surveyed:
Pile #1: FE352SS did not investigated this pile due to its close proximity to the east jetty.

Pile #2: This pile was surveyed in FE352SS, but was not dove upon. A least depth of 7.8 meters was obtained. The survey depth of water from H-10560 is 7.7 meters, shoaler than the least depth of the pile. The H-10560 least depth is 7.0 meters. The H-10560 position is 36 meters from the FE352SS position.

Pile #3: Surveyed by FE352SS, but not dove upon. A least depth of 6.9 meters was obtained. The H-10560 survey depth is 6.0 meters, and the least depth is 5.5 meters. The H-10560 position is 31 meters from the FE352SS position.

Pile #4: FE352SS located this pile. It was noted during office processing but poor quality sonargrams prevented obtaining a least depth. H-10560 disproved this pile.

Pile #5: FE352SS located this pile, and divers obtained a least depth of 6.6 meters using a pneumatic depth gauge. H-10560 disproved this pile. The H-10560 survey depth at this position is 6.8 meters.

Pile #9: FE352SS located this pile, and divers obtained a least depth of 5.0 meters using a pneumatic depth gauge. Survey H-10560 located the pile 6 meters from the FE352SS position. Sonargrams provided an approximate least depth of 4.0 meters.

Pile #23: Located by FE352SS, and noted only during office processing. Poor quality sonargrams prevented obtaining an estimated least depth on the item. Survey H-10560 disproved this pile.

Chart Comparison:

Charts 11347 and 11341 depict a row of piles, approximately 1000 feet apart, along the eastern edge of the channel, anotated "submerged piles, ED". Chart 11344 depicts only piles #2, #3, #4, #5, #9, and #23, as obstructions, in the positons obtained by FE-352SS.

Recommendation:

Pile #1: Because of its close proximity to the east jetty, it is not a hazard to navigation. Do not chart. CONCUR DELETE FROM THE CHART

Pile #2: This item is not a danger to navigation. Delete the obstruction charted in position 29° 44' 35.42"N 093° 20' 22.24"W CONCUR (AWOLS 1327) (25) OBSTNS REP 1990

Pile #3: This item is not a danger to navigation. Delete the obstruction charted in position 29° 44' 24.60"N 093° 20' 19.50"W CONCUR (22) (AWOIS 1327)

Pile #4: The item was disproven. Delete the obstruction

charted in position 29° 44' 15.20"N 093° 20' 17.80"W. CONCUR
NOT SHOWN ON THE 28TH ED OF CHART 11347

Pile #5: The item was disproven. Delete the obstruction charted in position 29° 44' 05.31"N 093° 20' 16.70"W. CONCUR
(21) OBSTN REP 1990 (AWOIS 1327)

Pile #9: Retain the 16 FT obstruction charted in position 29° 43' 25.72"N 093° 20' 09.71"W, with a least depth of 5.0 meters. CONCUR
- DELETE NOTE REP 1990 (AWOIS 1326)

Pile #23: The item was disproven. Delete the ~~obstruction~~ SUBMERGED PILE charted in position 29° 41' 20.30"N 093° 19' 47.80"W. CONCUR
(AWOIS 1326)

On charts 11341 and 11347, delete the rows of submerged piles, annotated "ED", and chart pile #9 in position 29° 43' 25.72"N 093° 20' 09.71"W. CONCUR

AWOIS Item 8924

State and Locale	Offshore Cameron, Louisiana
Charted Position	29° 45' 00.80"N 093° 18' 00.55"W
Datum	NAD 83
Feature Type	Submerged wreck
Source	NM38/66: Fishing vessel *Captain Harry* reported sunk, position approximate, in 18 feet of water.
Survey Requirements:	3000 meter search radius. 200% side scan sonar; bottom drag; diver investigation; echo-sounder development; visual search; salvage documentation
Investigation Method:	The southwest quadrant of the 3000 meter search radius was covered with 100% side scan sonar. Additionally, the portion of this radius in the southwest quadrant which overlaps with AWOIS item #8931 was covered by 200% side scan sonar. Side scan sonar operations were limited to the north by the available depth of water.
Results:	On DN 220, side scan sonar operations discovered a contact just east of the edge of the sheet, approximately 400 meters from the charted position of this item. The corresponds to contact "A1". This contact was summarily developed using side scan sonar. On DN 238, divers investigated the contact but poor visibility prevented identification of the item. Divers investigated the contact again on DN 270 and discovered a wreck. Divers were able to identify an engine and transmission, a mast, and a deck winch. The wreck appeared to be old, due to the amount of rust on it, its deteriorated condition, and the amount of debris and nets which were hung on it. Divers could not locate a name on the wreck. However, due to its proximity to the AWOIS position, it is assumed that the wreck is the AWOIS item. A sketch of the wreck follows. No contact was discovered in the charted position of this AWOIS item.

Prior Survey Comparison: This item is not present on prior surveys.

Chart Comparison: All charts covering the area depict a submerged wreck, annotated "PA", in the position noted above.

Recommendation: Delete the charted submerged wreck "PA" in position 29° 45' 00.80"N 093° 18' 00.55"W, and chart a submerged wreck in position 29° 45' 00.75"N 093° 17' 40.99"W, least depth of (8FT) 3.0 M (raw lead line depth, uncorrected for tides, fix number 15). CONCUR REVISE SUB. WRECK PA (9FT REP.) TO 8 WK.

AWOIS Item 8930

State and Locale	Offshore of Cameron, Louisiana
Charted Position	29° 45' 38.80"N 093° 19' 25.55"W
Datum:	NAD 83
Feature Type:	Exposed wreck
Source:	CL1027/82: State of Louisiana Department of Natural Resources (DNR) reports a wreck known locally as the "Hummingbird Hang." Louisiana DNR divers verified the wreck and observed the following LORAN-C rates on it: 7980-X-26690.0, 7980-Y-46979.7.
Survey Requirements:	500 meter search radius. Bottom drag; visual search; diver investigation; echo-sounder development; salvage documentation. Conduct search around the LORAN-C rates mentioned above.
Investigation Method:	MT MITCHELL searched visually for an exposed wreck. Poor water clarity in the search area prevented viewing to the bottom. Additionally, the search area was covered by mainscheme hydrographic sounding lines. Time constraints precluded a full investigation of the item.
Results:	A wreck exposed above the water was not located.
Prior Survey Comparison:	This item is not included in prior surveys.
Chart Comparison:	The chart shows a wreck, annotated "PA", exposed above the water at MLLW in the position noted above.
Recommendation:	Delete an exposed wreck "PA" in position 29° 45' 38.80"N 093° ~~17' 03.54~~ 19' 25.55"W, and chart a submerged wreck "PA" in the same position. Continue to consider the item unresolved. Concur

AWOIS Item 8931

State and Locale:	Vicinity of Calcasieu Channel safety fairway, Louisiana.
Charted Position:	29° ~~44~~ 43 00.80' ~~42.40~~"N 093° 19' 30.55"W
Datum:	NAD 83
Feature Type:	Submerged wreck
Source:	LNM25/80: Reports the 48 ft. fishing vessel *Captain Brady Joseph* sank, position approximate, with 6 -8 foot of antenna visible above the water. LNM26/80: Change the name of the vessel to *Dana*. LNM36/81: U.S.C.G. search for the wreck was unsuccessful. Mast notation removed and changed to position doubtful (PD).
Survey Requirements:	3000 meter search radius. 200% side scan sonar; echo-sounder development; bottom drag; diver investigation; salvage documentation.
Investigation Method:	The entire 3000 meter search radius lay on the survey sheet except for a portion at the far east edge of the radius, of which only a search radius of 2700 meters over a sector of 50 degrees lay on the sheet. The entire region was covered with 100% side scan sonar. Additionally, the entire region was covered with 200% side scan sonar except for the portion of the search radius which was west of the safety fairway. Discussions with Mr. Steve Verry of the Hydrographic Surveys Branch (N/CG24), and LCDR Nicholas Perugini of Atlantic Hydrographic Section (N/CG244), concluded that it could be safely assumed that the vessel sank east of the channel, and therefore additional coverage was not necessary west of the safety fairway.
Results:	One contact was found within the search circle, item "A10" (west of the main channel). This item was developed by an echosounder development run at one meter line spacing, and was found to extend 0.7 meters off of the bottom. Two additional contacts were discovered, items "A4" and "A16". Item "A4" was determined to be a buoy anchor chain (see description of "A4" later in this section), and "A16" was determined to be pile #9 of AWOIS #1326. No additional

significant contacts were located in the search area.

Prior Survey Comparison: This item is not contained in prior surveys.

Chart Comparison: The chart depicts a submerged wreck in the position noted above, annotated "PD" (position doubtful).

Recommendation: Delete the charted wreck "PD" in position 29° 43' 00.80"N 093° 19' 30.55"W. SUNKEN Concur.

AWOIS Item 8932

State and Locale:	Offshore Cameron, Louisiana
Charted Position:	29° 44' 42.80"N 093° 20' 18.55"W
Datum:	NAD 83
Feature Type:	Submerged wreck
Source:	NM14/65: Reports the fishing vessel *Sal and Zina* sank 50 yards east of the end of the east jetty with the wheel house visible above the water. CL1185/75: NOAA Ships RUDE and HECK report the wreck is no longer visible.
Survey Requirements:	250 meter search radius; 200% side scan sonar; bottom drag; diver investigation; echo-sounder development; salvage documentation. Survey was required east and south of the east jetty only.
Investigation Method:	Two hundred percent side scan sonar was accomplished in the search radius, south and east of the jetty.
Results:	Only one contact was found: contact "A9". Because of its appearance on the sonargram and its proximity to the charted position of pile #1 (see AWOIS #1326), "A9" is believed to be a pile. Contact "A9" is only 15 - 20 meters from the end of the east jetty. No other contacts were found within the search radius.
Prior Survey Comparison:	FE-326WD, conducted in 1975 by NOAA Ships RUDE and HECK, contained a visual search for the wreck with negative results. This item is contained in no other prior surveys.
Chart Comparison:	The chart depicts a submerged wreck in the position noted above.
Recommendation:	Delete the charted submerged wreck in position 29° 44' 42.80"N 093° ~~19' 30~~ 20 18.55"W. (REP 1993) Concur

AWOIS Item 8933

State and Locality:	Offshore Cameron, Louisiana
Charted Position:	29° 45' 00.80"N 093° 21' 00.55"W
Datum:	NAD 83
Feature Type:	Exposed wreck
Source:	LNM11/83: Reports a 40 ft. fishing vessel *Capt. John* sank, position approximate, with 3 feet of cabin visible above the water.
Survey Requirements:	800 meter search radius; bottom drag; diver investigation; visual search; echo-sounder development; salvage documentation
Investigation Method:	MT MITCHELL searched for the item visually while running mainscheme hydrographic survey lines in the region. The entire search radius was surveyed at 50 meter line spacing. Additionally, on DN 286 a visual search was conducted using MI-1 during a very low tide. Poor water clarity obstructed the view completely to the bottom. Time constraints precluded a full investigation of the item.
Results:	The visual search did not locate an exposed wreck.
Prior Survey Comparison:	This item is not included in prior surveys.
Chart Comparison:	The chart depicts an exposed wreck, annotated "PA", in the position noted above.
Recommendation:	Delete the exposed wreck "PA" charted in position 29° 45' 00.80"N 093° 21' 00.55"W, and ~~chart~~ REVISE TO SUNKEN a ~~submerged~~ wreck "PA" in the same position. Continue to consider the item unresolved. Concur

AWOIS Item 8934

State and Locale:	Offshore Cameron, Louisiana
Charted Position:	29° 45' 01.80"N 093° 21' 04.55"W
Datum:	NAD 83
Feature Type:	Exposed wreck
Source:	CL1027/82: Louisiana Department of Natural Resources reports a burned and sunken shrimp boat, position approximate, with one foot of the structure visible above the water. Wreck was diver verified, with the following LORAN-C rates observed: 7980-W-11029.9, 7980-X-26666.7, 7980-Y-46978.1.
Survey Requirements:	500 meter search radius, bottom drag, visual search, diver investigation, echo-sounder development, salvage documentation. Center the investigation around the LORAN-C rates provided.
Investigation Method:	MT MITCHELL conducted visual searches while conducting mainscheme hydrography in the search area. The area was surveyed with line spacing equal to 50 meters. Additionally, on DN 286, MI-1 was used to conduct a visual search during a very low tide. Low water clarity prevented viewing the bottom during these searches. Time constraints precluded a full investigation of the item.
Results:	The visual search did not locate an exposed wreck.
Prior Survey Comparison:	This item is not present in prior surveys.
Chart Comparison:	The chart shows a wreck "PA", exposed at MLLW, at the position noted above.
Recommendation:	Delete the exposed wreck "PA" in position 29° 45' 01.80"N 093° 21' 04.55"W, and ~~chart a submerged~~ REVISE TO A SUNKEN wreck "PA" in the same location. Continue to consider the item unresolved. CONCUR

AWOIS Item 8935

State and Locale:	Offshore Cameron, Louisiana
Charted Position:	29° 44' 30.80"N 093° 21' 42.55"W
Datum:	NAD 83
Feature Type:	Obstruction (submerged ladder)
Source:	LNM39/73: An obstruction reported as a 30 foot steel ladder.
Survey Requirements:	1800 meter search radius; bottom drag; visual search; diver investigation; echo-sounder development; salvage documentation.
Investigation Method:	The southern one half (approximately) of the search radius was covered with one hundred percent side scan sonar. Side scan sonar operations were limited to the north by the available depth of water. The portion of the search radius which fell within Calcasieu Channel safety fairway was covered with two hundred percent side scan sonar. Conversations with Lieutenant Commander Nicholas Perugini of the Atlantic Hydrographic Section (N/CG244) concluded that based upon the AWOIS database description of the item, it is navigationally insignificant, and only a cursory search would be required to disprove the item.
Results:	Contact "A12" was discovered at the eastern edge of the search radius. Because its approximate height off of the bottom based on sonargrams was only 0.6 meters, and because of its close proximity to the west jetty (approximately 80 meters), the contact was considered insignificant and was not further investigated. No other significant contacts were found within the search radius.
Prior Survey Comparison:	This item is not contained in prior surveys.
Chart Comparison:	The chart depicts an obstruction "PA" in the position noted above.
Recommendation:	Delete the obstruction "PA" charted in position 29° 44' 30.80"N 093° 21' 42.55"W Concur

AWOIS Item 8939

State and Locality	Offshore Cameron, Louisiana
Charted Position:	29° 43' 30.80"N 093° 22' 30.55"W
Datum:	NAD 83
Feature Type:	Submerged wreck
Source:	NM23/65: Reports the tug *Bull* sunk, position approximate, in 17 feet of water.
Survey Requirements:	3000 meter search radius; 200% side scan sonar, echo-sounder development, bottom drag; diver investigation; salvage documentation
Investigation Method:	Only the eastern half of the search circle of this item fell on this sheet, and it was covered with one hundred percent side scan sonar. Additionally, the portion of the search radius which fell in the safety fairway was covered with two hundred percent side scan sonar. Time constraints precluded covering the remainder of the portion of the search radius which lay on this sheet with two hundred percent side scan sonar.
Results:	A contact was located approximately 1200 meters southeast of the charted position of this item (contact "A5"), which had a wreck-like appearance on sonargrams. Divers investigated and located the item on DN 297, but poor visibility prevented identification of the item. On DN 298 an echo-sounder development was run on the item to determine its least depth. Because only approximately one half of the search radius was covered with one hundred percent side scan sonar and divers could not identify the obstruction, "A5" was considered a new item, and is discussed later in this section.
Prior Survey Comparison:	This item is not included in prior surveys.
Chart Comparison:	The chart depicts a submerged wreck in the position noted above.
Recommendation:	Retain the charted SUNKEN wreck in position 29° 43' 30.80"N 093° 22' 30.55"W. Consider the item unresolved. CONCUR

AWOIS Item 8960

State and Locale	Approach to Calcasieu Pass, Louisiana
Charted Position	29° 45' 00.00" N 093° 21' 00.00"W
Datum	NAD 83
Feature Type	Dumping grounds
Source	CL579/65--Title 33: Dumping grounds established CL1090/77--Title 33: Revocation of dumping grounds
Survey Requirements	Obtain soundings with line spacing not to exceed 50 meters. Reduce line spacing as necessary to delineate shoals and depth curves.
Investigation Method	The area was surveyed at line spacing equal to 50 meters.
Results	Soundings were obtained within the entire charted dumping grounds. The bottom is even and gently sloping. Reduction of line spacing to less than 50 meters was not necessary. The soundings within this dumping grounds conform with the surrounding surveyed soundings. This item has been resolved.
Prior Survey Comparison	Survey H-8796, the most recent hydrographic survey to cover the area of H-10560, did not include soundings in these dumping grounds.
Chart Comparison	The chart indicates an area without soundings, which is denoted "Dumping Grounds (Discontinued)"
Recommendation	Remove "Dumping Grounds (Discontinued)" AND BLUE TINT from the chart and replace with soundings. ~~Concur~~ DO NOT CONCUR. SEE SECTION N.1. OF THE EVALUATION REPORT

AWOIS Item 8961

State and Locale	Approach to Calcasieu Pass, Louisiana
Charted Position	29° 45' 50.00" N 093° 20' 00.00"W
Datum	NAD 83
Feature Type	Dumping grounds
Source	CL579/65--Title 33: Dumping grounds established CL1090/77--Title 33: Revocation of dumping grounds
Survey Requirements	Obtain soundings with line spacing not to exceed 50 meters. Reduce line spacing as necessary to delineate shoals and depth curves.
Investigation Method	The area was surveyed during mainscheme hydrography at line spacing equal to 100 meters. The area was also covered by soundings obtained during 100% Side Scan Sonar coverage at line spacing equal to 40 meters. In accordance with project instructions the limit of surveying was the 2.0 meter curve. DO NOT CONCUR
Results	Soundings were obtained within the entire charted dumping grounds. The bottom was even and gently sloping. Reduction of line spacing to less than 40 meters was not necessary. The soundings within this dumping grounds conform with the surrounding surveyed soundings. This item has been resolved.
Prior Survey Comparison	This region was not a dumping ground during survey H-8796, the most recent hydrographic survey to cover the area. Sounding agreement is excellent, with all soundings agreeing within one foot (0.3 meters).
Chart Comparison	The chart indicates an area without soundings, which is denoted "Dumping Grounds (Discontinued)"
Recommendation	Remove "Dumping Grounds (Discontinued)" AND BLUE TINT from the chart and replace with soundings. ~~CONCUR~~ DO NOT CONCUR. SEE SECTION N.2 OF THIS EVALUATION REPORT

AWOIS Item 8962

State and Locale	Approach to Calcasieu Pass, Louisiana
Charted Position	29° 42' 10.00" N 093° 20' 10.00"W
Datum	NAD 83
Feature Type	Dumping grounds
Source	CL975/60--U.S. Army Corps of Engineers: Dumping grounds established. CL218/88--40 CRF part 288--Boundaries of dumping grounds changed, causing part of the area to become discontinued.
Survey Requirements	Obtain soundings with line spacing not to exceed 50 meters. Reduce line spacing as necessary to delineate shoals and depth curves.
Investigation Method	The area was surveyed at line spacing equal to 50 meters.
Results	Soundings were obtained within the entire charted dumping grounds. The bottom was even and gently sloping. Reduction of line spacing to less than 50 meters was not necessary. The soundings within this dumping ground conform with the surrounding surveyed soundings. This item has been resolved.
Prior Survey Comparison	Survey H-8796, the most recent hydrographic survey to cover the area of H-10560, did not include soundings in these dumping grounds.
Chart Comparison	The chart indicates an area without soundings, which is denoted "Dumping Grounds (Discontinued)"
Recommendation	Remove "Dumping Grounds (Discontinued)" AND BLUE TINT from the chart and replace with soundings. CONCUR

AWOIS Item 8968

State and Locale:	Offshore Cameron, Louisiana
Charted Position:	29° 45' 05.80"N 093° 20' 37.55"W
Datum:	NAD 83
Feature Type:	Exposed Piles
Source:	LNM27/86: Reports four steel pilings, 12 inches in diameter, extending approximately three feet out of the water. Reported to be 30 feet off of the west jetty. LNM33/86: Coast Guard reports the pilings could not be located.
Survey Requirements:	Bottom drag; diver investigation; visual search; salvage documentation. Confine the search to the area drawn on the pre-survey review.
Investigation Method:	The search area was surveyed with line spacing equal to 50 meters, during which the piles were searched for visually. Additionally, on DN 286, MI-1 was used to conduct a visual search for the piles. Poor water clarity precluded viewing from the surface to the bottom.
Results:	The visual search located no piles. Based upon the depth of water in the search area, which averages 2.5 meters, the item's proximity to the west jetty, and also based upon the significant traffic in the search area, which was frequently observed to consist of only small skiffs with small outboard motors, this item was considered by MT MITCHELL to be navigationally insignificant.
Prior Survey Comparison:	This item is not included in prior surveys.
Chart Comparison:	This item is not charted on any charts. NOTE SHOWN ON CHART 11347 27TH EDITION
Recommendation:	Do not chart. CONCUR. DELETE NOTATION OBSTN REP. AND LEADER.

New Item A2

Location: 29° 40' 52.314"N 093° 20' 07.463"W

Water Depth: 8.2 meters

SSS Contact Height: 3.6 meters

History:

DN	Fix Number	Activity
264	10078.43	200% SSS
264	10108.32	SSS Development
264	10110.24	SSS Development
264	10112.47	SSS Development
264	10114.45	SSS Development
264	10118.68	SSS Development
265	8426.49	100% SSS (filling gap)
270	13	Dive DP

Investigation Results: Divers descended a buoy line and discovered a sunken navigation buoy, made of metal. The item was cylindrical, with a large amount of anchor chain piled on its top side. The highest point was the anchor chain, which divers measured to be 8' off of the bottom. The buoy measured 6' high by 6' wide by 7' long. The axis of the buoy had an orientation of 060° / 240° true. A sketch of this item in on the next page. The least depth of this item was obtained by inverted lead line.

A Danger to Navigation Report was filed for this item.

Recommendation: Chart an obstruction, with a least depth of ~~6.3~~ 5.8 meters (19FT) (uncorrected for tides), in position 29° 40' 52.314"N 093° 20' 07.463"W. CONCUR ~~CHART 19 OBS~~

REVISE CHARTED OBSTN 9A TO 19 OBSTN

New Item A3

Location: 29° 44' 35.637"N 093° 20' 31.984"W

Water Depth: 8.9 meters

SSS Contact Height: 2.6 meters

History:

DN	FixNumber	Activity
222	3380.81	100% SSS
271	8839.33	SSS Development
271	8843.19	SSS Development
271	8845.32	SSS Development
271	8847.14	SSS Development
271	8847.22	SSS Development

Investigation Results: This item is approximately 300 meters south of the end of the west jetty. From numerous side scan sonar passes, the item is obviously located on the steep slope of the channel. Heavy traffic, swift currents, and poor visibility precluded diving on this item. An echo-sounder development on this item was attempted, but the strong current at the ends of the jetties made this impossible. The position noted above was obtained by averaging the eastings and northings obtained from numerous side scan sonar passes, and converting them to latitude and longitude. From these passes the water depth over the item ranged from 8.3 to 12.6 meters. Using the shoalest depth and the greatest contact height, this item, from SSS, appears to rise 2.6 meters off of the bottom in 8.9 meters of water. The adjacent water depth at the top of the channel slope is 6.4 meters. Therefore, in relation to the available depth of water. this item has a maximum possible height of 0.1 meters, and is therefore insignificant.

Recommendation: Do not chart Concur

New Item A4

Location: 29° 42' 36.050"N 093° 20' 00.731"W

Water Depth: 6.3 meters

SSS Contact Height: 1.6 meters

History:

DN	FixNumber	Activity
251	7872.76	100% SSS
271	8907.60	SSS Development
271	8909.40	SSS Development
271	8911.57	SSS Development

Investigation Results: Because of its close proximity to buoy R "38", and its appearance on sonargrams, this item is believed to be the anchor chain from the buoy. On DN 311, MI-3 was used to attempt a echo-sounder development of this item, but buoy R "38" obstructed development. Poor visibility precluded diving on the item to actually confirm that it was an anchor chain.

Recommendation: Do not chart. Concur

New Item A5

Location: 29° 43' 06.414"N 093° 21' 58.133"W

Water Depth: 5.4 meters

SSS Contact Height: 2.4 meters

History:

DN	FixNumber	Activity
252	4627.44	100% SSS
252	4666.09	100% SSS
252	4666.11	100% SSS
271	8893.23	SSS Development
271	8895.21	SSS Development
271	8897.36	SSS Development
271	8901.23	SSS Development
271	8903.38	SSS Development
271	8905.26	SSS Development
298	2557.17	ES Development

Investigation Results: The item had a wreck-like appearance from numerous side scan sonar passes. The item was dove upon on DN 297, but visibility at the bottom was zero, and divers were not able to identify the item. Divers located by feel large pieces of metal, and fishing nets hung on the metal. An echo-sounder development was performed on the item on DN 298, using line spacing equal to one meter. The least depth is based upon a low frequency spike (position number 2557.17), because a high frequency spike which matched the SSS contact height could not be obtained.

A Danger to Navigation report was filed which pertained to this item.

Recommendation: Chart an obstruction in position 29° 43' 06.414"N 093° 21' 58.133"W, with a least depth (uncorrected for tides) of ~~3.5~~ 2.4 meters. (8 FT) CONCUR. REVISE CHARTED OBSTN PA (10½ FT REP) TO 8 OBSTN.

New Item A7

Location: 29° 44' 38.~~850~~644"N 093° 20' 34.~~940~~196"W

Water Depth: 6.6 meters

SSS Contact Height: 1.6 meters

History:

DN	FixNumber	Activity
272	8935.51	SSS Development
272	8939.51	SSS Development
272	8941.45	SSS Development
272	8943.21	SSS Development
272	8943.29	SSS Development

Investigation Results: This contact was first detected during a side scan sonar development of item A3. It is in close proximity to A3, which is near the end of the west jetty. Item A7 is on the edge of the channel, but unlike A3, is outside the channel and not on the channel wall. High traffic, strong tidal currents near Calcasieu Pass, and low visibility prevented diving on this item. On DN 311 an echo-sounder development was attempted on this item, but high currents in the area made this impossible. The least depth, and position, were obtained from numerous passes over the item with side scan sonar. The position was obtained by averaging the eastings and northings obtained from each SSS hit and converting them to latitude and longitude. The least depth was obtained by taking the highest contact height, excluding fix ~~8943.21~~ 2602 +3, which had a contact offset of only 3 meters.

Recommendation: Chart an obstruction in position 29° 44' 38.~~850~~644"N 093° 20' 34.~~940~~196"W with a reported least depth of ~~5.0~~ 4.7 meters (uncorrected for tides). (15FT) CONCOR. CHART A 15 OBSTN

New Item A10

Location: 29° 42' 26.293"N 093° 20' 24.067"W

Water Depth: 6.8 meters

SSS Contact Height: 1.1 meters

History:

DN	FixNumber	Activity
264	10069.18	200% SSS
293	12326.23	SSS Development
293	12328.01	SSS Development
293	12330.59	SSS Development
311	2724.19	ES Development

Investigation Results: From sonargrams this item appeared to have an inverted "U" shaped appearance. The shadow on the sonargrams was connected at the ends but separated from the contact in the center. The SSS contact height noted above is the highest contact height obtained from the four passes, excluding 12330.59, in which the contact only had an offset of two meters. This item was near Calcasieu Channel, and high currents and low visibility precluded diving on this item. On DN 312 an echo-sounder development was run on the item with line spacing equal to one meter. The largest spike from this development had a height of 0.8 meters off of the bottom. The position is obtained from the echo-sounder development spike. Due to the small side scan image, less than 1.0 meter fatho spike, and the fact that the item lies on the edge of a designated dump site, the item was considered navigationally insignificant.

Recommendation: Do not chart. CONCUR IF LT SOUNDINGS NORTH AND EAST OF OBSTRUCTION

New Item A12

Location: 29° 44' 45.992"N 093° 20' 37.496"W

Water Depth: 4.5 meters

SSS Contact Height: 0.3 meters

History:

DN	FixNumber	Activity
293	12378.25	SSS Development
293	12380.43	SSS Development

Investigation Results: This item first appeared during a side scan sonar development of item "A13". It had a long, straight appearance on the sonargram, and provided an excellent return. Because it only computed to extend 0.3 meters off of the bottom, it was not investigated further.

Recommendation: Do not chart. Concur

New Item A13

Location: 29° 44' 44.641"N 093° 20' 37.884"W

Water Depth: 5.0 meters

SSS Contact Height: 1.6 meters

History:

DN	FixNumber	Activity
284	4866.17	100% SSS
284	4866.27	100% SSS
293	12378.34	SSS Development
293	12380.35	SSS Development
293	12382.28	SSS Development
297	23	Dive DP
298	2494.06	ES Development

Investigation Results: On DN 297, divers descended a buoy line to investigate the item. Visibility at the bottom was zero. Divers located by feel large pieces of metal and fishing nets hung on the metal. Visibility precluded identifying the item, and determining the location of its least depth. An echo-sounder development was run the following day, with line spacing equal to one meter. The largest spike (position number 2494.06) rose 0.7 meters off of the bottom, providing a least depth of ~~4.3~~ 3.5 meters. (11A)

Recommendation: Chart an obstruction in position 29° 44' 44.641"N 093° 20' 37.884"W, with a least depth of ~~4.3~~ 3.5 meters (11FT) (uncorrected for tides). CONCUR. CHART 11 OBSTN

New Item A14

Location: 29° 42' 53.091"N 093° 21' 27.921"W

Water Depth: 5.4 meters

SSS Contact Height: 1.2 meters

History:

DN	FixNumber	Activity
263	8122.08	100% SSS
293	12424.23	SSS Development
293	12426.31	SSS Development
312	2766-2773	ES Development

Investigation Results: This item on sonargrams resembled footprints from a jack-up rig with three legs. The contact was developed by echo-sounder with a line spacing of three and four meters. Fathograms reveled no portions of these footprints which rose above the surrounding bottom, but reveled slight depressions of approximately 0.5 meter.

Recommendation: Do not chart. Concur

New Item A15

Location: 29° 42' 21.771"N 093° 21' 33.936"W

Water Depth: 6.2 meters

SSS Contact Height: 2.0 meters

History:

DN	FixNumber	Activity
252	8013.86	100% SSS
252	8014.00	100% SSS
293	12428.15	SSS Development
293	12430.23	SSS Development
293	12432.26	SSS Development
312	2754-2765	ES Development

Investigation Results: This item on sonargrams resembled footprints from a jack-up rig with three legs. White areas on these sonargrams were possible shadows, indicating a contact height of 2.0 meters. The contact was developed by echo-sounder with a line spacing of three and four meters. Fathograms reveled no portions of these footprints which rose above the surrounding bottom, but reveled slight depressions of approximately 0.5 meter.

Recommendation: Do not chart. Concur

New Item A17

Location: 29° 44' ~~36.703~~ 37.190"N 093° 20' 32.2~~52~~ 95"W

Water Depth: 6.9 meters

SSS Contact Height: 3.9 meters

History:

DN	FixNumber	Activity
286	12077.51	200% SSS
295	15021.28	SSS Development
295	15039.29	SSS Development
295	15043.20	SSS Development
295	15045.57	SSS Development
311	2608-2623	ES Development

Investigation Results:

This item appears on sonargrams to be on the slope of the channel. High currents, heavy traffic, and low visibility prevented diving on this item. An echo-sounder development was attempted on this item, but the high currents at the ends of the Cameron jetties made this impossible. The SSS contact height is the greatest value obtained from the five side scan sonar passes. The remaining values are 2.3, 1.9, 1.7 and 1.3 meters. The depths obtained over the item are 15.9, 10.8, 9.5, 8.8, and 8.5 meters (uncorrected for tides). Using the greatest contact height and the shoalest depth, the item would have a least depth of ~~4.6~~ 6.5 meters (uncorrected for tides). The surrounding water depth at the top of the channel slope is 6.9 meters. This gives the item a relative height of ~~2.3~~ 0.4 meters. POS. 6372+2

The position was obtained by averaging the eastings and northings obtained from the sonargrams, and converting them to latitude and longitude. USED FATHOMETER FIX 6372+2

Recommendation:

Chart an obstruction in position 29° 44' ~~36.703~~ 37.190"N, 093° 20' 32.2~~52~~ 95"W, with a reported least depth of ~~4.6~~ 6.5 (21 FT) meters (~~uncorrected~~ for tides). CONCUR. CHART A 21 OBSTN SHOULD THE SCALE OF THE CHART ALLOW.

New Item A18

New Item A18

Location: 29° 40' 38.121"N 093° 19' 41.605"W

Water Depth: 9.2 meters

SSS Contact Height: 2.6 meters

History:

DN	FixNumber	Activity
286	12155.64	200%SSS
296	12714.16	SSS Development
296	12716.26	SSS Development
312	2682-2699	ES Development

Investigation Results: This item is in close proximity to buoy R "34". From sonargrams the item appears to be detached from the anchor chain to this buoy. It has the appearance of an abandoned buoy block. Poor visibility from heavy rains and flooding of the Calcasieu River prevented diving on this item. On DN 312, an echo-sounder development provided a least depth of 7.8 meters, uncorrected for tides (fix 2686.20). Line spacing for this development was 3 meters. The position is obtained from this fix.

Recommendation: Chart an obstruction in position 29° 40' 38.121"N 093° 19' 41.605"W, with a least depth of ~~7.8~~ 6.7 (22 FT) meters (uncorrected for tides). CONCUR CHART AS AN OBSTN

New Item A19

Location: 29° 44' 11.075"N 093° 20' 29.242"W

Water Depth: 6.8 meters

SSS Contact Height: 1.2 meters

History:

DN	FixNumber	Activity
292	12246.26	200% SSS
312	15132.20	SSS Development

Investigation Results: This item was noted on sonargrams, and developed on DN 312. The item is just west of Calcasieu Channel. MT MITCHELL departed the working grounds on DN 313, therefore there was not another opportunity to further investigate this item. The position was obtained by averaging the eastings and northings obtained from the sonargrams. The contact height is the greater value of the two passes.

Recommendation: Chart an obstruction in position 29° 44' 11.075"N 093° 20' 29.242"W, with a reported least depth of 5.6 meters (~~uncorrected~~ for tides). (18.4 FT) DO NOT CONCUR CHART SHOALER DEPTHS IN THE IMMEDIATE AREA PRESENTLY CHARTED VIA MEMORANDUM "COMPILATION FOR CHART 11347 DATED MARCH 15, 1996

O. COMPARISON WITH CHARTS SEE ALSO THE EVALUATION REPORT

O.1 This survey affects the following NOS charts:

Chart No.	Latest Edition	Scale	Date
411	41st	1:2,100,000	2 FEB 91
11340	56th	1:458,596	17 JULY 93
11341	35th	1:80,000	7 MAY 94
11344	30th	1:80,000	29 JAN 94
11347	25th	1:50,000	JULY 92

There were no Notice to Mariner updates corresponding to these charts during the time of this survey.

O.2 Three Danger to Navigation Reports were filed for items discovered on this survey. Copies of these reports are included in Appendix I.

O.3.a. Overall agreement of this survey with chart 11347 (the largest scale chart of the area) is excellent with nearly all soundings agreeing within 0.3 meters.

b. In the area of the survey west and north of the end of the west jetty, soundings were on average 0.7 meters deeper than charted soundings. This is attributed to the action of littoral sediment transport in the region. No other significant differences are noted.

c. There are no hydrographic findings of special note pertaining to this survey.

d. From the commencement of survey operations on DN 217 (05 AUG 94) until DN 274 (01 OCT 94), dredging operations were observed in Calcasieu Channel. In all instances, both during and following dredging operations, survey depths were equal to or deeper than tabulated controlling depths for the channel.

e. In accordance with project instructions, line spacing in the safety fairway was reduced to 50 meters. Sounding agreement in the safety fairway was excellent, with all soundings agreeing with the chart within 0.3 meters. The safety fairway was found to have a smooth bottom and be gently sloping.

Three lines were run in Calcasieu Channel with an orientation of 172° / 352° true. One line was run along the range line marking the center of the channel, and the other two lines were run along the green and red buoy lines marking either side of the channel. In all cases survey soundings were equal to or deeper than controlling depths of the channel.

The spoil dumping grounds east and west of the channel (not the discontinued dumping grounds discussed in Section N) were covered with both mainscheme hydrography, and with soundings obtained during side scan sonar. Soundings obtained within these spoil areas in all cases conformed with the surrounding charted depths. The dumping grounds were found to be even and gently sloping.

O.4.a. There are five oil platforms shown on chart 11347 which no longer exist. Disproval D.P.'s were obtained at these positions and the items should be removed from the chart. The following table summarizes these platforms:

Platform	Charted Latitude	Charted Longitude	Disproval D.P. #
NOG-WC-6-1	29° 44' 12.0"N	093° 21' 39.0"W	17 - CHART 11341 ONLY
NOG-WC-25-1	29° 43' 57.0"N	093° 21' 54.0"W	18 - NOT CHARTED
"Platform Under Construction"	29° 43' 29.0"N	093° 21' 54.0"W	19
"Platform"	29° 41' 17.0"N	093° 20' 48.0"W	20
"Platform"	29° 40' 49.0"N	093° 20' 44.0"W	21

CONCUR DELETE FROM CHARTS

b. On chart 11347 there is an obstruction charted, annotated position approximate ("PA"), west of the channel, just north of buoy Green "35", in position 29° 41' 46"N, 093° 20' 04"W. This region was covered with 200% side scan sonar, and the obstruction was not located. The source of the item is unknown. MT MITCHELL recommends deleting the obstruction from the chart. CONCUR. SHOWN ON CHART 11344 ONLY.

Two wrecks and an obstruction are depicted on chart 11347 within the jetties, all annotated position approximate ("PA"). One of the wrecks corresponds to AWOIS item #2502, and the origin of the other two items is unknown. These items were not investigated by MT MITCHELL. CONCUR. RETAIN AS CHARTED.

c. No wrecks or obstructions other than the ones discussed in Section N were found during this survey.

O.5 MT MITCHELL recommends changing the format of chart 11344 to depict Calcasieu Channel and Calcasieu Pass in the center of the chart. The chart currently depicts the channel and pass on the extreme western edge of the chart. This makes piloting the channel and pass difficult for mariners, because landmarks west of Calcasieu Pass cannot be referenced on chart 11344. Additionally, waters adjacent to Calcasieu Channel which are to the west of the channel cannot be referenced on this chart. The next chart to the west, chart 11341, depicts Calcasieu Pass and Calcasieu Channel on its extreme eastern edge, creating the same problem. A chart showing the channel and pass in the center would eliminate this problem.

P. ADEQUACY OF SURVEY

This survey is sufficiently complete to supersede all prior surveys.

AWOIS Items #1326, #8924, #8931, #8932, #8935, #8960, #8961, #8962, and #8968 have been resolved. Items #8930, #8933, #8934, and #8939 require further investigation, as noted in Section N.

Q. AIDS TO NAVIGATION

Q.1 There was no correspondence between MT MITCHELL and the U.S. Coast Guard regarding the location, maintenance, or establishment of floating aids to navigation within the limits of this survey.

Q.2 The table on the next page is a comparison between the charted position and surveyed position of floating and non-floating aids to navigation located within the survey limits.

Fixed aids-to-navigation were positioned by the method explained in the field procedures manual, using two independent DGPS reference stations. To ensure that the inverse distance between positions did not exceed 10 meters, the eastings and northings of each D.P. were entered into the same *LOTUS 1-2-3* spreadsheet used to calculated DGPS performance checks. A copy of the spreadsheet results are included in the accordion files with the D.P.'s.

Q.3 No floating aids to navigation exist on this survey sheet which are not in the Light List. The characteristics of all floating aids to navigation (light and sound) are described correctly in the light list and on the nautical chart.

Buoy Name	Charted Position	Survey Position	Dist. (m)	D. P.
G "33"	29° 40.6' N 93° 19.9' W	29° 40' 35.931" N 93° 19' 53.971" W	2.2	11
R "34"	29° 40.6' N 93° 19.7' W	29° 40' 37.751" N 93° 19' 41.736" W	54.3	12
G "35"	29° 41.6' N 93° 20.0' W	29° 41' 35.779" N 93° 20' 02.499" W	67.6	10
R "36"	29° 41.6' N 93° 19.8' W	29° 41' 37.959" N 93° 19' 51.158" W	104.2	9
G "37"	29° 42.6' N 93° 20.2' W	29° 42' 34.532" N 93° 20' 13.154" W	54.8	7
R "38"	29° 42.6' N 93° 20.0' W	29° 42' 35.412" N 93° 20' 01.715" W	49.5	8
G "39"	29° 43.5' N 93° 20.4' W	29° 43' 32.665" N 93° 20' 21.921" W	99.3	6
R "40"	29° 43.5' N 93° 20.2' W	29° 43' 32.455" N 93° 20' 10.680" W	83.5	5
G "41" Jetty Light	29° 44.7' N 93° 20.5' W	29° 44' 40.243" N 93° 20' 33.350" W	105.1	3
R "42" Jetty Light	29° 44.7' N 93° 20.3' W	29° 44' 41.920" N 93° 20' 22.194" W	112.7	4

THESE AIDS APPEAR ADEQUATE TO SERVE THEIR INTENDED PURPOSES

Q.4 There are no bridges, overhead cables, or overhead pipelines within the survey limits.

Q.5 There are no ferry routes within the survey limits. Several pipelines are charted in the southwest corner of the survey sheet.

R. STATISTICS

Statistic	2220	2221/2224	2223	2225	**Total**
Positions	0	0	5500	4240	**9740**
Linear NM Hydrography	0	0	258.0	307.8	**565.8**
Square NM Hydrography	0	0	9.3	11.1	**20.4**
Linear NM SSS	0	0	619.4	493.6	**1112.0**
Square NM SSS	0	0	20.4	19.5	**39.9**
Production Days	2	5	44	41	**46***
Detached Positions	0	0	18	6	**24**
Bottom Samples	0	0	41	50	**91**
Velocity	2	5	0	0	**7**

*sea days used in production

S. MISCELLANEOUS

SEE ALSO THE EVALUATION REPORT

S.1 There were not any items of significant scientific value.

a. No silting was noticed during this survey.

b. No unusual submarine features were discovered during this survey.

c. No anomalous tide conditions were discovered during this survey.

d. Strong tidal currents were noticed at the entrance to the Cameron jetties, which were often three to four knots in magnitude. This is consistent with predictions listed in NOS Tidal Current Tables.

e. No magnetic anomalies were noticed at any time during this survey.

S.2 Bottom samples were collected in this survey, but were not submitted to the Smithsonian Institution.

T. RECOMMENDATIONS

T.1 This survey should be considered complete. Inadequacies have been noted in Section N, which pertain to AWOIS items #8930, #8933, #8934, and #8939. Due to the low navigational significance of these items, no additional field work is recommended.

T.2 MT MITCHELL knows of no planned dredging within the limits of this survey.

T.3 This survey should supersede all prior surveys. There were no unusual conditions or sea features which require further investigation.

U. REFERRAL TO REPORTS

The following reports are not included with the survey records:

Horizontal Control Report
Coast Pilot Report

SUBMITTAL SHEET
Survey H-10560

This descriptive report accurately describes all activities pertaining to the control, collection, and processing of data for hydrographic survey H-10560, and is respectfully submitted by

E.J. Van Den Ameele

Ensign Edward J. Van Den Ameele, NOAA

APPENDIX III
List of Horizontal Control Stations

Station 000 - United States Coast Guard, English Turn, Louisiana Differential Beacon

Lat: 29° 52' 43.878" N Transmission Frequency: 293 KHz
Long: 089° 56' 31.380" W Transmission Rate: 200 bps
Source: GPS User's Manual

Station 001 - USCG, Pilot Station, Cameron, Louisiana (NOAA-HF System)

Lat: 29° 46' 40.841" N Transmission Frequency: 277450 KHz
Long: 093° 20' 34.650" W Transmission Rate: 100 bps
Source: Horizontal Control Report

Station 002 - United States Coast Guard, Galveston, Texas Differential Beacon

Lat: 29° 19' 45.092" N Transmission Frequency: 296 KHz
Long: 094° 44' 10.484" W Transmission Rate: 100 bps
Source: GPS User's Manual

Station 003 - United States Coast Guard, Port Aransas, Texas Differential Beacon

Lat: 27° 50' 18.156" N Transmission Frequency: 304 KHz
Long: 097° 03' 32.646" W Transmission Rate: 100 bps
Source: GPS User's Manual

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [x] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [ ] TO BE CHARTED
- [x] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship MT MITCHELL	Louisiana	Calcasieu Pass	16 NOV 94

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-K171-MI-94		H-10560	NAD 83

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
Q G 30ft 4M "41"	Fixed single-pile light/daybeacon at end of west Cameron jetty.	29 44	40.243	093 20	33.350		DGPS 8-18-94	11341 11344 11347
Q R 30 ft 4M "42"	Fixed single-pile light/daybeacon at end of east Cameron jetty.	29 44	41.920	093 20	22.194		DGPS 8-18-94	11341 11344 11347

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship MT. MITCHELL S-222
439 W. York Street
Norfolk, VA 23510-1114

October 3, 1994

MEMORANDUM FOR: Rear Admiral Freddie L. Jeffries, NOAA
Director, Atlantic Marine Center

FROM: Captain Nicholas A. Prahl, NOAA
Commanding Officer, NOAA Ship MT MITCHELL

SUBJECT: Danger to Navigation Reports

On 29 September 1994, MT MITCHELL submitted four reports of dangers to navigation (Date/Time Groups 291800Z, 291801Z, 291802Z, and 291803Z, SEP 94).

The messages were addressed to NOAAMOA NORFOLK, VA, CCGD EIGHT NEW ORLEANS LA / / OAN, and DMAHTC (NAVWARN) WAHINGTON DC / / MCMN / /. A copy of these messages and two accompanying chartlets are attatched.

In accordance with HSG 66, a copy of this memorandum, radio message, and chartlet will be forwarded to N/CG221.

Attachments

cc: Mr. Dennis Romesburg

R 291801Z SEP 94
FM NOAAS MT MITCHELL
TO NOAAMOA NORFOLK VA
CCGDEIGHT NEW ORLEANS LA //OAN
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//
BT
UNCLAS

SUBJ: REPORT OF DANGER TO NAVIGATION

HYDROGRAPHIC SURVEY REGISTRY NUMBER: H - 10560
SURVEY TITLE: CAMERON, LA TO SABINE, TX
STATE: LOUISIANA
GENERAL LOCALITY: GULF OF MEXICO
SUBLOCALITY: CALCASIEU PASS
PROJECT NUMBER: OPR-K171-MI-94, NOAA SHIP MT MITCHELL

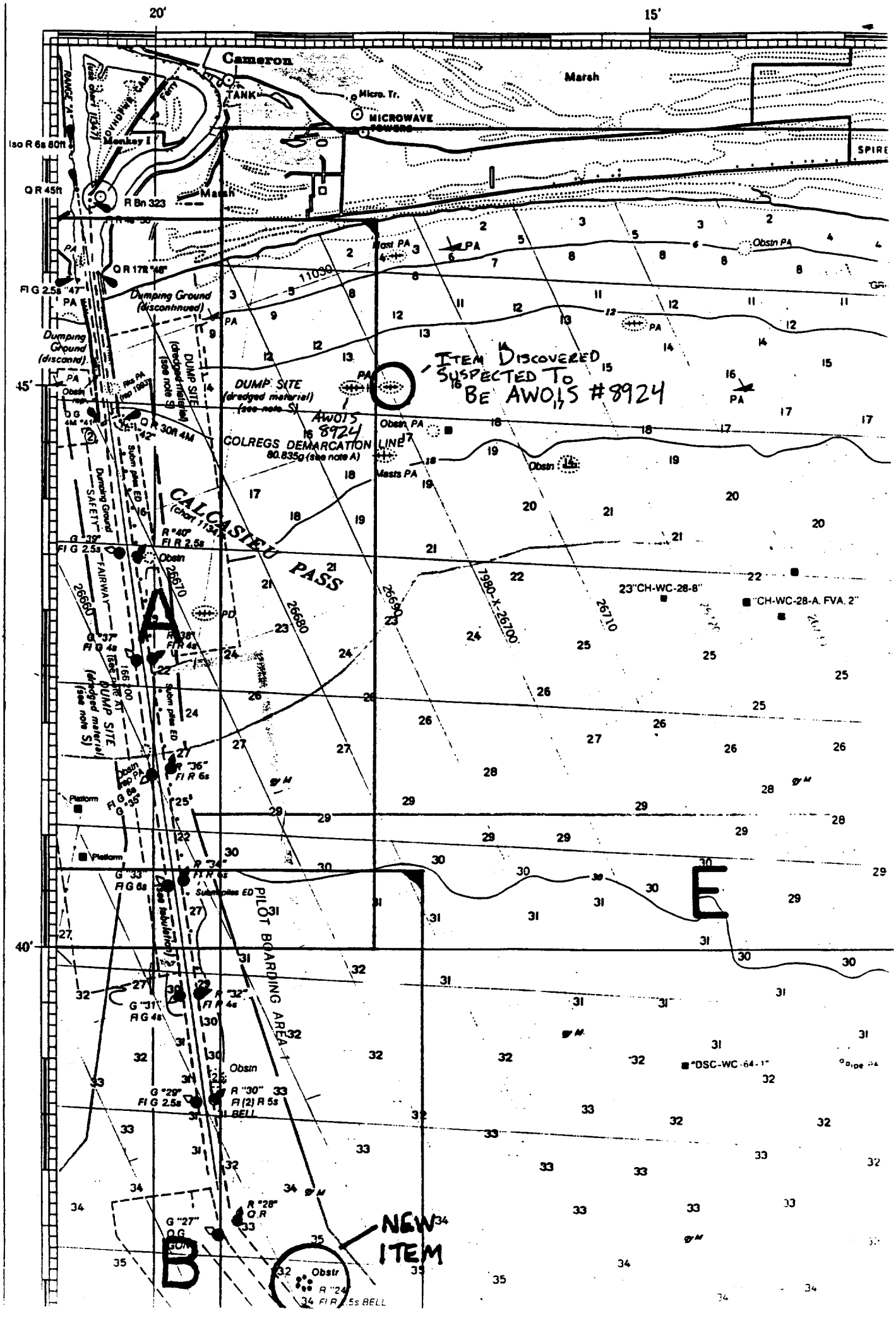
THE FOLLOWING ITEM WHICH IS A POTENTIAL DANGER TO NAVIGATION WAS DISCOVERED DURING HYDROGRAPHIC SIDE SCAN SONAR SURVEY OPERATIONS AND VERIFIED BY DIVERS FROM NOAA SHIP MT MITCHELL:

OBJECT DISCOVERED: A DANGEROUS WRECK LOCATED AT POSITION 29-45-00.747N8, 093-17-40.992W4 WITH THE FOLLOWING DIMENSIONS: 7.9M(26FT) X 7.6M(25FT) X 2.1M(7.0FT). THE LEAST DEPTH OF THIS OBJECT IS 2.8M (9.2FT), CORRECTED TO MLLW USING PREDICTED TIDES. THE CHARTED DEPTH OF WATER IS 4.5M (15FT). THE POSITION OF THIS OBJECT WAS OBTAINED USING DGPS.

THIS ITEM AFFECTS NAUTICAL CHARTS:

CHART NUMBER	11344	11347
EDITION NUMBER	30TH	25TH
DATE	29 JAN 94	JULY 1992
CHARTED HORIZ. DATUM	NAD 83	NAD 83
GEOGRAPHIC POSITION		
LATITUDE	29-45-00.747N	
LONGITUDE	093-17-40.992W	

QUESTIONS CONCERNING THIS REPORT SHOULD BE DIRECTED TO THE ATLANTIC MARINE CENTER AT (804) 441-6206.
BT
NNNN


Cameron
TANK
Micro. Tr.
MICROWAVE TOWERS
Marsh
Monkey I
Iso R 6s 80ft
Q R 45ft
R Bn 323
Q R 17ft "48"
Fl G 2.5s "47"
Dumping Ground (discontinued)
Dumping Ground (discontd)
DUMP SITE (dredged material) (see note S)
AWOIS 8924
ITEM DISCOVERED SUSPECTED TO BE AWOIS #8924
COLREGS DEMARCATION LINE
80.835g (see note A)
CALCASIEU PASS
(Chart 1342)
SAFETY FAIRWAY
DUMP SITE (dredged material) (see note S)
PILOT BOARDING AREA
NEW ITEM
A
B
E
Platform
Obstn
Obstr
Masts PA
Obsn PA
Pipe PA
Subm pipe ED
Subm pipelines ED
23"CH-WC-28-8"
"CH-WC-28-A. FVA. 2"
"DSC-WC-64-1"
26660
26670
26680
26690
26700
26710
11030
45'
40'
20'
15'

R 291800Z SEP 94
FM NOAAS MT MITCHELL
TO NOAAMOA NORFOLK VA
CCGDEIGHT NEW ORLEANS LA //OAN
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//
BT
UNCLAS

SUBJ: REPORT OF DANGER TO NAVIGATION

HYDROGRAPHIC SURVEY REGISTRY NUMBER: H - 10560
SURVEY TITLE: CAMERON, LA TO SABINE, TX
STATE: LOUISIANA
GENERAL LOCALITY: GULF OF MEXICO
SUBLOCALITY: CALCASIEU PASS
PROJECT NUMBER: OPR-K171-MI-94, NOAA SHIP MT MITCHELL

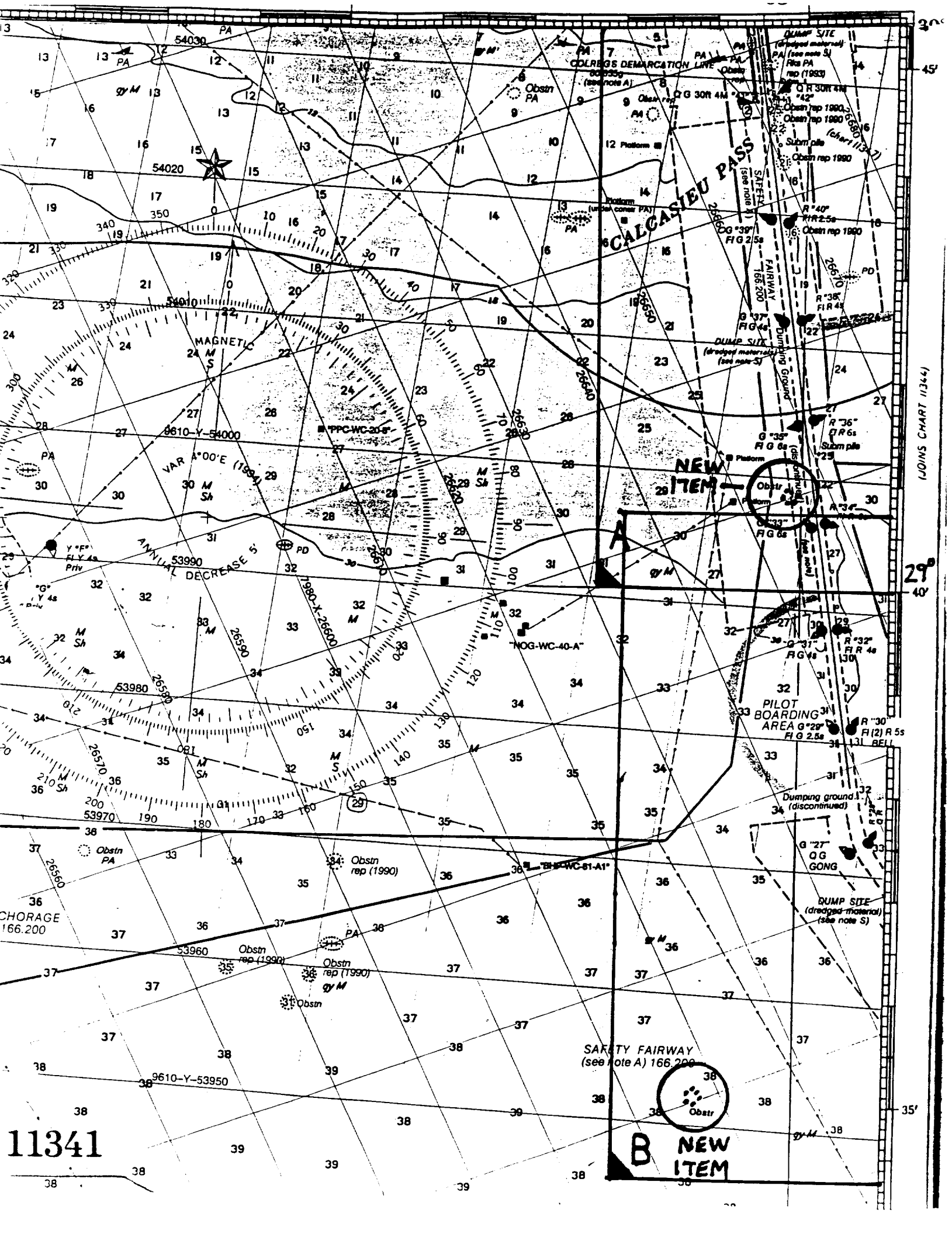
THE FOLLOWING ITEM WHICH IS A POTENTIAL DANGER TO NAVIGATION WAS DISCOVERED DURING HYDROGRAPHIC SIDE SCAN SONAR SURVEY OPERATIONS AND VERIFIED BY DIVERS FROM NOAA SHIP MT MITCHELL:

OBJECT DISCOVERED: A SUNKEN NAVIGATION BUOY AT POSITION 29-40-52.314N0, 093-20-07.463W4 WITH THE FOLLOWING DIMENSIONS: 2.4M(8.0FT) X 2.1M(7.0FT) X 1.8M(6.0FT). THE LEAST DEPTH OF THIS OBJECT IS 6.1M (20FT), CORRECTED TO MLLW USING PREDICTED TIDES. THE ITEM LIES IN A CHARTED SPOIL AREA. THE SURROUNDING WATER DEPTH IS 8.6M (28.2FT). THE POSITION OF THIS OBJECT WAS OBTAINED USING DGPS.

THIS ITEM AFFECTS NAUTICAL CHARTS:

CHART NUMBER	11344	11347
EDITION NUMBER	30TH	25TH
DATE	29 JAN 94	JULY 1992
CHARTED HORIZ. DATUM	NAD 83	NAD 83
GEOGRAPHIC POSITION		
LATITUDE	29-40-52.314N	
LONGITUDE	093-20-07.463W	

QUESTIONS CONCERNING THIS REPORT SHOULD BE DIRECTED TO THE ATLANTIC MARINE CENTER AT (804) 441-6206.
BT
NNNN


CALCASIEU PASS
COLREGS DEMARCATION LINE
SAFETY FAIRWAY (see note A) 166.200
DUMP SITE (dredged material) (see note S)
Dumping Ground
Dumping ground (discontinued)
PILOT BOARDING AREA
MAGNETIC
VAR 4°00'E (1994)
ANNUAL DECREASE 5'
9610-Y-54000
9610-Y-53950
1980-X-26600
"PPC-WC-20-B"
"NOG-WC-40-A"
"BH-WC-61-A1"
NEW ITEM
A
B
11341
JOINS CHART 11344
CHORAGE 166.200

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship MT. MITCHELL S-222
439 W. York Street
Norfolk, VA 23510-1114

October 28, 1994

MEMORANDUM TO: Rear Admiral Freddie L. Jeffries, NOAA
Director, Atlantic Marine Center

FROM: Captain Nicholas A. Prahl, NOAA
for Commanding Officer, NOAA Ship MT MITCHELL

SUBJECT: Danger to Navigation Reports

On 26 October 1994, MT MITCHELL submitted two reports of dangers to navigation (Date/Time Groups 271300Z, and 271301Z, OCT 94).

The messages were addressed to NOAAMOA NORFOLK VA, CCGD EIGHT NEW ORLEANS LA/ /OAN, and DMAHTC (NAVWARN) WASHINGTON DC/ /MCMN/ /. Copies of these messages, and two accompanying chartlets are attached.

In accordance with HSG 66, copies of this memorandum, radio messages, and corresponding chartlets will be forwarded to N/CG221.

Attachments

cc: Mr. Dennis Romesburg

R 271301Z OCT 94
FM NOAAS MT MITCHELL
TO NOAAMOA NORFOLK VA
CCGDEIGHT NEW ORLEANS LA //OAN
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//
BT
UNCLAS

SUBJ: REPORT OF DANGER TO NAVIGATION

HYDROGRAPHIC SURVEY REGISTRY NUMBER: H - 10560
SURVEY TITLE: CAMERON, LA TO SABINE, TX
STATE: LOUISIANA
GENERAL LOCALITY: GULF OF MEXICO
SUBLOCALITY: OFFSHORE CALCASIEU PASS
PROJECT NUMBER: OPR-K171-MI-94, NOAA SHIP MT MITCHELL

THE FOLLOWING ITEM WHICH IS A POTENTIAL DANGER TO NAVIGATION WAS DISCOVERED DURING HYDROGRAPHIC SIDE SCAN SONAR SURVEY OPERATIONS BY NOAA SHIP MT MITCHELL:

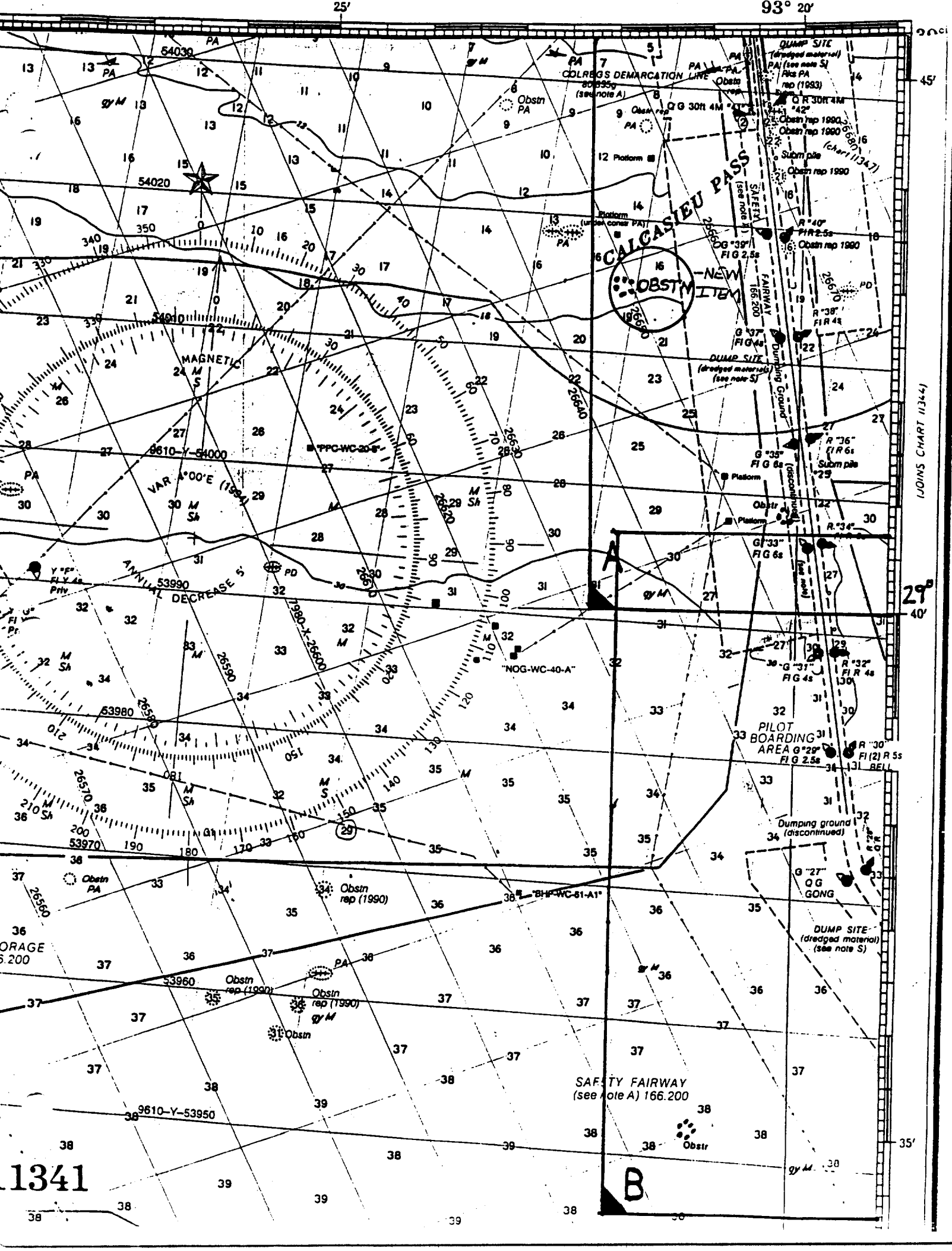
OBJECT DISCOVERED: AN UNIDENTIFIED METAL OBSTRUCTION LOCATED AT POSITION 29-43-06.414N3, 093-21-58.133W5. THE LEAST DEPTH OF THIS OBJECT IS 3.2M (10.5FT), CORRECTED TO MLLW USING PREDICTED TIDES.

THE CHARTED DEPTH OF WATER IS 5.4M (18.0FT). THE POSITION OF THIS OBJECT WAS OBTAINED USING DGPS. DIVERS VERIFIED THE EXISTENCE OF THE OBJECT BUT WERE UNABLE TO IDENTIFY IT DUE TO POOR VISIBILITY.

THIS ITEM AFFECTS NAUTICAL CHARTS:

CHART NUMBER	11341	11344	11347
EDITION NUMBER	35TH	30TH	25TH
DATE	07 MAY 94	29 JAN 94	JULY 1992
CHARTED HORIZ. DATUM	NAD 83	NAD 83	NAD 83
GEOGRAPHIC POSITION			
LATITUDE	29-43-06.414N		
LONGITUDE	093-21-58.133W		

QUESTIONS CONCERNING THIS REPORT SHOULD BE DIRECTED TO THE ATLANTIC MARINE CENTER AT (804) 441-6206.
BT
NNNN


25'
93° 20'
45'
40'
29°
35'
54030
54020
54010
53990
53980
53970
53960
53950
COLREGS DEMARCATION LINE
(see note A)
CALCASIEU PASS
SAFETY FAIRWAY
(see note A) 166.200
OBSTN
NEW WRK
MAGNETIC
VAR 4°00'E (1994)
ANNUAL DECREASE 5'
9610-Y-54000
9610-Y-53950
1980-X-26600
"PPC-WC-20-B"
"NOG-WC-40-A"
"BHP-WC-61-A1"
DUMP SITE
(dredged material)
PA (see note S)
Dumping Ground
(discontinued)
PILOT
BOARDING
AREA
Platform
Obstn rep (1990)
Subm pile
Obstr
Obstn PA
Dumping ground
(discontinued)
DUMP SITE
(dredged material)
(see note S)
SAFETY FAIRWAY
(see note A) 166.200
(JOINS CHART 11344)
1341
A
B

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: March 21, 1995

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR-K171

HYDROGRAPHIC SHEET: H-10560

LOCALITY: Cameron, Louisiana to Sabine, Texas

TIME PERIOD: August 5 - November 8, 1994

TIDE STATION USED: 877-0570 Sabine Pass, North, Tx.
Lat. 29° 43.8'N Lon. 93° 52.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.78 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.5 ft.

REMARKS: RECOMMENDED ZONING

Apply a -40 minute time correction and a x1.48 range ratio to heights using Sabine Pass, North, Tx. (877-0570).

Notes:
1. Times are tabulated in Greenwich Mean Time.
2. Data for Sabine Pass, North, Tx. (877-0570) are temporarily stored in file #677-0570.

William M. Hubbard
CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10560

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 11344, 11345, 11347	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
CALCASIEU PASS	X		X							1
CALCASIEU SHIP CHANNEL	X		X							2
CAMERON (ppl)	X		X							3
LOUISIANA (title)	X		X							4
MEXICO, GULF OF	X		X							5
MONKEY ISLAND	X		X							6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
					Approved:					18
										19
					Chief Geographer					20
					FEB 26 1996					21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

N/CS33-10-97

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☒ EXPRESS

☐ GBL *(Give number)* _____

TO:

NOAA/National Ocean Service
Chief, Data Control Group, N/CS3x1
SSMC3, Station 6815
1315 East-West Highway
Silver Spring, MD 20910-3282

DATE FORWARDED

February 18, 1997

NUMBER OF PACKAGES

1 Box, 1 Tube

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

H-10560

Louisiana, Gulf of Mexico, Calcasieu Pass

1 Box Containing:

1 Original Descriptive Report for H-10560
1 Envelope with HISTORY OF CARTOGRAPHIC WORK (NOAA form 76-71) for H-10560 for chart 11347,

1 Tube Containing:

1 Original Smooth Sheet for H-10560
2 Paper Composite plots, (1 of 2) & (2 of 2) of Survey H-10560 for NOS chart 11347
1 Mylar H-DRAWING of H-10572 for NOS chart 11347

FROM: *(Signature)* R. H. Whitfield

Richard H. Whitfield

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Branch N/CS331
439 W. York Street
Norfolk, VA 23510-1114

02/19/97

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10560

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	9740
NUMBER OF SOUNDINGS	68028

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	125	02/09/96
VERIFICATION OF FIELD DATA	277.50	10/15/96
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	148	
FINAL INSPECTION	16	01/18/97
COMPILATION	66	02/14/97
TOTAL TIME	632	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 02/10/97

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10560 (1994)

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Hydrographic Processing System (HPS)
AUTOCAD, Release 12
QUICKSURF, version 5.1
MicroStation 95, version 5.05
NADCON, version 2.10
I/RAS B, version 5.01

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

F. SOUNDING EQUIPMENT

A systematic fathometer error was discovered by field personnel during the course of this survey, and the fathometer in question (RAYTHEON DSF-6000N, S/N B046N) was adjusted by the electronics technicians to correct this problem. The field personnel did not adjust the data acquired during the days before the error was discovered. (See section F.3, p.10, of the Descriptive Report.) It was decided during office processing that an adjustment should be made to the data. A correction of +0.4 meters was made to the data acquired by vessel MI-3 (VESNO 2223) from Day Of the Year (DOY) 252 to DOY 278. The fathometer used by vessel MI-3 prior to DOY 252 was RAYTHEON DSF-6000N, S/N B042N.

H. CONTROL

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 0.809 seconds (24.91 meters or 2.49 mm at the scale of the survey) north in latitude, and 0.555 seconds (14.93 meters or 1.49 mm at the scale of the survey) west in longitude.

J. SHORELINE

The shoreline originates with final reviewed

photogrammetric manuscripts DM-10006 and DM-10007 of 1988. Digital data files were provided by Photogrammetry Division. Digital files were inserted into the survey drawing file.

L. JUNCTIONS

H-10561 (1994) to the south

A standard junction could not be made with the junctional survey. The smooth sheet for the junctional survey is archived at National Ocean Service (NOS) headquarters, Silver Spring, Maryland. The note "ADJOINS" has been shown on the present survey smooth sheet. Any adjustments to the depth curves in the junctional area will have to be made on the chart during compilation.

There are no contemporary surveys to the east and west of the present survey. Present survey depths are in harmony with the charted hydrography to the east and west.

M. COMPARISON WITH PRIOR SURVEYS

An adequate comparison was made with prior survey H-8796 (1964) in section M., page 18, of the Descriptive Report. A comparison with additional prior surveys common to the present survey was not done during office processing in accordance with section 4. of the memorandum titled Changes to Hydrographic Survey Processing, dated May 24, 1995.

A charted 2-ft depth in Latitude 29°44'34"N, Longitude 93°20'41"W originating with prior survey H-8796 (1964) was not discussed by the hydrographer. Present survey depths are 15 to 18 feet deep and show no indication of shoaling. It is recommended that present survey soundings supersede the charted 2-ft depth.

N. ITEM INVESTIGATIONS

1. Automated Wreck and Obstruction Information System (AWOIS) item #8960 is a charted Dumping Ground Discontinued in the vicinity Latitude 29°45'00"N, Longitude 93°21'00"W. A small area in the northern section of the dumping ground was not covered by the present survey. It is recommended that the limits of the Dumping Ground Discontinued be revised to show the area not covered by the present survey.

2. AWOIS item #8961 is a charted Dumping Ground Discontinued in the vicinity of Latitude 29°45'50"N, Longitude 93°20'00"W. The area was not investigated in its entirety by

the field party. A small section of the dumping ground was covered by the present survey in the vicinity of Latitude 29°45'15"N, Longitude 93°19'31"W. It is recommended that the common area of the Dumping Ground Discontinued covered by the present survey be deleted from the chart.

O. COMPARISON WITH CHARTS 11347 (26th Edition, Oct. 2/93) 11341 (35th Edition, May 7/94) 11344 (30th Edition, Jan. 29/94)

Hydrography

The charted hydrography originates with the previously discussed prior surveys and needs no further discussion. A comparison of the survey with charts 11341, 11344, and 11347 yielded good agreement.

Controlling Depths

Controlling depths for Calcasieu Pass Bar Channel are listed in the tabulation as 40.5 feet. Between Latitude 29°43'45"N and Latitude 29°41'15"N there are a number of depths in the channel that are shoaler with the shoalest depths to 35 feet (10^7 m) near the toe of the channel.

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

P. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. Additional work is recommended at an opportune time on AWOIS Items discussed in section N., P, and T. of the Descriptive Report.

S. MISCELLANEOUS

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

A Q-drawing showing items discussed in the Descriptive Report has been submitted for charting of the 28th Edition of chart 11347. These items are discussed in the memorandum dated March 15, 1996 appended to this report.

MT MITCHELL Processing Team

Marilyn Schlüter

Marilyn L. Schlüter
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H-10560

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 disproval 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 digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Robert G. Roberson Date: FEBRUARY 4, 1997
Robert G. Roberson
Cartographer
Chief, Cartographic Section

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

Nicholas E. Perugini Date: February 10, 1997
Nicholas E. Perugini, CDR, NOAA
Chief, Atlantic Hydrographic Branch

****

Final Approval:

Approved: Andrew A. Armstrong III Date: Mar 6, 1997
Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Norfolk, Virginia 23510-1114

March 15, 1996

MEMORANDUM FOR: Captain Andrew A. Armstrong, III, NOAA
Chief, Hydrographic Surveys Division

FROM: Commander Nicholas E. Perugini, NOAA
Chief, Atlantic Hydrographic Branch

SUBJECT: Compilation for Chart 11347

The Atlantic Hydrographic Branch (AHB) has completed initial compilation for the following chart:

Chart 11347, 27th Edition, December 3, 1994
"Calcasieu River and Lake"
1:50,000

The sources for compilation are hydrographic surveys:

H-10560
H-10561
H-10572

Although these surveys have not yet reached smooth sheet stage, AHB cartographers have identified numerous additions, deletions, and revisions that should be applied to the new chart. In order to meet the immediate chart printing schedule, AHB has compiled a "Q-Drawing" that portrays compilation results. A "Drawing History" (Form 76-71) is included with the Q-Drawing.

The following MICROSTATION "DGN" files are being transmitted by BANYAN to accompany this compilation.

11347Q10.560
11347Q10.561
11347Q10.572

In order to ensure continuity, AHB plans on performing a complete compilation using the new chart as reference, once the surveys have been approved.

NOS Chart 11347 Update
Corrections to Chart 11347, 27th Ed., Dec 3/94
Submitted March 15,1996

Chart 11347

FROM SURVEY H-10572 (1994)

AWOIS item #8766 (Obstruction) Latitude 29°28'55.14"N, Longitude 93°17'51.69"W. Item is not charted. Do not chart.

Delete the following charted items:

1. Subm pipe, PD in Latitude 29°33'54.83"N, Longitude 93°17'24.56"W. AWOIS item #6989

FROM SURVEY H-10561 (1994)

Delete the following charted items:

2. Dangerous sunken Wreck in Latitude 29°39'54.00"N, Longitude 93°17'12.00"W. AWOIS item #8967.

3. 33 Obstn and danger curve (rep 1990) in Latitude 29°37'21.48"N, Longitude 93°17'48.39"W.

4. 33 Obstn and danger curve (rep 1990) in Latitude 29°36'12.17"N, Longitude 93°17'54.01"W.

Revise the following charted items:

5. Dangerous subm Obstn PA, (24.6 ft rep) in Latitude 29°40'26.072"N, Longitude 93°19'28.00"W to a 23 Obstn with a danger curve.

6. Dangerous subm Obstn PA (31 ft rep) in Latitude 29°37'30.86"N, Longitude 93°18'47.04"W to a 31 Obstn with a danger curve.

7. Dangerous sunken wreck PA (32 ft rep) in Latitude 29°35'08.53"N, Longitude 93°21'04.16"W to a 31 Obstn with a danger curve.

8. Dangerous sunken wreck (13½ ft rep) to a 12 Wk and danger curve in Latitude 29°39'54.596"N, Longitude 93°18'07.857"W.

Chart the following items:

9. 26 Obstn and a danger curve in Latitude 29°39'19.75"N, Longitude 93°20'11.80"W.

10. 25 Obstn and a danger curve in Latitude 29°38'38.08"N, Longitude 93°19'34.26"W.

FROM SURVEY H-10560 (1994)

Delete the following charted items:

11. 25 Obstn and a danger curve (rep 1990) in Latitude 29°44'35.42"N, Longitude 93°20'22.24"W. AWOIS #132[illegible].

12. 22 Obstn and a danger curve (rep 1990) in Latitude 29°44'24.60"N, Longitude 93°20'19.50"W. AWOIS #132[illegible].

13. 21 Obstn and a danger curve (rep 1990) in Latitude 29°44'05.31"N, Longitude 93°20'16.70"W. AWOIS #132[illegible].

14. Notation (rep 1990) from the 16 Obstn in Latitude 29°43'25.72"N, Longitude 93°20'09.71"W. AWOIS #132[illegible].

15. Subm pile and symbol in Latitude 29°44'16.11"N, Longitude 93°20'18.25"W. AWOIS #132[illegible].

16. Subm pile and symbol in Latitude 29°41'20.3"N, Longitude 93°19'47.8"W. AWOIS #132[illegible].

17. Dangerous sunken wreck PA in Latitude 29°45'00.80"N, Longitude 93°18'00.55"W. AWOIS item #8924.

18. Dangerous sunken wreck PD in Latitude 29°43'00.80"N, Longitude 93°19'30.55"W. AWOIS item #8931.

19. Dangerous sunken wreck (rep 1993) in Latitude 29°44'42.80"N, Longitude 93°20'18.55"W. AWOIS item #8932.

20. Obstn PA in Latitude 29°44'30.80"N, Longitude 93°21'42.55"W. AWOIS item #8935.

21. Obstn rep and arrow in Latitude 29°45'05.80"N, Longitude 93°20'37.55"W. AWOIS item #8968.

REVISE the following charted items:

22. Visible Wreck PA in Latitude 29°45'38.80"N, Longitude 93°19'03.54"W to a sunken wreck PA with danger curve. AWOIS item #8930.

23. Visible Wreck PA in Latitude 29°45'00.80"N, Longitude 93°21'00.55"W to a sunken wreck PA with danger curve. AWOIS item #8933.

24. Visible Wreck PA in Latitude 29°45'01.80"N, Longitude 93°21'04.55"W to a sunken wreck PA with danger curve. AWOIS item #8934.

25. Dangerous sunken wreck PA (9 ft rep) to 8 Wk and danger curve in Latitude 29°45'00.75"N, Longitude 93°17'40.99"W.

26. Dangerous submerged Obstn PA to 19 Obstn and a danger curve in Latitude 29°40'52.314"N, Longitude 93°20'07.463"W.

27. Dangerous submerged Obstn PA (10½ ft rep) to 8 Obstn and a danger curve in Latitude 29°43'06.414"N, Longitude 93°21'58.133"W.

CHART the following items:

28. 15 Obstn and a danger curve in Latitude 29°44'38.644"N, Longitude 93°20'34.196"W.

29. 11 Obstn and a danger curve in Latitude 29°44'44.64"N, Longitude 93°20'37.88"W.

30. 21 Obstn and a danger curve in Latitude 29°44'37.190"N, Longitude 93°20'32.295"W.

31. 18 Obstn and a danger curve in Latitude 29°44'11.10"N, Longitude 93°20'29.11"W. See Item A19 (p. 50)

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10560

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
11347	2/10/97	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
11340	3/29/97	JEFF Taylor	~~Full~~ Part ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. Critical application only.
11345	6/30/97	[signature]	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Fully applied thru chart 11344, 11341
~~11344~~			
11341	6/30/97	[signature]	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Fully applied thru chart 11347
11344	6/27/97	[signature]	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Fully applied thru chart 11347
11330	7/10/97	Travis Newman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Appd thru charts 11345 and 11341
11340	7/10/97	Travis Newman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. thru chart 11330
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.