

FE346

SIDE SCAN

Diagrams 1278-2, 1279-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey . . . Side Scan Sonar

Field No. RU-20-1-90

Registry No. FE-346SS

LOCALITY

State Louisiana

General Locality . . . Gulf of Mexico

Sublocality Inshore Approaches

to Cameron

1990

CHIEF OF PARTY

LCDR G.H. Tuell

LIBRARY & ARCHIVES

DATE June 8, 1993

FE346

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11347A
11344
11341
11345
11330
11340

HYDROGRAPHIC TITLE SHEET

FE-346-SS

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

FIELD NO.

RU-20-1-90 ✓

State Louisiana ✓

General locality Gulf of Mexico ✓

Locality Inshore Approaches to Cameron ✓

Scale 1:20000; 1:10,000; 1:2,500 Date of survey April 9 - July 10, 1990 ✓

Instructions dated February 9, 1990 Project No. OPR-K454-RU-90

Vessel NOAA SHIP RUDE S-590 EDP No. 9040

Chief of party LCDR Grady H. Tuell ✓

Surveyed by LT Jon E. Rix, ENS Ralph ^{R.}Rogers, ENS Philip A. ^{A.}Gruccio, AST Mark ^{A.}Sramek

Soundings taken by echo sounder, ~~head lead, pole~~ RAYTHEON DSF-6000N *Pneumatic Depth Gauge (PDG)*

Graphic record scaled by JER, RRR, PAG, MAS

Graphic record checked by JER, RRR, PAG, MAS

Protracted by _____ Automated plot by BRUNING-NICOLET ZETA

Verification by Atlantic Hydrographic Section personnel 124 CS Plotter (FIELD)
XYNETICS 1241 Plotter (AHS)

Soundings in ~~XXXXXX~~ meters at ~~MLLW~~ MLLW

REMARKS: The following AWOIS Items were either resolved or disproved:

403, 6987, 6988, 6990, 6991, 6992, 6994, 6995, 7004, 7039, 7040, 7041

Contact 26.19P in AWOIS 7039 was originally found on
survey D-104 (RU-80-1-90).

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

AWOIS and SURF 9/93 RWD

RWW 3/28/94

50'

40'

30'

20'

MINERAL DEVELOPMENT STRUCTURES
 Obstruction lights and sound (fog) signals are required for fixed mineral development structures shown on this chart, subject to approval by the District Commander, U.S. Coast Guard (33 CFR 67).

RADAR REFLECTORS
 Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

WARNING
 The prudent mariner will not rely on any single aid to navigation on floating aids. See U.S. Coast List and U.S. Coast Pilot for details.

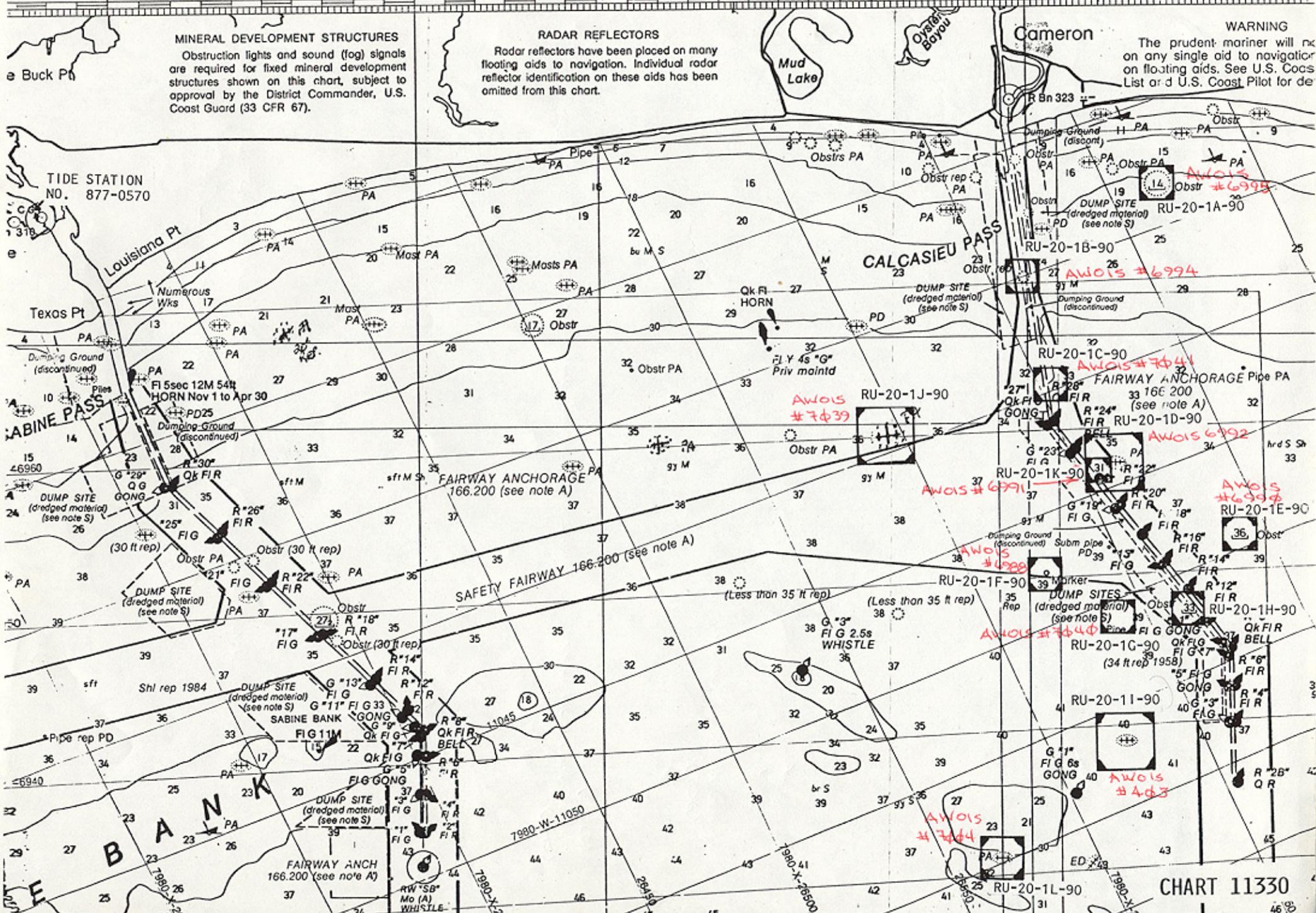


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AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

A. PROJECT

This survey was conducted in accordance with Hydrographic Project Instructions OPR-K454-RU-90, Approaches to Cameron, Louisiana and Sabine Pass, Texas, dated February 9, 1990, and as amended by:

Change No. 1 dated May 24, 1990

The purpose of this project is to conduct investigations of wrecks and obstructions, and to conduct limited reconnaissance hydrography in and near the approaches to Cameron, Louisiana, and Sabine, Texas. The project responds to requests from the U.S. Coast Guard (Eighth District), Lake Charles Pilots, and to recommendations from a 1984 NOS Planning Staff report entitled "A Study of NOS Surveys in Major U.S. Ports."

B. AREA SURVEYED

This report covers survey operations performed on AWOIS items located in the inshore approaches to Cameron, Louisiana. The items lie between the Louisiana coast and latitude 29° 24' North, and longitudes 93° 12' and 93° 27' West. Data acquisition began on April 9, 1990 and was concluded on July 10, 1990. The AWOIS items are discussed in section N.

C. SURVEY VESSELS

The following vessels were used during this project:

VESSELS	ELECTRONIC DATA PROCESSING NUMBER	PRIMARY FUNCTION
NOAA Ship RUDE (S590)	9040	Side Scan Operations
RUDE Launch (RU3)	1290	Diving Operations
RUDE Skiff (RU1)	N/A	Diving Operations

When operating in shallow water, the problem occasionally arose of keeping the side scan towfish at the proper height but out of the ship's wake and propeller wash. To overcome this problem, RUDE deployed the side scan towfish from the bow. This was achieved by using a 10-foot boom, mounted on the stem, to hold the towfish out in front of the ship. This allowed the towfish to "fly" only 2-3 feet below the water's surface, achieving maximum fish height.

Since the towfish and the survey fathometer (high frequency) both operate in the 100 kHz range and are physically closer in the bow mount configuration, interference was seen on the side scan trace. Therefore, when operating in this configuration, only the low frequency was used for collecting sounding data as provided for in section 1.2.4 of the Side Scan Sonar Manual.

AWDIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7037-41

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Version	Survey Dates	Version	Post-Survey Dates
4.14	APR 08 - MAY 20, 1990	4.13	APR 08 - MAY 20, 1990
4.32	MAY 21 - JUL 03, 1990	4.14	MAY 21 - JUL 10, 1990
4.33	JUL 04 - JUL 10, 1990		

Note: Survey version 4.14 is identical to survey version 4.13 in all aspects except it contained an automatic lane jump detection routine. This was an experimental version used only by RUDE. The program caused false lane jump detection during screen dumps and down loading data.

Raw data collected during this project were stored on 3.5 inch floppy disks, which were numbered by sheet, vessel, and day of year. Edited data was recorded on hard disk and backed up on 1/4 inch 32-track cartridge tapes, numbered in the same manner as the raw data.

Other software used were VELOCITY 1.11 (to generate sound velocity corrector tables), NADCON 1.01 (to convert from NAD 27 to NAD 83), and LOTUS 123 (to generate baseline correctors for the Falcon mini-rangers).

E. SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G Model 260 slant range corrected side scan sonar recorder and either a Model 272-T (single frequency) or 272-TD (dual frequency) towfish. The towfish was configured with a 20° tow fish beam depression, which is the normal setting and which yields the best beam correction. Refer to each day's raw data printouts for a list of applicable equipment serial numbers.

During normal survey operations, the 100 kHz frequency and 100, 75, 50, or 25 meter range scales were used. When conditions (water depth and sea state) permitted, we ran the side scan on the 100 meter range scale. Otherwise, the 75, 50 and 25 meter scales were used respectively as these conditions deteriorated. The 500 kHz frequency was seldom used, except when trying to achieve a more detailed image of a contact. Maximum line spacing was 90% of two times the range scale (i.e. 180 meter line spacing for 100 meter range scale).

Side scan sonar operations were conducted in accordance with the Side Scan Sonar Manual, dated September 1988. Daily confidence checks were performed by either towing the fish past a previously located contact, or by noting recognizable bottom characteristics at the edges of the sonar range scale in use. Sonargrams and

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

fathograms were scanned on-line and off-line for contacts. Significant contacts were reconned at the 50 or 25 meter range scale and were investigated by divers if deemed necessary. Overlap was checked on-line and on the edited swath plot for holidays. All holidays were filled in by running additional side scan sonar lines.

F. SOUNDING EQUIPMENT

All hydrographic soundings were acquired using a Raytheon 6000N digital survey fathometer (DSF). Both the high (100 kHz) and the low (24 kHz) frequency sounding data were recorded. However only the high frequency was used for plotting purposes. When using the bow mount, only the low frequency was used to prevent cross talk between the side scan sonar towfish and the DSF high frequency. Therefore, the low frequency data was used for plotting depths when the bow mount was in use. Refer to each day's raw data printouts for a list of equipment serial numbers.

All diver-determined least depths were measured with a ~~pneumo~~^{pneumatic} depth gage. RUDE is equipped with two Precision Depth Gages; a 0-70 FSW gage (S/N 142697) and a 0-140 FSW gage (S/N unreadable).

G. CORRECTIONS TO SOUNDINGS

Velocity correction data was collected periodically throughout the survey area. A Digibar Sound Velocity Probe (S/N 169) was used for all casts. A Data Quality Assurance Test was done before each cast to ensure the meter was within tolerance. All data was processed using the program Velocity 1.11. The computed velocity correctors were entered into the HDAPS sound velocity table and applied on-line to both high frequency and low frequency echosounder depths.

The following casts were made:

<u>Date</u>	<u>LAT/LON</u>	<u>HDAPS Velocity Tables</u>
APR 09, 1990	29° 28.0'N / 93° 13.3'W	1
MAY 01, 1990	29° 36.6'N / 93° 17.1'W	2
JUN 04, 1990	29° 36.6'N / 93° 25.4'W	3

Settlement and squat correctors for RUDE were determined on the Elizabeth River, Norfolk, Virginia on March 06, 1990. An observer was stationed on shore with a leveling instrument, to measure changes in relative height as the ship passed by at various speeds. Settlement and squat correctors were applied to soundings through the HDAPS offset table.

Heave data were collected by a Datawell b.v. heave, pitch and roll sensor (S/N 19128-C) and applied to soundings in real time. Only the heave corrections were applied to the plotted depths.

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During the last dry dock period, an exact vertical measurement was taken from the DSF transducer to a fixed point on the bridge wing. After the ship was refloated, the height above the waterline was determined for this point. The ship's static draft was calculated to be exactly 7.4 feet (2.26 meters). This draft value was applied to the sounding data via the HDAPS offset table.

See SEPARATE IV for data records.

The tidal datum for this project is mean lower low water. The operating tide station at Sabine Pass, North, Texas (877-0570) served as control for datum determination. The station at Galveston, Texas served as the reference station for predicted tides. The following correctors for time and height were taken from the Project Instructions.

<u>Project Area</u>	<u>Time Corrector</u>		<u>Height Ratio</u>
	<u>High Water</u>	<u>Low Water</u>	
Offshore in the Gulf of Mexico	-1 hr 30 min	-1 hr 30 min	x1.44

Tidal correctors were applied on-line using the HDAPS predicted tides table. *Approved tides and zoning were applied during office processing.*

See APPENDIX V for HDAPS predicted tide tables.*

A request for smooth tides was mailed on August 7, 1990. A copy is provided in APPENDIX V.*

The ship's shallow water (0-70 fsw) pneumatic depth gage was purchased this field season and was calibrated by the manufacturer on April 27, 1990. The deep water (0-140 fsw) pneumatic depth gage was calibrated on February 13, 1990 at Instruments East Inc. in Norfolk, Virginia. Periodic lead line system checks were conducted to ensure the gage was functioning properly.

See SEPARATE IV for calibrations and system checks.

H. CONTROL STATIONS - *See section 2.a. of the Evaluation Report.*

The horizontal datum for this project, unless noted, is the North American Datum of 1983 (NAD 83). Geodetic support to establish hydrographic control on the Louisiana and Texas coasts for this survey was provided by N/CG23322 in 1989. This field work was conducted in accordance with Project Instructions for Job HC-8901, 1989. All stations were Third-Order, Class I or better.

Coordinates of the control stations used during this project were taken from the NAD 83 preliminary unadjusted field positions provided to RUDE by N/CG23322 in 1989. The control station list is provided in APPENDIX III, including station names, numbers, and geographic positions. APPENDIX III also contains recovery notes for these stations.

* *Removed from original Descriptive Report; filed with field records.*

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Because two different navigation systems were in use, station numbers are in two series. The ARGO system network was deployed on stations 101-104. The Mini-Ranger network was deployed on stations 201-204. All stations remained in their original deployment throughout this survey as is shown on the control station table included in SEPARATE III.

I. HYDROGRAPHIC POSITION CONTROL

Vessel survey navigation was accomplished by the range range method utilizing one of two hydrographic positioning systems: the Motorola Mini-Ranger Falcon 484 system; or the Cubic Western Data ARGO DM54 System. Generally the Mini-Ranger system was used for the near shore items and the ARGO system for the offshore. Hybrid navigation was not used on any individual field sheet. Daily data records clearly indicate which system was in use and the system is also stated in the AWOIS item investigation reports included in section N. of this text. The abstract below correlates the navigation system, field sheets, AWOIS items, and dates of survey.

<u>SYSTEM</u>	<u>FIELD SHEET</u>	<u>AWOIS ITEM</u>	<u>DATES OF SURVEY</u>
Mini-Ranger	RU-20-1A-90	6995	176,190
	RU-20-1B-90	6994	124,128,129,190
	RU-20-1C-90	7041	164,190
	RU-20-1D-90	6992	101-103,108,109,120, 127,129,131,135-138, 141,142,190
	RU-20-1E-90	6990	165
	RU-20-1K-90	6991	121,129
	ARGO	RU-20-1F-90	6988
	RU-20-1G-90	7040	165,173
	RU-20-1H-90	6987	165,166
	RU-20-1I-90	403	102,106,107,113,114, 134,143
	RU-20-1J-90	7039	144,145,149-152 155-159
	RU-20-1L-90	7004	177,191

The Mini-Ranger and ARGO systems are interfaced with the HDAPS system in such a way that only the ranges are recorded; the position computation capability of the Falcon system is not utilized. Vessel position is computed by a least squares algorithm within the NAVITRONIC NAVISOFT 300 software.

RUDE routinely conducted survey operations using four LOP's, although occasionally one or more ranges were automatically rejected from the solution due to poor signal strength, or lane jumps. At no time during this project did the maximum residual consistently exceed 10 meters, or 0.5 mm at the survey scale. The 95% confidence error circle radius very rarely, if ever, exceeded 30 meters, or 1.5 mm at the survey scale.

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MINI-RANGER

A pre-project baseline calibration of the Mini-Ranger system was conducted at the Atlantic Marine Center on February 27, 1990. During this calibration, the range correctors were determined for each combination of transponder and shipboard R/T and RPII. A Minimum Acceptable Signal Strength (MASS) was also determined for each of the Mini-Ranger codes.

See the Electronic Control Report submitted under separate cover for the data records of the calibrations.

The range corrector and MASS for each Mini-Ranger code was entered in the HDAPS system using the Pre-Survey C-0 Table Utility. This table provided the mechanism by which HDAPS automatically applies the proper range corrector and removes from the position computation those LOP's with signal strengths below MASS. The C-0 Table used during this survey is included in SEPARATE III.

NOTE: The Mini-Ranger R/T used throughout this project was S/N E2951. This was mislabeled on most of the daily raw data printouts and has been hand corrected.

ARGO

To our knowledge, this survey is the first NOS survey to utilize ARGO in the multiple LOP mode. Four ARGO shore stations were routinely used. This command feels strongly that the use of four ARGO LOP's in the HDAPS position computation provides an over-determined solution which is very analogous to the use of Mini-Ranger, and that once the system was calibrated, monitoring of the geometry, ECR, and Maximum residual is sufficient action to analyze the quality of the navigation. Therefore, a strip chart recorder was not used. Instead, the HDAPS system operator constantly monitored these critical navigation parameters. Should one or more of the parameters exceed the required tolerances, the position quality graphics screen was studied to determine the deteriorated LOP, and this ARGO station was removed from the position computation. RUDE found that isolated thunderstorms ashore would occasionally cause an ARGO station to lose one or more lanes, and that this was usually the cause of the infrequent ARGO problems encountered. ARGO was never used for survey navigation with less than three LOP's.

CALIBRATION OF THE ARGO SYSTEM

Because ARGO had not been used in the multiple LOP mode with the HDAPS system before, the HYDRO MANUAL and FIELD PROCEDURES MANUAL contained little guidance as to what techniques and schedules should be used for ARGO network calibration. Various telephone and written correspondence was conducted with N/CG24 and N/CG244 personnel on the subject. Early in the project, a memorandum was sent to N/CG244 outlining RUDE's calibration procedures. A copy of this memorandum is included in APPENDIX VI* of this survey. LCDR Sam DeBow, (N/CG24) was aboard RUDE from May 21-23 to observe ARGO operations.

* See Separate III to accompany FE-346SS.

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Two ARGO calibration techniques were used: secondary by primary system calibration; and lane recovery by known rates.

The Secondary by Primary method involved calibration the ARGO directly to the Mini-Ranger. A Mini-Ranger position was computed using HDAPS at the same time the ARGO rates were frozen and recorded. A geodetic inverse from the Mini-Ranger position to each ARGO station was computed using HDAPS. These distances were then converted to lanes and compared to the observed rates. Correctors were calculated and applied to each ARGO rate. This process was repeated until the corrector was within the maximum residual limit of 10 meters. Later in the project, a new version of Survey was used to do the Secondary (ARGO) by Primary (Mini-Ranger) calibration. This software greatly simplified the calibration process.

The second technique used to calibrate ARGO was a Lane Recovery Technique. This procedure involved establishing a repeatable range which could be steered, while marking known points on the range by turning sextant angles to a target on the beam. Ranges were established using well heads or oil rigs at convenient locations in the survey area. Coordinates were not computed for the range markers. The range was used only to return RUDE to a recoverable point where the ARGO rates were known. The range was established only after first conducting a secondary by primary calibration. The ARGO rates on the range were verified by two additional runs of the range following secondary by primary calibrations.

The range used in this survey was established on DOY 106 and verified by two additional runs on DOY 143. The forms used to establish the range are included in SEPARATE III.

Routinely, the ARGO system was calibrated each time RUDE returned to sea after inporting in Cameron or Lake Charles. However, calibrations were also conducted whenever navigation parameters fell below 1:20,000 requirements. The table below shows dates of ARGO calibration and the technique employed.

<u>DOY</u>	<u>METHOD</u>
102	Secondary by Primary
103	Secondary by Primary
106	Secondary by Primary
	Established Range 1
113	Range 1
130	Secondary by Primary
134	Range 1
142	Secondary by Primary
143	Secondary by Primary
	Verified Range 1 with 2 runs
144	Secondary by Primary
145	2 Check M/R LOP's
150	Secondary by Primary

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<u>DOY</u>	<u>METHOD</u>
151	Secondary by Primary
152	2 Check M/R LOP's
155	Secondary by Primary
159	Secondary by Primary
162	Secondary by Primary
165	Secondary by Primary
177	Range 1
191	Secondary by Primary Range 1

The check Mini-Ranger LOP's were not a calibration. This procedure consisted of simply comparing 1 or more Mini-Ranger LOP's to the ARGO fix for a simple confidence check. See SEPARATE III for the data records of the calibrations.

All offsets were calculated and entered into the HDAPS offset table. This table included measurements from the antenna to the transducer, bow, and A-frame. The position of the towfish was automatically calculated by HDAPS by using the offset table, line course, and cable length.

See SEPARATE IV for offset tables.

J. SHORELINE - See section 2.6 of the Evaluation Report

Not Applicable

K. CROSSLINES - See also section 3.2 of the Evaluation Report.

Not Applicable

L. JUNCTIONS - See also section 5. of the Evaluation Report.

Not Applicable

M. COMPARISON WITH PRIOR SURVEYS - See also section 6. of the Evaluation Report.

See Section N., COMPARISON WITH THE CHART.

N. COMPARISON WITH THE CHART - See also section 7. of the Evaluation Report.

AWOIS Item reports follow:

AWOIS ITEMS:	403	6987-88	6990-92	6994-95	7004	7039-41
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NI. AWOIS ITEM 403 INVESTIGATION - See sheet 1 of 12

Area of Investigation

AWOIS Item: 403
 State: Louisiana
 Parish: Cameron
 Locality: 2.9 nm W of Buoy "3," Calcasieu Channel
 Latitude: 29° 28' ²⁶28.846" N
 Longitude: 93° 16' 52.566" W (NAD 83)
 Depth: Unknown (Wreck)

AWOIS Item Description

AWOIS item 403 was described as being a wreck, reported November 11, 1944, at latitude 29° 28' 26" N, longitude 93° 16' 52" W, (NAD 27) approximately 2 nm NE of Sabine lighted whistle buoy number "1." The wreck was later located by an unknown source on December 13, 1944. Present survey requirements called for 200% side scan sonar investigation to a 2000 meter search radius; echosounder development or diver's investigation and least depth, if found; or salvage documentation. The wreck is charted on NOAA chart 11347, Calcasieu River and Lake, 23rd Edition, January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 403
 Positioning: ARGO
 Sonar Search: April 12 - May 23, 1990 (DOY 102 - 143)
 Sonification: 200% SSS coverage
 Contacts: No significant contacts discovered
 Field Sheet: RU-20-11-90

Initially, the on-line swath sheets were plotted using the item's NAD 27 position as the center of the search radius. On-line data was collected on this sheet before the error was detected. This position was later converted to NAD 83 using the shipboard North American Datum Conversion (NADCON), resulting in a total shift of 30.178 meters. Subsequently, upon plotting the correct NAD 83 position on the field sheet, a number of small holidays were evident at various intervals at the perimeter of the search radius. These areas were later filled in to ensure complete coverage of the radius about the NAD 83 position.

Side scan and fathometer records provided clear and reliable data throughout the investigation. Although numerous contacts were sighted on both these traces, they were later resolved through additional 50 meter range scale reconnaissance side scan coverage and the second 100% coverage. Numerous fathometer contacts were encountered on DOY 107 which were later disproved as being densely packed fish schools in the search area.

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Due to a system error which occurred on DOY 114, electronic data (fix numbers 1863-1996) were lost and were not able to be smooth plotted. Rather than submitting a final sheet with large gaps, the on-line sheet was then used as the final smooth swath sheet since it does show coverage for this area. The original smooth plot was then used for an on-line sheet. While fixes 1863-1996 do not appear on this sheet, they have been labeled since these areas were, in fact, searched.

AWOIS Item 403 Summary and Recommendations

AWOIS item 403 is considered disproved through 200% side scan sonar investigation. RUDE recommends that the symbol, No. 28, Section "K," (dangerous wreck, depth unknown) from Nautical Chart No. 1, charted at latitude 29° 28' 26.846" N, longitude 93° 16' 52.566" W, be deleted. - Concur. *

Depths acquired while investigating this item were found to be generally 2 to 3 feet deeper than those depicted on chart 11347 and on prior survey H-8796. RUDE recommends that the chart comparison be repeated during the hydrographic verification process after the application of approved tides. RUDE recommends that the depths remain as charted. - Do not concur. Chart as shown on the smooth plot.

* A contact with a wreck-like configuration in Latitude 29° 28' 55.14" N, Longitude 93° 17' 51.69" W was noted. This contact has no shadow. Present survey depths range from 1-2 feet deeper than prior survey depths. It is recommended that the wreck-like contact be charted as an obstruction as shown on the present survey. It is also recommended that the obstruction be investigated at an appropriate time to obtain a least depth and positive identification.

#AWOIS 8766

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N2. AWOIS ITEM 6987 INVESTIGATION - See sheet 2 of 12

Area of Investigation

AWOIS Item: 6987
 State: Louisiana
 Parish: Cameron
 Locality: 0.4 nm S of Buoy "14," Calcasieu Channel
 Latitude: 29° 32' 18.836" N
 Longitude: 93° 14' 52.561" W (NAD 83)
 Depth: 33 feet (metal wreckage)

AWOIS Item Description

AWOIS item 6987 was described in H9627/76WD as metal wreckage hung at 36 feet with a cleared depth of 33 feet. Divers reported a 6-foot long sloping metal obstruction protruding 3 feet off the bottom at latitude 29° 32' 18" N, longitude 93° 14' 52" W (NAD 27). NM42/79 described a 33-foot obstruction at latitude 29° 32' 17" N, longitude 93° 14' 53" W (NAD 27). It is suspected that this item could be the remains of the M/V OFFSHORE reported in NM3/64 at latitude 29° 33' N, longitude 93° 15' W and subsequently disproved on H9627/76WD at the above position. Present survey requirements called for 400% side scan sonar investigation to a radius of 50 meters; and echosounder development, or diver investigation and least depth, if found. AWOIS item 6987 appears on chart 11347, Calcasieu River and Lake, 23rd edition, dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 6987
 Positioning: ARGO
 Sonar Search: June 14, 1990 (DOY 165)
 Diving: June 15, 1990 (DOY 166)
 Sonification: 200% SSS coverage
 Contacts: One significant contact: 6538.24P
 Field Sheet: RU-20-1H-90

There were no significant problems encountered with the positioning or side scan systems. Although the contact was discovered on the first line, 200% side scan insonification was attained since additional recon lines were run about the contact and the search radius was only 50 meters. Only one potentially significant contact was identified on the 200% side scan sonar coverage. This contact was investigated by divers, and a least depth and position were determined for Contact 6538.24P.

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Contact 6538.24P Investigation

(a) Contact 6538.24P Dive Summary

Contact 6538.24P was investigated by divers on June 15, 1990 (DOY 166). Divers descended down the marker buoy line to the bottom at 40 feet. A circle search of 30-meter radius was conducted about the marker buoy anchor. A large iron ship anchor was found on the bottom, ~~partially~~^{5 feet} submerged in the mud. A least depth was obtained by pneumo depth gage.

(b) Contact 6538.24P Description

Contact 6538.24P is a large rusted ship's anchor, partially submerged, yet rising 3-4 feet above the surrounding bottom.

(c) Contact 6538.24P Least Depth Determination

A least depth of Contact 6538.24P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	6538.24P	
Date:	June 15, 1990 (DOY 166)	
Time:	1459 Z	
Average ^{PDG} Pneumo Depth:	37.5 feet	11.4 m
Pneumo Gage Corrector:	+ .0	
PREDICTED Tidal Zone Cor:	-1.7 2.3	0 +
Actual Least Depth:	35.82 feet	10.7 m
Plotted Depth:	35 feet	10.7 m

(d) Contact 6538.24P Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact:	6538.24P			
HDAPS Position Numbers:	6645 - 6647			
Average Easting:	79474.5 E			
Average Northing:	115128.8 N			
Computed Latitude:	29° 32' 18.640" N			
Computed Longitude:	93° 14' 50.991" W			
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11051.4	26662.7	46947.8	64018.8
Loran SNR:	Not Noted	Not Noted	Not Noted	Not Noted

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

(e) Contact 6538.24P Recommendation

Contact 6538.24P should be charted as an obstruction over which the depth is known, using symbol No. 41, Section "K," (Obstruction, least depth known) from Nautical Chart No. 1 at latitude 29° 32' 18.640" N, longitude 93° 14' 57.991" W. This should show a least depth of ~~36~~ ³⁵ feet inside a danger circle, labeled "Obstn." - ~~Concur~~ ^(14.7m)

AWOIS Item 6987 Summary and Recommendations

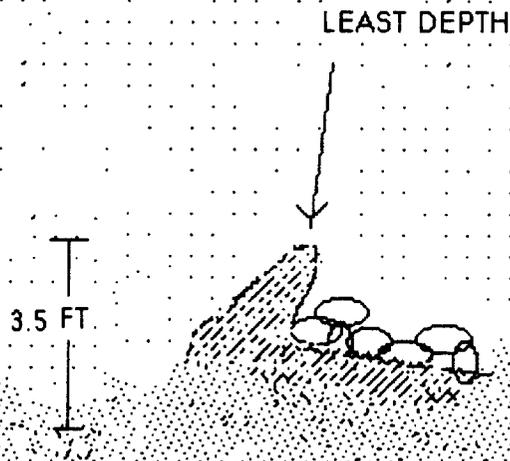
AWOIS item 6987 is considered resolved. The item has been discovered and identified close to its present charted position. Contact 6538.24P should be charted as ~~recommended in paragraph (e), above.~~ as shown on the present survey. It is also recommended that the charted obstruction be deleted from the chart.

Depths acquired while investigating this item were found to be generally 1 to 4 feet deeper than those depicted on chart 11347 and on prior survey H-8796. Due to the location between the dredged channel and the dump site, RUDE recommends retention of the charted shoaler depth of 37 feet. - Do not concur. See also section 6.2. of the Evaluation Report.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS 6987

CONTACT # 6538.24P



AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

NB. AWOIS ITEM 6988 INVESTIGATION - See sheet 3 of 12.

Area of Investigation

AWOIS Item: 6988

State: Louisiana

Parish: Cameron

Locality: 3.3 nm W of Buoy "15," Calcasieu Channel

Latitude: 29° 33' 09.836" N

Longitude: 93° 19' 30.564" W (NAD 83)

Depth: Unknown (obstruction)

AWOIS Item Description

AWOIS item 6988 was described in CL171/65 by USC&GS Ship Hydrographer as a visible marker, with its position scaled from the chart at latitude 29° 33' 09" N, longitude 93° 19' 30" W (NAD 27). The marker was designated "Calcasieu Pass Interim Channel Dredge Range Beacon" and the document indicates the position may be up to two seconds (62 meters) in error. Per FE326/75WD (formerly H9549), the area was cleared at the above position to an effective depth of 35 feet in one direction only, and survey data was insufficient for disproval. Present survey requirements called for 400% side scan sonar coverage to a 150-meter radius for disproval; or diver investigation and least depth, if found; or salvage documentation. ~~Investigation was not required within the channel limits.~~ AWOIS item 6988 appears on chart 11347, Calcasieu River and Lake, 23^d edition, dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 6988

Positioning: ARGO

Sonar Search: June 25, 1990 (DOY 176)

Sonification: 400% SSS coverage

Contacts: No significant contacts discovered

Field Sheet: RU-20-1F-90

There were no significant problems encountered with either the positioning or the side scan sonar systems. No contacts were identified on the side scan sonar coverage. During operations, every attempt was made to keep the towing speed below 2.5 knots. However, because of strong wind and currents, this was not always possible--even when using only one engine. The speed never exceeded 3.1 knots, and generally was between 2.1 and 2.8 knots.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS Item 6988 Summary and Recommendations

AWOIS item 6988 is considered disproved through 400% side scan sonar investigation. This item is ~~not~~ shown on the most recent edition of the chart. RUDE recommends that the item not be charted. - Concur.

Depths acquired while investigating this item were found to be in general agreement with those depicted on chart 11347 and on prior survey H-8796. - See also section 6.2. of the Evaluation Report.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N4. AWOIS ITEM 6990 INVESTIGATION - See sheet 4 of 12.

Area of Investigation

AWOIS Item: 6990
 State: Louisiana
 Parish: Cameron
 Locality: 2.2 nm NE of Buoy "16," Calcasieu Channel
 Latitude: 29° 34' 26.829" N
 Longitude: 93° 13' 09.556" W (NAD 83)
 Depth: 36 feet (Obstruction)

AWOIS Item Description

AWOIS item 6990 was described in H9627/76WD as being metal wreckage hung at 38 feet (cleared to 36 feet), protruding 2 feet off the bottom. Divers found a metal cylinder obstruction, about 8 feet long, with one end capped. Position given at latitude 29° 34' 26" N, longitude 93° 13' 09" W. NM42/79 reported a 36 foot obstruction in latitude 29° 34' 27" N, longitude 93° 13' 07" W (NAD 27) from NOS source. Present survey requirements called for 400% side scan sonar investigation to a 100-meter search radius; echosounder development, or diver investigation and least depth, if found. The wreck is charted on NOAA chart 11347, Calcasieu River and Lake, 23rd Edition, January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 6990
 Positioning: Falcon Mini-Ranger
 Sonar Search: 14 June 1990 (DOY 165)
 Sonification: 400% SSS coverage
 Contacts: No significant contacts discovered
 Field Sheet: RU-20-1E-90

The required 400% insonification was completed on AWOIS 6990 on DOY 165. Both the side scan and fathometer records provided clear and accurate data for the day. One possible contact was noted on the first 100% coverage, but was not detected on the 3 subsequent 100% coverages. The off-line check scan revealed this contact to be fish.

AWOIS Item 6990 Summary and Recommendations

AWOIS item 6990 is considered disproved through 400% side scan sonar investigation. RUDE recommends that symbol No. 42, section "K," (obstruction, least depth known, swept by wire drag or diver) from Nautical Chart No. 1, at position 29° 34' 26.829" N, longitude 93° 13' 09.556" W, be deleted. - *Concur.*

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

Depths acquired during this survey were found to be generally 1-2 feet deeper than those depicted on chart No. 11374 and on prior survey H-8796. RUDE recommends retention of charted depths. Do not concern. See also section 6.3. of the Evaluation Report.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

NE. AWOIS ITEM 6991 INVESTIGATION - See sheet 5 of 12.

Area of Investigation

AWOIS Item: 6991
 State: Louisiana
 Parish: Cameron
 Locality: 0.2 nm NW of Buoy "22," Calcasieu Channel
 Latitude: 29° 36' 06.837" N
 Longitude: 93° 17' 48.560" W (NAD 83)
 Depth: 31 feet

AWOIS Item Description

AWOIS item 6991 was reported as a 31 foot sounding with 37 foot depths in the general vicinity at latitude 29° 36' 06" N, longitude 93° 17' 48" W (NAD 27) from FE203/65WD. The diver-investigated wire drag effective depth of a 32 foot hang was at the edge of the dredged channel in mud. The hang was not cleared. Present survey requirements called for an echo sounder development to a 100-meter search radius. The sounding is charted on NOAA chart 11347, Calcasieu River and Lake, 23rd Edition, January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 6991
 Positioning: Falcon Mini-Ranger
 Sonar Search: See AWOIS 6992
 Echo Sounding: May 1 & 9, 1990 (DOY 121 & 129)
 Contacts: No significant contacts discovered
 Field Sheets: RU-20-1K-90

Since AWOIS 6991 falls completely inside the search area of AWOIS 6992, this area was also covered by 200% side scan insonification (See AWOIS 6992). There were no significant problems encountered with the side scan or positioning systems. No significant contacts were identified.

The PSR was unclear as to what hydrographic line spacing was required. RUDE originally began a 10 meter grid designed to disprove a significant side scan sonar contact. However, current conditions made accomplishment of this grid very time consuming and difficult. On May 2, 1990, telephone correspondence with N/CG241 personnel fixed the required line spacing at 50 meters.

AWOIS Item 6991 Summary

AWOIS item 6991 is considered disproved through echo sounder development and 200% side scan sonar investigation. RUDE recommends that the 31 foot sounding presently charted at latitude 29° 36' 06" N, longitude 93° 17' 48" W be deleted.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

Depths acquired during this survey were found to be generally 1 foot deeper than those depicted on chart No. 11374 and on prior survey H-8796. RUDE recommends retention of the charted, shoaler depths. Shoalest depth located during investigation is 10.3 m (34 ft) in latitude $29^{\circ}36'42.61''$ N, Longitude $93^{\circ}17'48.16''$ W. See also section 6.11 of the Evaluation Report.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N6. AWOIS ITEM 6992 INVESTIGATION - See sheet 6 of 12.

Area of Investigation

AWOIS Item: 6992
 State: Louisiana
 Parish: Cameron
 Locality: 0.6 nm NE of Buoy "22," Calcasieu Channel
 Latitude: 29° 36' 24.826" N
 Longitude: 93° 17' 12.599" W (NAD 83)
 Depth: unknown (wreck)

AWOIS Item Description

AWOIS item 6992 was reported in LNM 17/83, 8th Coast Guard District. The wreck was described as the F/V Altier, sunk at latitude 29° 36' 24" N, longitude 93° 17' 12" W (NAD 27). present survey requirements called for 200% side scan sonar investigation as delimited on the PSR chart; echosounder development or diver investigation and least depth, if found; or salvage documentation. AWOIS item 6992 appears on chart 11347, Calcasieu River and Lake, 23rd edition, dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 6992
 Positioning: Falcon Mini-Ranger
 Sonar Search: April 10 - May 21, 1990 (DOY 100-141)
 Diving: May 22, 1990 (DOY 142)
 Sonification: 200% SSS coverage
 Contacts: One significant contact: 3766.36P
 Field Sheet: RU-20-1D-90

Initially, the on-line swath sheets were plotted using the item's NAD 27 position as the center of the search radius. On-line data was collected on this sheet before the error was detected. This position was later converted to NAD 83 using the shipboard North American Datum Conversion (NADCON), resulting in a total shift of 29.537 meters. However, upon plotting the correct NAD 83 position on the field sheet, no holidays existed due to this error.

Poor image quality caused by surface return (due to high wave action) was a factor on DOY 101 and 103. Data were smooth plotted with reduced swath width. Additional lines were run during better weather to cover the resulting holidays. There were no significant problems encountered with the side scan or positioning systems. One potentially significant contact was identified on the 200% side scan sonar coverage. This contact was investigated by divers, and a least depth and position were determined.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

Contact 3766.36P Investigation

(a) Contact 3766.36P Dive Summary

Contact 3766.36P was investigated by divers on May 22, 1990 (DOY 142). Divers descended down the marker buoy line to the bottom at 39 feet. A circle search of 30-meter radius was conducted about the marker buoy anchor. A large metal box was found on the bottom, partially submerged in the mud. A search was then conducted about this point and a least depth was obtained by pneumo depth gage.

(b) Contact 3766.36P Description

Contact 3766.36P is a large metal box (8'x 4'x 5') partially submerged, yet rising 5-6 feet above the surrounding bottom.

(c) Contact 3766.36P Least Depth Determination

A least depth of Contact 3766.36P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	3766.36P		
Date:	May 22, 1990 (DOY 142)		
Time:	2132 Z		
	PDG		
Average Pneumo Depth:	32.4	feet	9.9 m
Pneumo Gage Corrector:	+0		
<u>PREDICTED</u> Tidal Zone Cor:	0 31.3		0 9.4
	-----		-----
Actual Least Depth:	31.2	32.1	feet 9.5 m
Plotted Depth	31	feet	9.5 m

(d) Contact 3766.36P Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact:	3766.36P			
HDAPS Position Numbers:	3998 - 4000			
Average Easting:	77401.6 E			
Average Northing:	121532.4 N			
Computed Latitude:	29° 35' 46.757" N			
Computed Longitude:	93° 16' 07.507" W			
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
	-----	-----	-----	-----
Average Loran:	11045.1	26667.8	46956.1	64015.2
Loran SNR:	Not Noted	Not Noted	Not Noted	Not Noted

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

(e) Contact 3766.36P Recommendation

Contact 3766.36P should be charted at latitude 29° 35' 46.757" N, longitude 93° 16' 07.507" W as an obstruction over which the depth is known, using symbol No. 41, Section "K," (Obstruction least depth known) from Nautical Chart No. 1. This symbol should show a least depth of 32 feet inside a danger circle, labeled "Obstn." - *concur* 31 (9.5 m)

AWOIS Item 6992 Summary

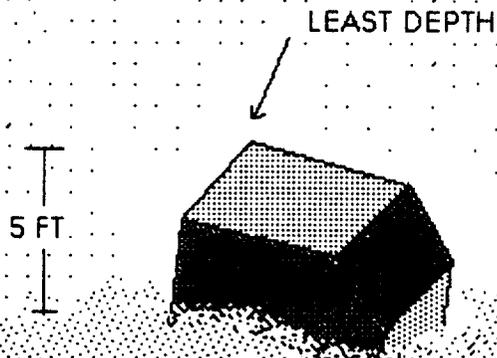
AWOIS item 6992 is considered disproved through 200% side scan sonar investigation. RUDE recommends that the charted wreck PA be deleted. - *Do not concur. See also section 7.a.1) of the Evaluation Report*

Contact 3766.36P, should be charted as recommended in paragraph (e), above. A letter containing this information was forwarded to the 8th Coast Guard District for inclusion in the next local Notice to Mariners (See APPENDIX I).

Depths acquired during this survey were found to be 0-2 feet deeper than those depicted on chart No. 11374 and on prior survey H-8796. RUDE recommends that the charted, shoaler depths be retained. - *Do not concur. See also section 6.a of the Evaluation Report*

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS 6992
CONTACT # 376635P



AWOIS ITEMS:	403	6987-88	6990-92	6994-95	7004	7039-41
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N7. AWOIS ITEM 6994 INVESTIGATION - See sheet 7 of 12.

Area of Investigation

AWOIS Item:	6994
State:	Louisiana
Parish:	Cameron
Locality:	0.3 nm N of Buoy "35," Calcasieu Channel
Latitude:	29° 41' 45.813" N
Longitude:	93° 20' 05.556" W (NAD 83)
Depth:	Unknown (obstruction)

AWOIS Item Description

AWOIS item 6994 was described in NM21/67 as a submerged obstruction, position approximate, reported at latitude 29° 41' 45" N, longitude 93° 20' 05" W (NAD 27), on the west side of the channel. During FE243/85WD, the item was not wire dragged, and reconnaissance hydrography indicated 25 foot depths in the vicinity. Present survey requirements called for 400% side scan sonar coverage to a 300-meter radius for disproval; and echo sounder development or diver investigation and least depth, if found. The investigation is limited to the west shoulder of the channel. AWOIS item 6994 appears on chart 11347, Calcasieu River and Lake, 23rd edition, dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	6994
Positioning:	ARGO
Sonar Search:	May 4, 8, & 9 1990 (DOY 124, 128, 129)
Sonification:	400% SSS coverage
Contacts:	No significant contacts discovered
Field Sheet:	RU-20-1B-90

Problems encountered with the side scan sonar equipment included sea return and cable jerking due to heavy seas. When the trace was deemed too poor to properly interpret, the data were rejected and re-run. As this item was at the edge of a dredged channel, a steep slope was repeatedly encountered at the eastern end of the lines, causing the fish to lose bottom and the trace to become poor. Again, since the survey requirements limited the investigation to the west shoulder of the channel, this area was not required for disproval of the item. Buoy G"35" is within the search radius and appears on the trace several times. A detached position was taken on this buoy on DOY 190; it is located at latitude 29° 41' 34.666" N, longitude 93° 20' 03.921" W.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS Item 6994 Summary and Recommendations

AWOIS item 6994 is considered disproved through 400% side scan sonar investigation. RUDE is recommends that symbol No. 40, Section "K," (obstruction, depth unknown), charted at latitude 29° 41' 45.813" N, longitude 93° 20' 05.556" W be deleted. This item lies within a dump site and, as such, there are no depths depicted on chart 11347 with which to compare those of the present survey. Prior survey H-8796 included several stray soundings of 29 feet in the dump site area. Consequently, depths acquired during this survey were found to be 2-6 feet shallower than those depicted on prior survey H-8796. Concur that item is disproved. Chart present survey soundings.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

NB. AWOIS ITEM 6995 INVESTIGATION - See sheet e of 12.

Area of Investigation

AWOIS Item: 6995
 State: Louisiana
 Parish: Cameron
 Locality: 4.0 nm E of Cameron East Jetty Light "42"
 Latitude: 29° 44' 20.803" N
 Longitude: 93° 15' 50.549" W (NAD 83)
 Depth: 14 feet (ships bits)

AWOIS Item Description

AWOIS item 6995 was described in H8796/64WD as having 19 foot depths existing in the general vicinity. FE203/65WD (item 17) was reported as being ships bits with a 16 foot leadline least depth, hung at 17 feet and cleared to 14 feet at latitude 29° 44' 20" N, longitude 93° 15' 50" W (NAD 27). Present survey requirements called for 400% side scan sonar coverage to a radius of 50 meters, towing at 2.5 knots; and echosounder development or divers investigation and least depth, if found. The item is charted on NOAA Chart No. 11347, Calcasieu River and Lake, 23rd edition dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 6995
 Positioning: Falcon Mini-Ranger
 Sonar Search: June 25, 1990 (DOY 176)
 Diving: July 09, 1990 (DOY 190)
 Sonification: 100% SSS coverage
 Contacts: One significant contact: 6655.075
 Field Sheet: RU-20-1A-90

There were no significant problems encountered with the side scan or positioning systems. Although one potentially significant contact was identified on the first line of the first 100% side scan sonar coverage, 100% side scan insonification was still attained, and additional recon lines were then run about the contact. This contact, 6655.075, was investigated by divers, and a position was determined for Contact 6655.075. No least depth was taken, though, since the contact was found to be netting lying flat on the bottom.

Contact 6655.075 Investigation

(a) Contact 6655.075 Dive Summary

Contact 6655.075 was investigated by divers on July 9, 1990 (DOY 190). Divers descended down the marker buoy line to the bottom at 20 feet. A circle search of 30-meter radius was conducted

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

about the marker buoy anchor. Divers discovered a net lying on the bottom, and felt a hard contact lying beneath the bottom sediment. As this contact did not protrude off the bottom, no least depth was taken.

(b) Contact 6655.075 Description

Contact 6655.075 is a net lying flat on the bottom with a hard contact lying under the bottom.

(c) Contact 6655.075 Least Depth Determination

As described above, contact 6655.075 did not protrude off the bottom, so no least depth was measured. Surrounding bottom is ~~21~~ 24 feet as measured by the ship's fathometer.

(6X⁰m)

(d) Contact 6655.075 Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact:	6655.075			
HDAPS Position Numbers:	6825 - 6827			
Average Easting:	77803.5			
Average Northing:	137362.3			
Computed Latitude:	29° 44' 20.848" N			
Computed Longitude:	93° 15' 51.374" W			
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
	-----	-----	-----	-----
Average Loran:	Not Noted	26713.3	46976.3	64006.3
Loran SNR:	Not Noted	Not Noted	Not Noted	Not Noted

AWOIS Item 6995 Summary and Recommendation

AWOIS item 6995, as reported, is considered resolved through side scan sonar coverage and diver investigation. - Concur

RUDE believes that the nets found by our divers are hung on the bits which had been found during the original wire drag survey. However, the bits appear to have sunk into the soft bottom and now only the nets rise above the general trend of the bottom which is about 21 feet. RUDE recommends that the obstruction symbol be retained but that the known depth be changed to 20 feet. - Do not concur. Delete charted AWOIS item ~~and~~ and supplement the chart with present survey soundings. OBSTR(CLEARED 14 FT)

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS 6995

CONTACT # 665507S

PILE OF FISHING NET



AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N9. AWOIS ITEM 7004 INVESTIGATION - See sheet 9 of 12.

Area of Investigation

AWOIS Item: 7004
 State: Louisiana
 Parish: Cameron
 Locality: 7.2 nm WSW of Buoy 2B, Calcasieu Channel
 Latitude: 29° 25' 13.853" N
 Longitude: 93° 21' 00.570" W (NAD 83)
 Depth: unknown (wreck)

AWOIS Item Description

AWOIS item 7004 was reported in LNM 43/78 by the 8th Coast Guard District. It was described as the M/V Driller, sunk at latitude 29° 25' 13" N, longitude 93° 21' 00" W (NAD 27). Present survey requirements called for 200% side scan sonar investigation to a 500 meter radius; echosounder development or diver investigation and least depth, if found; or salvage documentation. AWOIS item 7004 appears on chart 11344, Rollover Bayou to Calcasieu Pass, 26th edition, dated March 5, 1988.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 7004
 Positioning: ARGO
 Sonar Search: 26 June 1990 (DOY 177)
 Diving: 10 July 1990 (DOY 191)
 Sonification: 50% SSS coverage
 Contacts: One significant contact: 6798.01P
 Field Sheet: RU-20-1L-90

There were no significant problems encountered with the side scan or positioning systems. One potentially significant contact was identified upon completion of approximately one-half of the first 100% coverage. This contact was investigated by divers, and a least depth and position were determined.

Contact 6798.01P Investigation

(a) Contact 6798.01P Dive Summary

Contact 6798.01P was investigated by divers on July 10, 1990 (DOY 191). Divers descended down the marker buoy line to the bottom at 45 feet. A circle search of 30-meter radius was conducted about the marker buoy anchor. A steel-hulled vessel was found on the bottom. A search was then conducted about this point and a least depth was obtained by ~~pneumo~~ ^{pneumatic} depth gage.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

(b) Contact 6798.01P Description

Contact 6798.01P is a twin screw steel-hull vessel, 80 feet long, 15 feet wide, and rising 11 feet above the surrounding bottom.

(c) Contact 6798.01P Least Depth Determination

A least depth of Contact 6798.01P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	6798.01P	
Date:	July 10, 1990 (DOY 191)	
Time:	1530 Z	
Average ^{PDG} Pneumo Depth:	30.8 feet	9.4 m
Pneumo Gage Corrector:	+ .0	
<u>PREDICTED</u> Tidal Zone Cor:	-1.516	0.5 m
Actual Least Depth:	29.22 feet	8.9 m
Plotted Depth:	29 feet	8.9 m

(d) Contact 6798.01P Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact:	6798.01P			
HDAPS Position Numbers:	6843 - 6845			
Average Easting:	69373.6 E			
Average Northing:	101897.1 N			
Computed Latitude:	29° 25' 09.457" N			
Computed Longitude:	93° 21' 06.773" W			
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11059.6	26566.3	46931.2	64023.8
Loran SNR:	Not Noted	Not Noted	Not Noted	Not Noted

(e) Contact 6798.01P Recommendation

It is recommended that this item be charted at the above position using symbol No. 26, section "K," (wreck, least depth known by sounding only) from Nautical Chart No. 1. This should show a least depth of 29 feet inside a danger circle, labeled "Wk." (8.9 m)

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS Item 7004 Summary and Recommendations

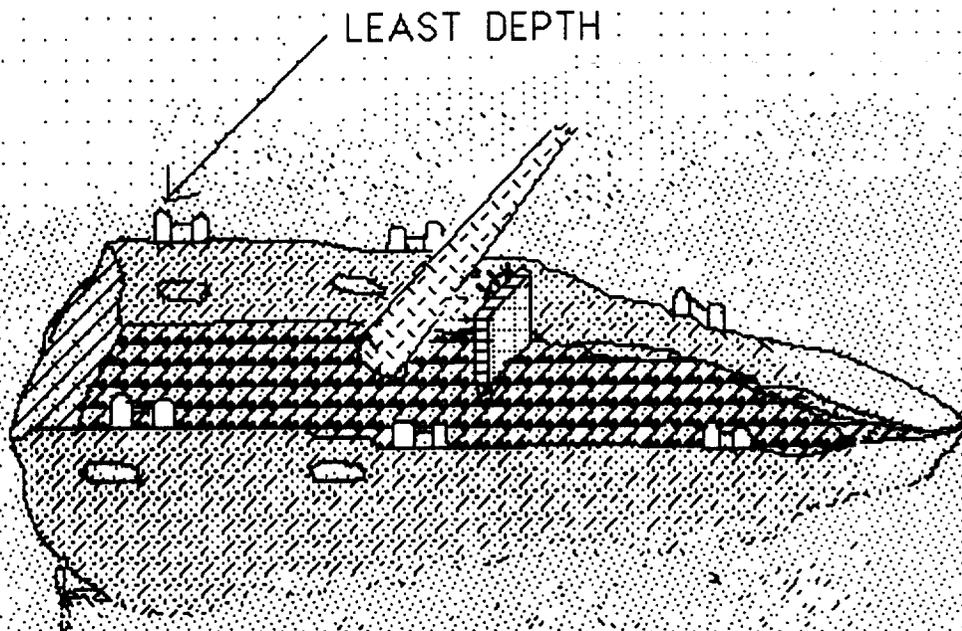
AWOIS item 7004 is considered resolved. RUDE recommends that symbol No. 26, Section "K," (Danerous wreck, depth unknown) from Nautical Chart No. 1 charted at latitude 29° 25' 13.853" N longitude 93° 21' 00.570" W be deleted. - Concur

The wreck discovered at contact 6798.01P, should be charted as recommended in paragraph (e), above. - Concur

Depths acquired during this survey were found to be generally 1-3 feet deeper than those depicted on chart No. 11347 and on prior survey H-8738. RUDE recommends that the charted, shoaler depths be retained. - Do not concur. See also section 6.2 of the Evaluation report.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS 7004
CONTACT # 6798.01P



AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N10. AWOIS ITEM 7039 INVESTIGATION - See sheet 14 of 12.

Area of Investigation

AWOIS Item: 7039
State: Louisiana
Parish: Cameron
Locality: 6.2 nm SW of Buoy "27," Calcasieu Channel
Latitude: 29° 37' 05.6" N
Longitude: 93° 25' 40.2" W (NAD 83)
Depth: Unknown (Wreck)

AWOIS Item Description

AWOIS item 7039 was described in LNM 51/88 as being the F/V JULIA ANN, sunk at latitude 29° 36' 30.8" N, longitude 93° 25' 00.6" W. (NAD 83). In LNM 52/88, the item's position was revised to 29° 37' 05.6" N, 93° 25' 40.2" W (NAD 83). Telecon with 8th CGD reported that the vessel was of wood construction, and that a Coast Guard search was conducted, yielding negative results. Present survey requirements called for 200% side scan sonar investigation to a radius of 2000 meters; echosounder development or diver investigation and least depth, if found; or salvage documentation. This item appears on Chart 11341, Calcasieu Pass to Sabine Pass, 31st edition dated March 26, 1988.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 7039
Positioning: ARGO
Sonar Search: May 24 - June 8, 1990 (DOY 144-159)
Sonification: 200% SSS coverage
Contacts: No significant contacts discovered
Field Sheet: RU-20-1J-90

The original position given for this item, as listed above, is NAD 83. Due to the unique coded format in which the AWOIS list is published, this position (29 37 05.60 N 93 25 40.20 W) (NAD 83) was inadvertently "converted" to NAD 83 again using the shipboard North American Datum Conversion (NADCON). This error was not noticed until after all data had been collected and the final swath plots completed. However, upon overlaying a correct NAD 83 plotter sheet on the incorrectly plotted sheets, we found that the search radius about the correct NAD 83 position was adequately covered by side scan sonar imagery.

A system error occurred on DOY 157, resulting in data (Fix numbers 5793-5859) which could not be accessed, edited, or plotted on the smooth sheet. Please refer to the on-line swath plot and raw data printouts for that data. No holidays occurred as a result of this system error. Side scan and fathometer records provided clear and reliable data throughout the

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

investigation. Although numerous contacts were first sighted on both these traces, they were later resolved through 50-meter reconnaissance side scan and a second 100% coverage.

Several survey lines were rejected due to poor image quality (caused by numerous dolphin swimming alongside the towfish). These lines were rejected and re-run.

Although no contacts were found within the specified search radius, a significant contact was located nearby while surveying a reconnaissance survey line for a chart evaluation survey. The contact name and detached position numbers are from survey D-104 (RU-80-1-90). This contact is discussed below.

Contact 26.19P Investigation

(a) Contact 26.19P Dive Summary

Contact 26.19P was investigated by divers on May 24, 1990 (DOY 144). Divers descended down the marker buoy line to the bottom at 40 feet. A circle search of 30-meter radius was conducted about the marker buoy anchor. A large metal box was found on the bottom, partially submerged in the mud. A search was then conducted about this point and a least depth was obtained by pneumo depth gage.

(b) Contact 26.19P Description

Contact 26.19P is a large metal box (8' x 4' x 5') partially submerged, yet rising 5 feet above the surrounding bottom.

(c) Contact 26.19P Least Depth Determination

A least depth of Contact 26.19P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	26.19P	
Date:	May 24, 1990 (DOY 144)	
Time:	1858 Z	
Average ^{PDG} Pneumo Depth:	34.0 feet	10.4 m
Pneumo Gage Corrector:	+0	
PREDICTED Tidal Zone Cor:	-1.926	-0.8 m
Actual Least Depth:	31.4 32.1 feet	9.6 m
Plotted Depth:	31 feet	9.6 m

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

(d) Contact 26.19P Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact: 26.19P
 HDAPS Position Numbers: 62 - 64

Average Easting: 62255.8 E
 Average Northing: 121769.4 N

Computed Latitude: 29° 35' 55.103" N
 Computed Longitude: 93° 25' 30.352" W

Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
	-----	-----	-----	-----
Average Loran:	11040.3	26578.6	46957.1	64012.5

Loran SNR: Not Noted Not Noted Not Noted Not Noted

(e) Contact 26.19P Recommendation

Contact 26.19P should be charted at latitude 29° 35' 55.103" N, longitude 93° 25' 30.352" W as an obstruction over which the depth is known, using symbol No. 41, Section "K," (Obstruction least depth known) from Nautical Chart No. 1. This symbol should show a least depth of ~~32~~ feet inside a danger circle, labeled "Obstn." *31 (9.4 m)*

AWOIS Item 7039 Summary and Recommendations

AWOIS item 7039 is considered disproved through 200% side scan sonar investigation. RUDE recommends that symbol No. 28, Section "K," (dangerous wreck, depth unknown) from Nautical Chart No. 1, charted at latitude 29° 37' 05.6" N, longitude 93° 25' 40.2" W, be removed from the chart. *Concur. See also section 7.2.2 of the Evaluation Report.*

Depths acquired during this survey are generally in agreement with those depicted on chart No. 11341 and on prior survey H-8796. *Concur*

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N11. AWOIS ITEM 7040 INVESTIGATION - See sheet 11 of 12.

Area of Investigation

AWOIS Item: 7040
 State: Louisiana
 Parish: Cameron
 Locality: 3 nm W of Buoy "11," Calcasieu Channel
 Latitude: 29° 32' 00.938" N
 Longitude: 93° 17' 30.564" W (NAD 83)
 Depth: unknown (pipe)

AWOIS Item Description

AWOIS item 7040 was reported in FE326/75WD (formerly H9549) as a pipe which hung at 35 feet. The pipe was 3.5 feet in diameter and extended 4 feet off the bottom at latitude 29° 32' 00.1" N, longitude 93° 17' 30.0" W (NAD 27). Present survey requirements called for 400% side scan sonar investigation to a 200 meter search radius; and echosounder development or diver investigation and least depth, if found. AWOIS item 7040 appears on chart 11347, Calcasieu River and Lake, Louisiana, 23rd edition, dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 7040
 Positioning: ARGO
 Sonar Search: June 14, 1990 (DOY 165)
 Diving: June 22, 1990 (DOY 173)
 Sonification: 400% SSS coverage
 Contacts: Two significant contacts: 6590.16P & 6627.26P
 Field Sheet: RU-20-16-90

There were no significant problems encountered with the side scan or positioning systems. Two potentially significant contacts were identified on the 400% side scan sonar coverage. These contacts were investigated by divers, and least depths and positions were determined.

Contact 6590.16P Investigation

(a) Contact 6590.16P Dive Summary

Contact 6590.16P was investigated by divers on June 22, 1990 (DOY 173). Divers descended down the marker buoy line to the bottom at 45 feet. A circle search of 30-meter radius was conducted about the marker buoy anchor. A metal pipe was found on the bottom, partially submerged in the mud. A search was then conducted about this point and a least depth was obtained by premo depth gage.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

(b) Contact 6590.16P Description

Contact 6590.16P is a metal pipe, 3.5 feet in diameter, rising 2.5 feet above the surrounding bottom.

(c) Contact 6590.16P Least Depth Determination

A least depth of Contact 6590.16P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	6590.16P		
Date:	June 22, 1990 (DOY 173)		
Time:	1641 Z		
	PDG		
Average Pneumo Depth:	39.8 feet	12.1 m	
Pneumo Gage Corrector:	+0		
PREDICTED Tidal Zone Cor:	-1.2 2 ϕ	- ϕ	
Actual Least Depth:	37.8 38.5 feet	11.5 m	
Plotted Depth:	38 feet	11.5 m	

(d) Contact 6590.16P Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact:	6590.16P			
HDAPS Position Numbers:	6651 - 6653			
Average Easting:	75394.0 E			
Average Northing:	114738.1 N			
Computed Latitude:	29° 32' 06.214" N			
Computed Longitude:	93° 17' 22.571" W			
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
	-----	-----	-----	-----
Average Loran:	11050.3	26637.4	46947.5	64018.3
Loran SNR:	941	848	546	958

(e) Contact 6590.16P Recommendation

This item should be charted using symbol No. 41, Section "K," (obstruction, least depth known) from Nautical Chart No. 1 at latitude 29° 32' 06.214" N, longitude 93° 17' 22.571" W. This should show a least depth of 38 feet inside a danger circle, labeled "Obstn." ~~Circle~~ (11.5 m)

Contact 6627.26P Investigation

(a) Contact 6627.26P Dive Summary

Contact 6627.26P was investigated by divers on June 22, 1990 (DOY 173). Divers descended down the marker buoy line to the bottom at 45 feet. A circle search of 30-meter radius was conducted

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

about the marker buoy anchor. A metal pipe was found on the bottom, partially submerged in the mud. A search was then conducted about this point and a least depth was obtained by pneumo depth gage.

(b) Contact 6627.26P Description

Contact 6627.26P is a metal pipe, 3.5 feet in diameter, rising 4 feet above the surrounding bottom.

(c) Contact 6627.26P Least Depth Determination

A least depth of Contact 6627.26P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	6627.26P	
Date:	June 22, 1990 (DDY 173)	
Time:	1441 Z	
Average Pneumo Depth:	37.4 feet	11.4 m
Pneumo Gage Corrector:	+0	
<u>PREDICTED</u> Tidal Zone Cor:	-1.2 2.4	φ 6
Actual Least Depth:	35.54 feet	10.8 m
Plotted Depth:	35 feet	10.8 m

(d) Contact 6627.26P Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Contact:	6627.26P			
HDAPS Position Numbers:	6645 - 6647			
Average Easting:	75182.8 E			
Average Northing:	114581.0 N			
Computed Latitude:	29° 32' 01.124" N			
Computed Longitude:	93° 17' 30.425" W			
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11050.4	26635.7	46497.3	64018.5
Loran SNR:	947	844	550	483

(e) Contact 6627.26P Recommendation

This item should be charted using symbol No. 41, Section "K," (obstruction, least depth known) from Nautical Chart No. 1 at latitude 29° 32' 01.124" N, longitude 93° 17' 30.425" W. This should show a least depth of ~~35~~ feet inside a danger circle, labeled "Obstn." (danger) ~~35~~ 30 (10.8m)

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS Item 7040 Summary and Recommendations

AWOIS item 7040 is considered resolved. Contact 6627.26P is most probably the pipe in the AWOIS listing. Although the two pipes are only 263 meters apart, they can both be charted with a separation of about 3 mm on chart 11344. RUDE recommends that both pipes be charted at the positions and depths discussed in the text above.

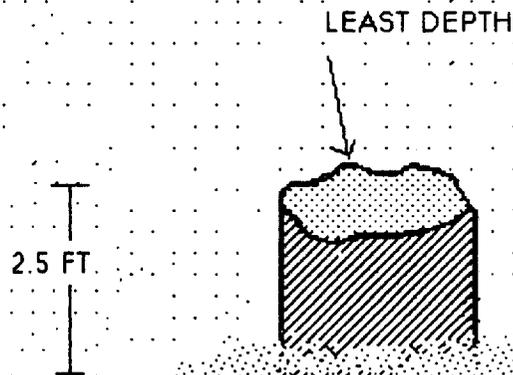
A letter containing this information was forwarded to the 8th Coast Guard District for inclusion in the next Local Notice to Mariners (See APPENDIX I).

Depths acquired during this survey were found to be generally 0-2 feet deeper than those depicted on chart No. 11347 and on prior survey H-8796. RUDE recommends that the charted depths be retained. See also section 6.9 of the Evaluation Report.

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS 7040

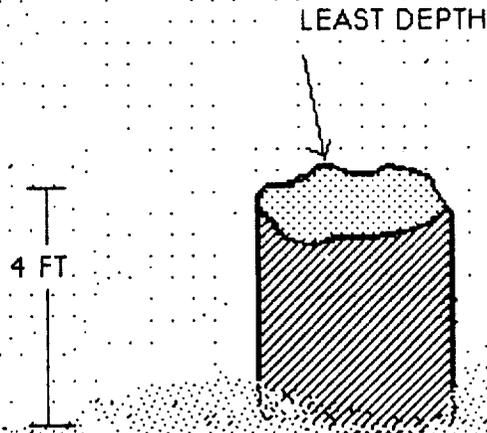
CONTACT # 6590.16P



AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

AWOIS 7040

CONTACT # 662726P



AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

N12. AWOIS ITEM 7041 INVESTIGATION - See sheet 12 of 12.

Area of Investigation

AWOIS Item: 7041
 State: Louisiana
 Parish: Cameron
 Locality: 0.2 nm NE of Buoy "30," Calcasieu Channel
 Latitude: 29° 38' 49.820" N
 Longitude: 93° 19' 20.358" W (NAD 83)
 Depth: 27 feet (obstruction)

AWOIS Item Description

AWOIS item 7041 was described in FE326/75WD (formerly H9549) as a dangerous obstruction, hung at 27 feet and cleared in the opposite direction to 26 feet, at latitude 29° 38' 49.0" N, longitude 93° 19' 19.8" W (NAD27). Present survey requirements called for 400% side scan sonar coverage to a 200-meter radius; and echo sounder development or diver investigation and least depth, if found. Investigation was not required within the channel limits. AWOIS item 7041 appears on chart 11347, Calcasieu River and Lake, Louisiana, 23rd edition, dated January 13, 1990.

Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item: 7041
 Positioning: Falcon Mini-Ranger
 Sonar Search: June 13, 1990 (DOY 164)
 Sonification: 400% SSS coverage
 Contacts: No significant contacts discovered
 Field Sheet: RU-20-1C-90

Problems encountered with the side scan sonar equipment occurred when crossing the edge of the dredged channel. The steep slope caused the tow fish to lose bottom, resulting in a poor trace. However, since the survey requirements limited the investigation to outside of the channel, this area was not required for disproval. Buoy R "30" appears on the trace as it is just outside the search radius. A detached position was taken on this buoy on DOY 190; it is located at latitude 29° 38' 40.189" N, longitude 93° 19' 23.640" W.

AWOIS Item 7041 Summary and Recommendations

AWOIS item 7041 is considered disproved through 400% side scan sonar investigation. This item is not on the most recent edition of the chart; and, RUDE recommends that this item not be charted.

Concur

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

Depths acquired while investigating this item were found to be generally 5 to 6 feet deeper than those depicted on chart 11347 and on prior survey H-8796. RUDE recommends that a chart comparison be repeated during the verification process. If the depths continue to plot 5 feet deeper than charted after application of approved tides, the limits of the 30 foot curve should be adjusted and depths in the area of 35 feet should be charted. - See section 6.2 of the Examination Report

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

D. ADEQUACY OF SURVEY

All AWOIS items covered in this report are considered resolved. No part of this survey is substandard or incomplete.

P. AIDS TO NAVIGATION - See also section 7.0 of the Evaluation Report.

Comparisons of present buoy positions were made to the latest edition of the light list and the largest scale chart of the area. Falcon Mini-Ranger was used to position the ship while obtaining detached positions of all buoys that fell within the survey areas. To accomplish this, the ship approached the buoy as close as safety allowed, and the bearing and distance from the ship's transducer to the buoy was estimated. Three HDAPS fixes were taken at each buoy, and the buoy's position was based on the average of these positions. These computations are included with the daily data. A table of these comparisons follows:

Buoy No.	Light List	Chart 11347	Detached Position
"22"	Lat. 29° 35.9' Lon. 93° 17.7'	Lat. 29° 35.98' Lon. 93° 17.77'	Lat. 29° 36.00' Lon. 93° 17.77'
"24"	Lat. 29° 36.7' Lon. 93° 18.5'	Lat. 29° 36.77' Lon. 93° 18.47'	Lat. 29° 36.78' Lon. 93° 18.49'
"30"	Lat. 29° 38.7' Lon. 93° 19.4'	Lat. 29° 38.67' Lon. 93° 19.38'	Lat. 29° 38.67' Lon. 93° 19.39'
"35"	Lat. 29° 41.6' Lon. 93° 20.1'	Lat. 29° 41.58' Lon. 93° 20.05'	Lat. 29° 41.58' Lon. 93° 20.07'

Q. STATISTICS

Number of Positions.....6845
 Linear Nautical Miles Run.....474.6
 Square Nautical Miles Covered.....11.4
 Days of Production.....32.5
 Detached Positions.....9
 Velocity Casts.....3
 Bottom Samples.....0

R. MISCELLANEOUS

Not Applicable

AWOIS ITEMS: 403 6987-88 6990-92 6994-95 7004 7039-41

S. RECOMMENDATIONS

LORAN rate 26740 is mislabeled as 27740 at latitude 29° 17.6'N, longitude 92° 59.3'W on chart 11344.

The following table summarizes the recommendations made for individual AWOIS items under Section N of this text.

<u>AWOIS</u>	<u>STATUS</u>	<u>RECOMMENDATION</u>
403	Disproved	Delete Charted Wreck see page 9
6987	Resolved	Change Charted Depth see page 11
6988	Disproved	Delete Charted Marker see page 15
6990	Disproved	Delete Charted Obstruction see page 17
6991	Disproved	Delete Sounding see page 19
6992	Disproved	Delete Charted Wreck, Chart Obstruction see page 21 and page 5 of the Eval. Report
6994	Disproved	Delete Charted Obstruction see page 25
6995	Resolved	Change Charted Depth of Obstruction see page 27
7004	Resolved	Delete Charted PA Wreck, Chart Known Wreck see page 30
7039	Disproved	Delete Charted Wreck, Chart Obstruction see page 34
7040	Resolved	Add 2 New Obstructions see page 37
7041	Disproved	Do Not Chart see page 43

Handwritten notes on a yellow sticky note:
 760
 18/12 82 4/12 W-
 248 4/4
 924 2

T. REFERRAL TO REPORTS

RUDE Electronic Control Report - 1990 Field Season
 (submitted to N/CG244 concurrent with this survey)

Horizontal Control Report HC-8901; Cameron, LA
 (submitted by N/CG23322)

Handwritten note on a yellow sticky note:
 press boxes!?

APPENDIX III.
LIST OF HORIZONTAL CONTROL STATIONS

HC-8901 CAMERON, LOUISIANA, HORIZONTAL POSITIONS 1989
 LIST OF GEOGRAPHIC POSITIONS

SPN	STATION NAME	GPN CODE	LATITUDE			LONGITUDE			G-NE
			K	DEG	MN	SEC	DEG	MN	
	1 SABINE PASS WATER TANK	9	29	44	6.68769	93	53	49.48644	
	2 SABINE PASS TV STA KBMT MAST	9	29	42	50.09032	93	51	46.31942	
	3 SABINE PASS CG STA CUPOLA	9	29	42	22.57259	93	51	11.81255	
	4 SABINE PASS RADIO TOWER	9	29	42	54.71916	93	51	.63096	
	5 SABINE PASS LIGHTHOUSE 1874	9	29	42	59.43426	93	51	.57058	
	6 SABINE PASS JETTY CHAN RG R LT	9	29	41	52.68863	93	50	21.53021	
	7 SABINE PASS JETTY CHAN RG F LT	9	29	41	31.54031	93	50	16.10654	
101	8 TOM ✓	4	29	41	23.13530	93	50	34.74699	
	9 SANDERS	5	29	45	53.45000	93	49	2.08000	
	10 BRAMA 1963	9	29	46	12.65044	93	28	14.17423	
	11 FROST	9	29	46	39.95063	93	16	52.86675	
	12 HACK 1923	9	29	44	45.20656	93	42	24.15712	
	13 HOLLYND	9	29	46	4.04708	93	24	40.57682	
	14 LEE 1924	9	29	46	50.54821	93	15	18.64274	
	15 OCEAN USGS 1933	9	29	45	22.16518	93	36	18.15800	
	16 PEVETO 1963	9	29	45	42.18701	93	34	3.05076	
	17 REFUGE 1955	9	29	52	.19370	93	27	13.00880	
	18 REFUGE 2 1981	9	29	52	2.91534	93	27	6.59800	
	19 RUTHERFORD 1963	9	29	45	54.39847	93	7	57.70586	
102	20 TENN ✓	5	29	45	13.60600	93	38	48.38100	
201	21 JANICE	5	29	46	35.92700	93	16	45.25900	
104	22 STEVE ✓	5	29	43	52.58400	92	49	50.60300	
202	23 NANCY	5	29	46	25.35400	93	11	33.25000	
203	24 LEIGH	5	29	45	50.31600	93	20	32.32100	
204	25 MIKE	5	29	45	36.11400	93	7	29.17800	
103	26 MONK ✓	5	29	46	44.46600	93	20	35.74900	
	27 PICOU	5	29	47	7.26300	93	11	50.68000	

NAD 1983

CODE 9 - Published

CODE 5 - located by Doppler Survey 1989

CODE 4 - located by 3 Point Fix 1989

NAVISOFT 300 4.33

PRE-SURVEY: CONTROL STATION TABL

Station No	Type	Lat	Lon	H	Cart	Freq	Vel	Code	MM/DD/YY
101	A	029:41:23.135	093:50:34.747	—	250	1646.7	299670	1	10/00/89
102	A	029:45:13.606	093:38:48.381	- .09	250	1646.7	299670	2	10/00/89
103	A	029:46:44.466	093:20:35.749	- .56	250	1646.7	299670	3	10/00/89
104	A	029:43:52.584	092:49:50.603	- 1.13	250	1646.7	299670	4	10/00/89
201	F	029:46:35.927	093:16:45.259	5.0	139	0.0	0	4	10/00/89
202	F	029:46:25.345	093:11:33.250	7.0	139	0.0	0	6	10/00/89
203	F	029:45:50.316	093:20:32.321	6.2	139	0.0	0	8	10/00/89
204	F	029:45:36.114	093:07:29.178	6.3	139	0.0	0	2	10/00/89
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00

APPENDIX I.
DANGER TO NAVIGATION REPORTS

Two Danger To Navigation Reports were submitted to the Eighth Coast Guard District Aids to Navigation Branch. They covered three obstructions found during this Survey on AWOIS items 6992 and 7040. The other obstructions included are from another Survey. Copies were forwarded to N/CG221 in accordance with HSG 66.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RUDE S-590
439 W. York Street
Norfolk, VA 23510-1114
May 25, 1990

Commander, Eighth Coast Guard District
Aids to Navigation Branch
Hale Boggs Federal Building, Room 1141
500 Camp Street
New Orleans, LA 70130-3396

**ADVANCE
INFORMATION**

The NOAA Ship RUDE recently located two obstructions to navigation in the vicinity of the Calcasieu Pass Channel. The first is approximately 1 nm east of Buoy "22" at position 29° 35'46.757" North, 93° 16'07.507" West (NAD 83). This is at the edge of the Pilot Boarding Area 2, and inside the Fairway Anchorage. The second is approximately 6.2 nm west of buoy "22" at position 29° 35'55.103" North, 93° 25'30.352" West (NAD 83). This is in the fairway between Calcasieu Pass and Sabine Bank Pass. The least depth over both obstructions is 32 feet, with depths in the surrounding areas of 37 feet.

Five charts are affected. The positions, which are commensurate with NOS Hydrographic standards of accuracy for charting, and least depths based on predicted tides are below.

<u>CHART</u>	<u>POSITION</u>	<u>DATUM</u>	<u>LEAST DEPTH</u>
<u>Item 1</u> 11340	29° 35'46.757" N 93° 16'07.507" W	NAD 83	5 1/3 Fathoms
11344, 11345, & 11347	29° 35'46.757" N 93° 16'07.507" W	NAD 83	32 Feet
<u>Item 2</u> 11340	29° 35'55.103" N 93° 25'30.352" W	NAD 83	5 1/3 Fathoms
11341	29° 35'55.103" N 93° 25'30.352" W	NAD 83	32 Feet

Please include this information in the next Local Notice to Mariners. This work was completed under project No. OPR-K454-RU-90. Any questions or comments can be referred to my Navigation Officer ENS Ralph Rogers. He can be contacted on cellular phone at (504) 736-7626, ext. 601-938-2691 between 1000 and 1400 CDT weekdays. Future correspondence should be referred to NOAA Atlantic Marine Center, Hydrographic Surveys Branch phone (804) 441-6746.

Sincerely,

Grady H. Tuell
Grady H. Tuell, LT/NOAA
Commanding Officer
NOAA Ship RUDE





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RUDE S-590
439 W. York Street
Norfolk, VA 23510-1114
 June 30, 1990

Commander, Eighth Coast Guard District
 Aids to Navigation Branch
 Hale Boggs Federal Building, Room 1141
 500 Camp Street
 New Orleans, LA 70130-3396

**ADVANCE
 INFORMATION**

The NOAA Ship RUDE recently located three dangers to navigation in the vicinity of the Calcasieu Pass Channel. The first is a pile of pipes, and should replace the wreck in position 29°16'N, 93°13'W. The others are pipes about 2.5 nm west of buoy "11". Attachments are included showing where each plots on the chart for reference.

Four charts are affected. The positions, which are commensurate with NOS Hydrographic standards of accuracy for charting, and least depths based on predicted tides are below.

<u>CHART</u>	<u>POSITION</u>	<u>DATUM</u>	<u>LEAST DEPTH</u>
Item 1	Delete wreck and add Obst		
11340	29° 15' 28.866" N 93° 11' 58.032" W	NAD 83	7 1/3 Fathoms
11344	29° 15' 28.866" N 93° 11' 58.032" W	NAD 83	44 Feet
Item 2	Pipe		
11340	29° 32' 01.124" N 93° 17' 30.425" W	NAD 83	6 Fathoms
11344, 11345, 11347	29° 32' 01.124" N 93° 17' 30.425" W	NAD 83	35 Feet
Item 3	Pipe		
11340	29° 32' 06.260" N 93° 17' 22.571" W	NAD 83	6 1/2 Fathoms
11344, 11345, 11347	29° 32' 06.260" N 93° 17' 22.571" W	NAD 83	38 Feet

Please include this information in the next Local Notice to Mariners. This work was completed under project No. OPR-K454-RU-90. Any questions or comments can be referred to my Navigation Officer ENS Ralph Rogers. He can be contacted on cellular phone at (504) 736-7626, ext. 601-938-2691 between 1000 and 1400 CDT weekdays. Future correspondence should be referred to NOAA Atlantic Marine Center, Hydrographic Surveys Branch phone (804) 441-6746.

Sincerely,

Grady H. Tuell
 Grady H. Tuell, LCDR/NOA
 Commanding Officer

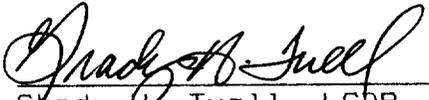


APPENDIX VII.
APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. FE-346-SS

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed and are considered complete and adequate for charting.


Grady B. Tuell, LCDR, NOAA
Commanding Officer
NOAA Ship RUDE

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: Sept 14, 1990

MARINE CENTER: Atlantic

OPR: K454

HYDROGRAPHIC SHEET: FE-346

LOCALITY: Louisiana, Fairway and Approaches to Calcasieu
Pass

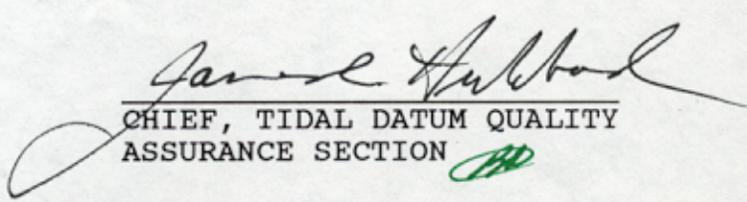
TIME PERIOD: April 10 - July 10, 1990

TIDE STATION USED: 877-0570 Sabine Pass North, TX

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.11 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.5 feet

REMARKS: RECOMMENDED ZONING
Apply a x1.20 range ratio to all heights and a
-0 hr 15 min time correction.


CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

GEOGRAPHIC NAMES

FE-346 SS

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
CAMERON (title)											1
CALCASIEU PASS (title)											2
LOUISIANA (title)											3
MEXICO, GULF OF (title)											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved:

Charles E. Harrington
Chief Geographer - N/CG 2x5

APR - 7 1992

04/16/93

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-346SS

NUMBER OF CONTROL STATIONS		8
NUMBER OF POSITIONS		6184
NUMBER OF SOUNDINGS		22218
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	118	03/08/91
VERIFICATION OF FIELD DATA	307	10/23/91
ELECTRONIC DATA PROCESSING	226	
QUALITY CONTROL CHECKS	121	
EVALUATION AND ANALYSIS	107	06/30/92
FINAL INSPECTION	32	06/19/92
TOTAL TIME	911	
ATLANTIC HYROGRAPHIC SECTION APPROVAL		06/30/92

N/CG244-55-93

LETTER TRANSMITTING DATA

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

- ORDINARY MAIL AIR MAIL
 REGISTERED MAIL EXPRESS
 GBL (Give number) _____

EXPRESS MAIL

DATE FORWARDED

19 March 1993

NUMBER OF PACKAGES

3 boxes

TO:

Chief, Data Control Section, N/CG243
 NOAA/National Ocean Service
 Room 151, WSC-2, 6015 Executive Blvd.
 Rockville, Maryland 20852

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

FE-346SS

Louisiana, Gulf of Mexico, Inshore Approaches to Cameron

3 Boxes containing:

- ✓ Original Descriptive Report for FE-346SS with 12 final page-sized smooth plots
- ✓ Envelope containing miscellaneous data removed from the original Descriptive Report
- ✓ Cahier with final sounding, position, and control printouts
- ✓ Envelope containing smooth position overlays and excess sounding overlays for sheets 1 to 12
- ✓ Envelope containing supplemental data removed from printouts
- ✓ Envelope containing sounding correctors (velocity, tide and TRA data)
- ✓ Accordion files containing data printouts, fathograms, and side scan sonargrams for VESNO 9040 for JDs:
 100, 101, 102, 103, 106, 107, 108, 109, 113, 114, 120, 124, 127, 128, 129, 131, 134, 135, 136, 137, 138, 141, 142, 143, 144, 145, 149, 150, 151, 152, 155, 156, 157, 158, 164, 165, 166, and 173
- ✓ Envelopes containing data printouts, fathograms, and side scan sonargrams for VESNO 9040 for JDs:
 144, 121, 129, 159, 176 (2), 177, 190 (2), and 191 (2)

FROM: (Signature)

Deborah A. Bland
 Deborah A. Bland

RECEIVED THE ABOVE

(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Section, N/CG244
 439 W. York Street
 Norfolk, VA 23510-1114

D.S. Clark
 6/8/93

**COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT**

SURVEY NO.: FE-346SS

FIELD NO.: RU-20-1-90

Louisiana, Gulf of Mexico, Inshore Approaches to Cameron

SURVEYED: 9 April through 10 July 1990

SCALE: 1:20,000

PROJECT NO.: OPR-K454-RU-90

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, EG&G Model 260 Side Scan Sonar, Pneumatic Depth Gauge (PDG)

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range),
CUBIC WESTERN DATA ARGO DM54 (Range/Range)

Chief of Party.....G. H. Tuell

Surveyed by.....J. E. Rix
.....R. R. Rogers
.....P. A. Gruccio
.....M. A. Sramek

Automated Plot by.....XYNETICS 1201 PLOTTER (AHS)

1. INTRODUCTION

a. This is a side scan sonar survey. A RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar. Least depths on diver investigated items were determined using a pneumatic depth gage (PDG). No wire drag was accomplished during this survey.

b. One 1:2500 scale, three 1:10,000 scale, and eight 1:20,000 scale page size smooth sheets were generated during office processing and are attached to this report. Sheets 1, 3, 4, 6, and 7 of 12 show the areas of side scan sonar investigations by the field unit for items considered disproved. These plots are considered the smooth plots for this survey.

c. No unusual problems were encountered during office processing.

d. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections H. and I. of the Descriptive Report.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheets have been annotated with ticks showing the computed mean shift between the survey datum and the North American Datum of 1927 (NAD 27).

To place the 1:2500 scale sheet 5 of 12 on the NAD 27 datum, move the projection lines 0.842 seconds (25.9 meters or 10.36 mm at the scale of the survey) north in latitude, and 0.567 seconds (15.3 meters or 6.12 mm at the scale of the survey) west in longitude.

To place the 1:10,000 scale sheets 3, 7, and 12 of 12 on the NAD 27 datum, move the projection lines 0.842 seconds (25.9 meters or 2.59 mm at the scale of the survey) north in latitude, and 0.567 seconds (15.3 meters or 1.53 mm at the scale of the survey) west in longitude.

To place the 1:20,000 scale sheets 1, 2, 4, 6, and 8 through 11 of 12 on the NAD 27 datum, move the projection lines 0.842 seconds (25.9 meters or 1.30 mm at the scale of the survey) north in latitude, and 0.547 seconds (15.3 meters or .76 mm at the scale of the survey) west in longitude.

All geographic positions listed from sources other than the present survey have been converted from NAD 27 to NAD 83 using the program CORPSCON unless otherwise specified. A listing of the conversions is appended to the Descriptive Report. Any data brought forward from prior surveys to supplement the present survey have been converted to the present survey datum.

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

3. HYDROGRAPHY

a. Where applicable, soundings at crossings are in agreement and comply with the criteria found in sections 4.6.1. and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. Where applicable, the standard and/or supplemental depth curves could be drawn in their entirety.

c. The development of the bottom configuration and determination of least depths is considered adequate. The following should be noted:

Dive operations were conducted on AWOIS Item #6995 to physically investigate a side scan sonar contact. The divers did not obtain a least depth on the item.

4. CONDITION OF SURVEY

The smooth sheets and accompanying overlays, hydrographic records and reports conform to the requirements of the HYDROGRAPHIC MANUAL, SIDE SCAN SONAR MANUAL, and the FIELD PROCEDURES MANUAL.

5. JUNCTIONS

There are no contemporary junctional surveys or junctional requirements in the Project Instructions.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H- 8738	(1962)	1:40,000
<u>H- 8796</u>	<u>(1964)</u>	<u>1:40,000</u>

The above prior hydrographic surveys cover the areas surveyed in their entirety.

A comparison of the present survey smooth plots and the prior survey data in the common areas indicate that the bottom has settled approximately 1 to 3 feet since the prior survey data was acquired. This subsidence can be attributed to the long term withdrawal of gas and oil from the region.

The hydrographic data that was acquired and subsequently smooth plotted during office processing is considered adequate to supersede the prior surveys in the common areas.

b. Wire Drag

FE-203WD	(1965)	1:80,000
FE-326WD	(1975)	1:40,000
<u>H-9627WD</u>	<u>(1976)</u>	<u>1:40,000</u>

AWOIS Items #6991 and #6995 originate with prior survey FE-203WD (1965). A discussion of each item and charting recommendations are in Section N., pages 19-20 and 27-29 of the Descriptive Report. See sheets 5 and 8 of 12, respectively.

AWOIS Items #7040 and #7041 originate with prior survey FE-326WD (1975). A discussion of each item and charting recommendations are in Section N., pages 37-44 of the Descriptive Report. See sheets 11 and 12 of 12, respectively.

AWOIS Items #6987 and #6990 originate with prior survey H-9627WD (1976). A discussion of each item and charting recommendations are in section N., pages 11-14 and 17-18, of the Descriptive Report. See sheets 2 and 4 of 12, respectively.

7. COMPARISON WITH CHART 11330 (5th Edition, July 30/88)
 11344 (27th Edition, May 5/90)
 11347SC (22nd Edition, Sept. 17/88)
 11341 (31st Edition, Mar. 26/88)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and requires no further discussion in this report. The following should be noted:

1) AWOIS Item #6992, a charted wreck, PA, in Latitude 29°36'24.83"N, Longitude 93°17'12.56"W, originates with Local Notice to Mariners 17 of 1983 (LNM 17/83). The "F/V ALTIER" was reported sunk at the charted location. An obstruction, in Latitude 29°36'25.23"N, Longitude 93°17'12.17"W, with an estimated depth of 9⁵ meters (31 feet) (9⁵ Obstr (A)) was located by the field unit. This contact is 16 meters NE of the AWOIS item. ~~and is considered the item.~~ Another obstruction, in Latitude 29°35'46.76"N, Longitude 93°16'07.51"W, with a least depth of 9⁴ meters (31 feet) was located and subsequently dived on. The obstruction was described by the divers as a metal box. This obstruction is 2107 meters ESE of the AWOIS item. Additionally, eight side scan sonar contacts were noted on the sonargrams and are considered significant. Those contacts are as follows:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Depth</u>
Obstr (A)	29°36'12.17"	93°17'54.01"	10 ¹ m/33 ft
Obstr (A)	29°36'36.81"	93°16'09.38"	10 ⁵ m/34 ft
Obstr (A)	29°35'49.76"	93°17'04.73"	10 ⁸ m/35.4 ft
Obstr (A)	29°36'53.29"	93°16'02.90"	10 ² m/33 ft
Obstr (A)	29°36'55.21"	93°17'35.26"	10 ⁴ m/34 ft
Obstr (A)	29°37'13.24"	93°16'28.50"	9 ⁴ m/31 ft
Obstr (A)	29°37'15.10"	93°16'37.85"	9 ⁸ m/32 ft
Obstr (A)	29°37'21.48"	93°17'48.39"	10 ² m/33 ft

It is recommended that AWOIS Item #6992 be ^{retained on the chart pending verification} ~~deleted from the~~ ^{of the 95m} ~~chart~~, and ^{incl. the} an obstruction be charted as shown on the present ^{obstr,} survey in accordance with Cartographic Order 004/89, dated July 3, 1989. It is recommended that the obstruction (metal box) be charted as shown on the present survey. It is also recommended that the remaining eight uninvestigated side scan sonar contacts be charted in accordance with Cartographic Order 004/89, dated July 3, 1989 and that the area be revised and charted as shown on the present survey. It is further recommended that additional work be conducted at an opportune time to verify or disprove the existence of these nine side scan sonar contacts. See Sheet 6 of 12.

2) AWOIS Item #7039, a charted wreck, "F/V JULIA ANN", in Latitude 29°37'05.60"N, Longitude 93°25'40.20"W, originates with Local Notice to Mariners 51 of 1988 (LNM 51/88). A 200% side scan sonar investigation was conducted by the field unit. No contacts were noted in the immediate vicinity of the charted AWOIS item. The following items were located by the field unit during the investigation:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Depth</u>
Obstr (metal box)	29°35'00.21"	93°25'30.35"	9 ⁶ m/31 ft
Obstr (A)	29°37'17.09"	93°25'00.21"	10 ⁵ m/34 ft
Obstr (A)	29°36'13.87"	93°26'10.77"	10 ⁷ m/35 ft
Obstr (A)	29°36'10.76"	93°16'16.89"	10 ⁹ m/36 ft

The items listed above range from 1133 meters to 2187 meters away from the AWOIS item position. It is recommended that the charted AWOIS item be deleted from the chart. It is also recommended that the obstructions with estimated depths listed above be charted in accordance with Cartographic Order 004/89, dated July 3, 1989, as shown on the present survey, and the obstruction (metal box) also be charted as shown on the present survey. It is recommended that additional work be conducted to determine the nature and least depths of the obstructions with estimated depths at an opportune time. See Sheet 10 of 12.

Except as noted above, the present survey is adequate to supersede the appropriate charted hydrography within the common areas.

b. Dangers to Navigation

The field unit identified three (3) dangers to

navigation and submitted information for inclusion in a Local Notice to Mariners, to the Commander (oan), Eighth Coast Guard District, New Orleans, Louisiana. A copy of the letters were forwarded to Chart Information Section, N/CG222, Rockville, Maryland. After office processing it is recommended that the information be retained.

c. Aids to Navigation

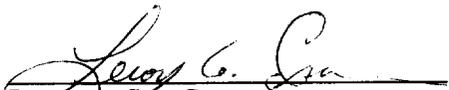
The field unit located four (4) floating aids to navigation in the survey area. These aids appear adequate to serve their intended purpose.

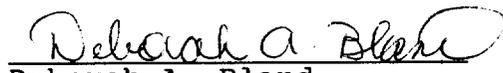
8. COMPLIANCE WITH INSTRUCTIONS

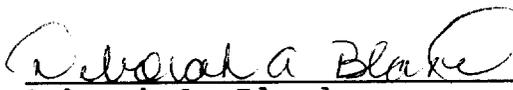
This survey complies with the Project Instructions except as noted in Section 3.c. of this report.

9. ADDITIONAL FIELD WORK

This is an adequate side scan sonar survey; additional field work is recommended on the items in the appropriate sections of the Descriptive Report and section 7. of this report.


 Leroy G. Cram
 Supervisory Cartographic
 Technician
 Verification of Field Data


 Deborah A. Bland
 Senior Cartographic
 Technician
 Evaluation and Analysis


 Deborah A. Bland
 Senior Cartographic Technician
 Verification Check

APPROVAL SHEET
FE-346SS

Initial Approvals:

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

Robert G. Roberson Date: 30 June 1992
Robert G. Roberson
Chief, Evaluation and Analysis Team
Atlantic Hydrographic 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.

Christopher B. Lawrence Date: 30-June 1992
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

Final Approval:

Approved: J. Austin Yeager Date: 3/25/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic
Survey

93° 16' 00"

93° 15' 00"

29° 34' 00"
93° 14' 00"

29° 33' 00"

12⁴
12³
12⁵ 10⁷ *Obstr (anchor)*
12⁴

93° 14' 00"

NAD 27

29° 32' 00"

XYNETICS 1201

29° 32' 00"

✓ Lgc 12/19/91

FE-346 SS
LOUISIANA
GULF OF MEXICO
INSHORE APPROACHES TO CAMERON
JUNE 14 AND 15, 1990
SCALE: 1:20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 2 OF 12
AWOIS ITEM NUMBER 6987

93° 14' 00"

93° 13' 00"

93° 12' 00"

29° 35' 00"

12¹
 11⁶ 12¹
 12 11⁷ 11⁹
 11⁴ 11⁸
 11⁹ 11⁸ 11⁹
 11⁴ 11⁹
 11⁸
 12² 12²

93° 13' 00"

29° 34' 00"

NAD 27
 XYNETICS 1201
 ✓ LOC 12/30/91

29° 34' 00"

FE-346 SS
 LOUISIANA
 GULF OF MEXICO
 INSHORE APPROACHES TO CAMERON
 DATE OF SURVEY: 14 JUNE 1990
 SCALE: 1:20,000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM: NAD 1983
 SHEET 4 OF 12
 AWOIS ITEM NUMBER 6990

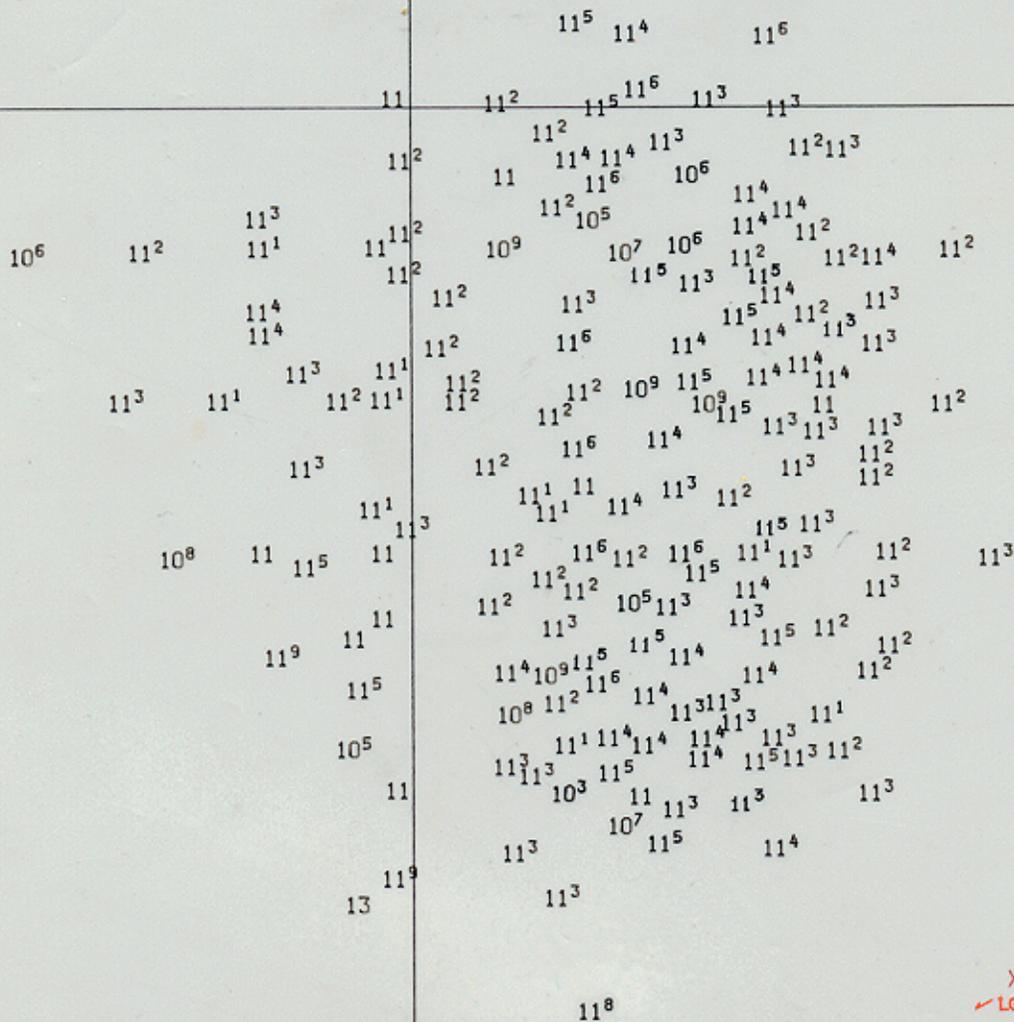
29° 33' 00"

29° 36' 20"

93° 17' 50"

93° 17' 40"

FE-346 SS
 LOUISIANA
 GULF OF MEXICO
 INSHORE APPROACHES TO CAMERON
 MAY 1 AND 9, 1990
 SCALE: 1:2,500
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM: NAD 1983
 SHEET 5 OF 12
 AWOIS NUMBER 6991



29° 36' 10"

93° 17' 40"

NAD 27
 XYNETICS 1201
 Loc 1/8/92

29° 36' 00"

12⁴

93° 19' 00"

93° 18' 00"

93° 17' 00"

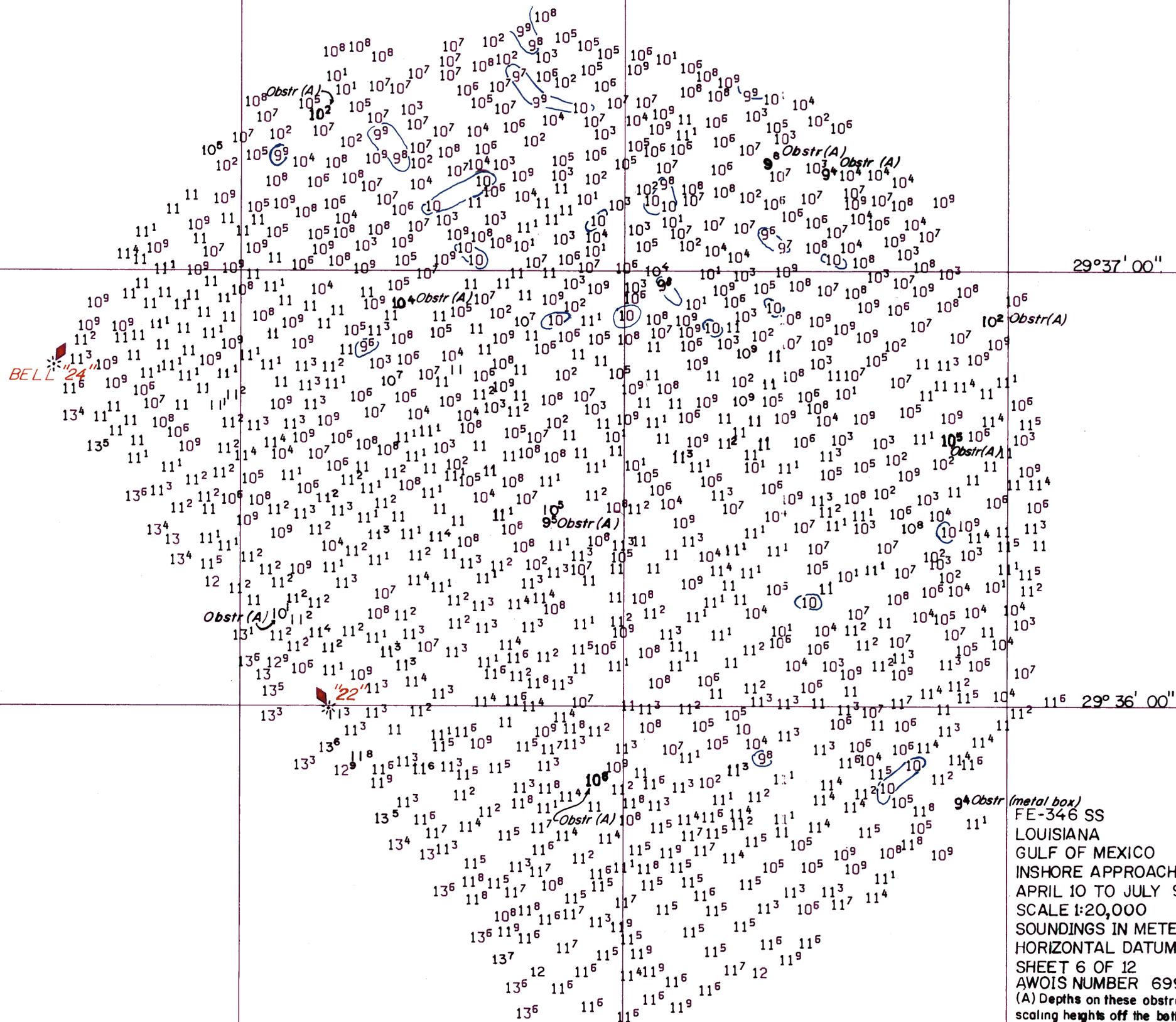
93° 16' 00"

NAD 27

29° 38' 00"

29° 37' 00"

XYNETICS 1201
/LGC 2/5/92



94 Obstr (metal box)
 FE-346 SS
 LOUISIANA
 GULF OF MEXICO
 INSHORE APPROACHES TO CAMERON
 APRIL 10 TO JULY 9, 1990
 SCALE 1:20,000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM : NAD 1983
 SHEET 6 OF 12
 AWOIS NUMBER 6992
 (A) Depths on these obstructions were estimated by
 scaling heights off the bottom from side scan sonar.
 Positions were determined by computing offsets from
 the vessels track.

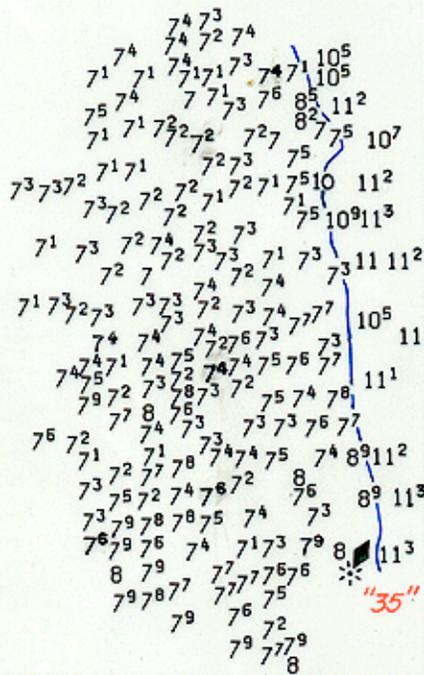
93° 20' 30"

93° 20' 00"

29° 42' 30"

93° 19' 30"

29° 42' 00"



93° 19' 30"

29° 41' 30"

NAD 27
XYNETICS 1201
/LGC 2/5/92

FE-346 SS
 LOUISIANA
 GULF OF MEXICO
 INSHORE APPROACHES TO CAMERON
 MAY 4- JULY 9, 1990
 SCALE 1:10,000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM : NAD 1983
 SHEET 7 OF 12
 AWOIS NUMBER 6994

93° 16' 00"

93° 15' 00" 29° 46' 00"

29° 45' 00"

6¹
6
6² 6¹⁶²
6¹⁶²

93° 15' 00"

NAD 27

29° 44' 00"

29° 44' 00"

XYNETICS 1201
/LGC 2/6/92

FE-346 SS
LOUISIANA
GULF OF MEXICO
INSHORE APPROACHES TO CAMERON
JUNE 25 AND JULY 9, 1990
SCALE 1:20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM : NAD 1983
SHEET 8 OF 12
AWOIS NUMBER 6995

93° 22' 00"

93° 21' 00"

29° 26' 00"

11
 11
 11⁴ M/V "DRILLER"
 11⁵ 11⁷ 11⁵ 8⁹ 11⁴ 11⁴ 11⁴ 11⁴ 11⁴
 WK
 11⁹ 11⁸ 11⁷ 11⁷ 11⁷ 11⁷ 11⁸ 11⁷ 11⁴
 11⁹ 11⁸ 11⁸ 11⁹ 11⁹ 11⁸
 11⁹ 12¹ 12¹ 12¹ 12¹ 11⁹ 12 12 12
 12¹ 12¹ 12¹ 12¹ 12² 12² 29° 25' 00"
 12¹ 12² 12³ 12³ 12⁴

FE-346 SS
 LOUISIANA
 GULF OF MEXICO
 INSHORE APPROACHES TO CAMERON
 JUNE 26 AND JULY 10, 1990
 SCALE: 1:20,000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM : NAD 1983
 SHEET 9 OF 12
 AWOIS NUMBER 7004

93° 21' 00"

NAD 27
 XYNETICS 1201
 /Lec 02/06/92

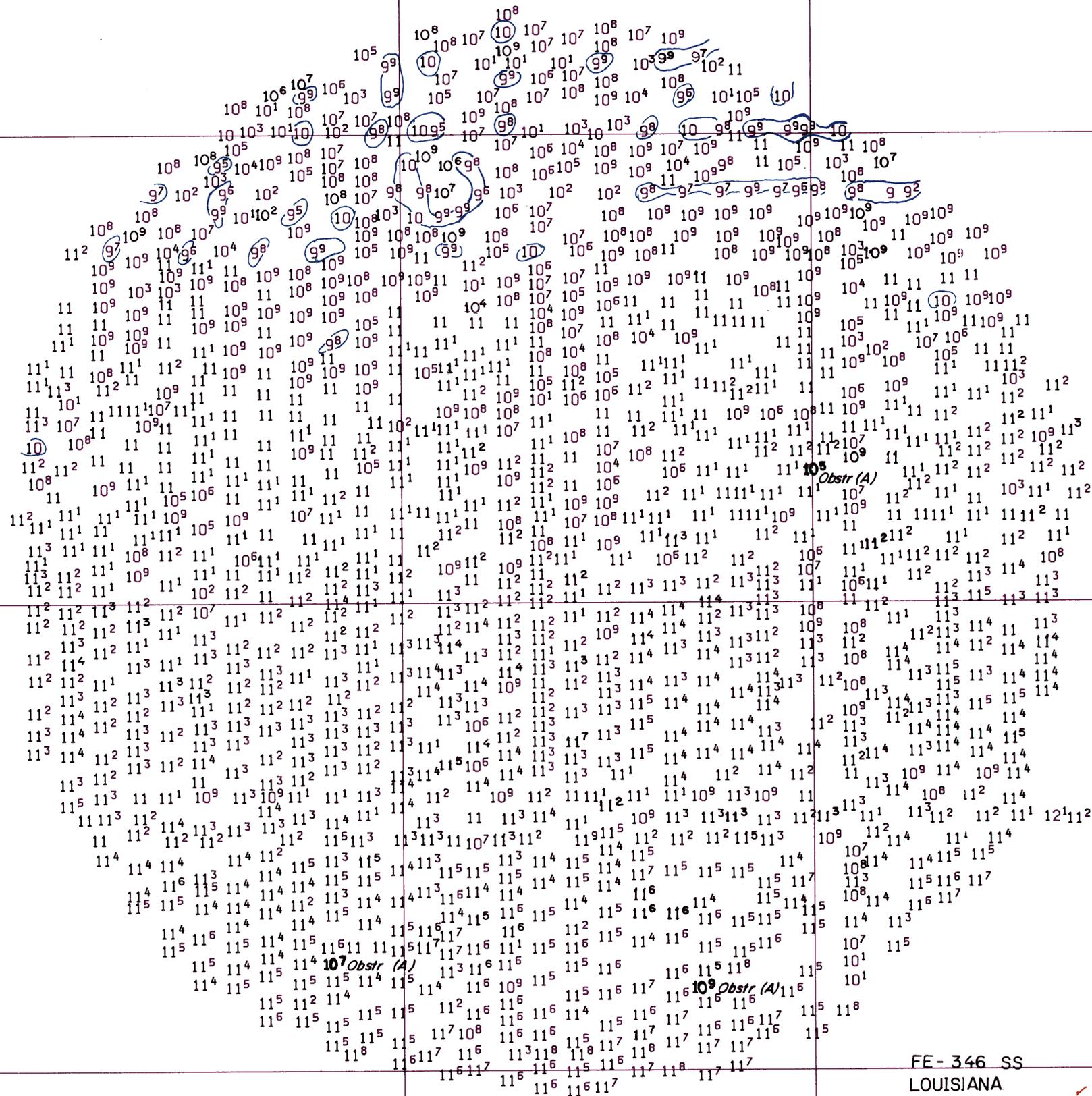
29° 24' 00"
 29° 24' 00"

93° 27' 00"

93° 26' 00"

93° 25' 00"

93° 24' 00"



29° 38' 00"

29° 37' 00"

93° 24' 00"

29° 36' 00"

FE-346 SS

LOUISIANA

GULF OF MEXICO

INSHORE APPROACHES TO CAMERON

MAY 24-JUNE 8, 1990

SCALE: 1:20000

SOUNDINGS IN METERS AT MLLW

HORIZONTAL DATUM: NAD 1983

SHEET 10 OF 12

AWOIS NUMBER 7039

NAD 27
SYNETICS 1201
LGC 02/10/92

9⁶ Obstr (metal box)

(A) Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar. Positions were determined by computing offsets from the vessels track.

93° 18' 00"

93° 17' 00"

93° 16' 00"

29° 33' 00"

12³ 12²
 12⁴ 12² 12¹ 11⁵ *Obstr (pipe)*
 12⁴ 11⁶ 12² 10^a 12³ 11⁶
 12¹ *Obstr* 12² 12² 11⁶
 (pipe) 12² 12² 12³
 12² 12¹ 12² 12³
 12² 12² 12³

29° 32' 00"

FE-346 SS
 LOUISIANA
 GULF OF MEXICO
 INSHORE APPROACHES TO CAMERON
 JUNE 14 AND 22, 1990
 SCALE 1: 20,000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM: NAD 1983
 SHEET 11 OF 12
 AWOIS NUMBER 7040

93° 17' 00"

NAD 27

29° 31' 00"

XYNETICS 1201

LSC 02/12/92

29° 31' 00"

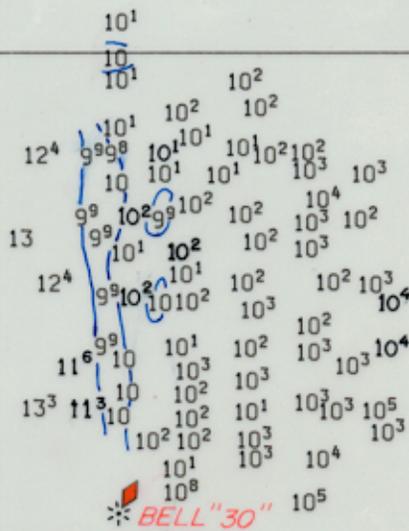
93° 20' 00"

93° 19' 30"

93° 19' 00"

29° 39' 30"

29° 39' 00"



93° 19' 30"

29° 38' 30"

29° 38' 30"

NAD 27
XYNETICS 1201
/Loc 02/12/92

FE-346 SS
LOUISIANA
GULF OF MEXICO
INSHORE APPROACHES TO CAMERON
JUNE 13 AND JULY 9, 1990
SCALE 1:10,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM : NAD 1983
SHEET 12 OF 12
AWOIS ITEM NUMBER 7041



INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1978
1976

ATCHAFALAYA BAY - CALCASIEU LAKE

Diagrams 1278-2, 1279-2

HYDROGRAPHIC SURVEYS
No. H-96273 Date 1976 Scale 40,000

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

△ Wire drag

G U L F O F M E X I C O

