FE351
SIDE SCAN

Diagram No. 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-20-3-90

Registery No. FE-351SS

LOCALITY

State Texas

General Locality Gulf of Mexico

Sublocality Inshore Approaches to Sabine

19 90

CHIEF OF PARTY
LCDR G.H. Tuell

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DATE March 24, 1993

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

FE351

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NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

FE-351-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-20-3-90

State Texas

General locality Gulf of Mexico

Locality Inshore Approaches to Sabine

Scale 1:20000 Date of survey Sept. 12-Nov. 07, 1990

Instructions dated February 09, 1990 Project No. OPR-K-454-RU-90

Vessel NOAA Ship RUDE S590 EDP No. 9040

Chief of party LCDR Grady H. Tuell

Surveyed by LT Jon E. Rix, LT(jg) Ralph R. Rogers, ENS Matt J. Oberlies ST M. A. Sramek

Soundings taken by echo sounder, ~~hand lead, pole~~ Raytheon DSF-6000N

Graphic record scaled by JER, RRR, MJO, MAS

Graphic record checked by JER, RRR, MJO, MAS

Protracted by ____ Automated plot by Bruning-Nicolet ZETA 124 CS Plotter (XYNETICS 1244 PLOTTER CAHS)

Verification by ATLANTIC HYDROGRAPHIC SECTION PERSONNEL.

Soundings in meters ~~fathoms~~ ~~feet~~ at ~~MLW~~ MLLW

REMARKS: The following AWOIS Items were either resolved or disproved through this survey: 7010, 7011, 7012, 7013, 7014, 7016, 7017, 7018, 7024, 7030, 7031, 7551.

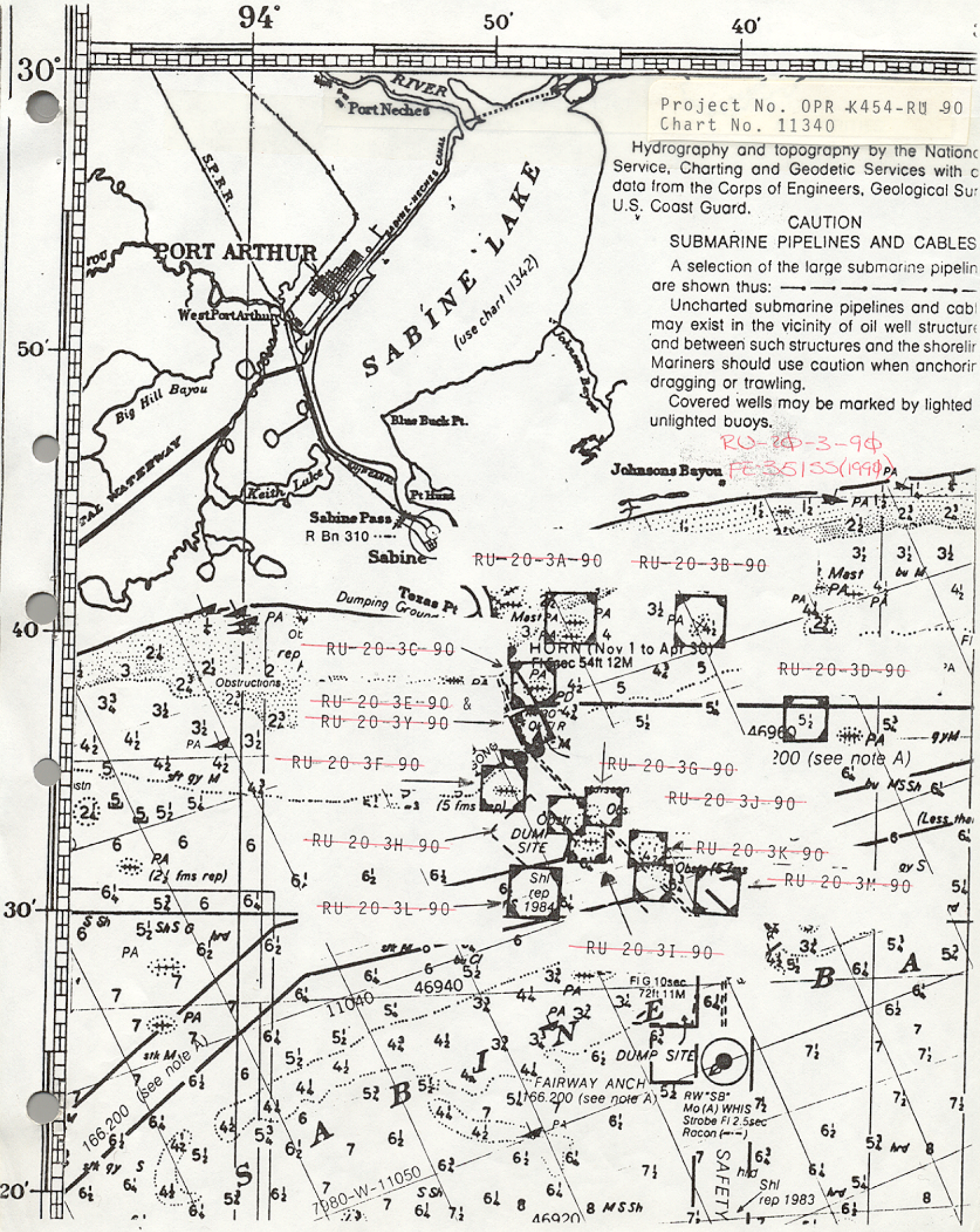
NOTES IN THE ORIGINAL DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

AWOIS and SURF 9/93 RWD

RWW 3/28/94

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

☆ U.S. G.P.O. 1972-769-565/519 REG.#6



Project No. OPR K454-RU -90
Chart No. 11340

Hydrography and topography by the National Service, Charting and Geodetic Services with c data from the Corps of Engineers, Geological Sur U.S. Coast Guard.

CAUTION

SUBMARINE PIPELINES AND CABLES

A selection of the large submarine pipelin are shown thus: —·—·—·—·—·—

Uncharted submarine pipelines and cabl may exist in the vicinity of oil well structure and between such structures and the shorelir Mariners should use caution when anchorir dragging or trawling.

Covered wells may be marked by lighted unlighted buoys.

RU-20-3-90
FE-35155(1990)

TABLE OF CONTENTS

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 Sabine, Texas. The items lie between latitudes 29° 41' and 29 ° 30' North, and longitudes 93 ° 38' and 93° 50' West. Data acquisition began on September 12, 1990 (DOY 255) and was concluded on November 07, 1990 (DOY 311). 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 and Hydro Operations
RUDE Launch (RU3)	1290	Diving Operations
RUDE Skiff (RU1)	N/A	Diving Operations and Control Station Support

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
4.51	SEPT 12 - NOV 07, 1990	4.15	SEPT 12 - NOV 07,1990

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 were 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); HDAPS Baseline Calibration Program 1.02, and LOTUS 123, (both to generate baseline correctors for the Falcon mini-rangers).

E. SONAR EQUIPMENT

Side scan sonar 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 the 100 or 75-meter range scales were used. When conditions (water depth and sea state) permitted, the side scan was operated on the 100-meter range scale. Otherwise, the 75-meter or 50-meter range scales were used as these conditions deteriorated. During reconnaissance of sonar contacts, the 50 and 25-meter scales were used to obtain a more detailed look at the contact, and to determine its significance. Maximum line spacing was based upon obtaining an overlap of 2.0 mm at the achievable scale of the survey, as specified in Section 2.1.3.1 of the Side Scan Sonar Manual. Navigation quality was excellent, with the maximum residual being generally less than 5 meters. Therefore, the achievable scale of the survey was 1:10,000, requiring a 20-meter overlap (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 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). Normally, both the high (102 kHz) and the low (24 kHz) frequency sounding data were recorded; however, only the high frequency was used for plotting purposes. Since the towfish and the high frequency signal of the survey

fathometer both operate in the 100 kHz range, interference was seen on the side scan trace when the towfish was either towed close astern or off the bow. Therefore, when interference was considered excessive, only the low frequency was used for collecting sounding data as provided for in section 1.2.4 of the Side Scan Sonar Manual.
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. (PDG) RUDE is equipped with a 3-D Instruments 0-70 FSW (feet saltwater) precision depth gage, S/N 142697.

G. CORRECTIONS TO SOUNDINGS

Velocity correction data were 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 conducted before each cast to ensure the meter was operating within prescribed tolerances. All data were 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:

Date	DOY	LAT/LON	HDAPS Velocity Tables
Sept. 12, 1990	255	29° 36.0'N / 93 ° 49.4'W	1
Oct. 15, 1990	288	29° 16.4'N / 93 ° 42.7'W	2
Oct. 24, 1990	297	29° 29.1'N / 93 ° 50.1'W	3

Settlement and squat correctors for RUDE were determined on the Elizabeth River in 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 were applied to soundings in real time. Only heave corrections were applied to the smooth plotted depths.

During the winter 1988 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 thereby calculated to be exactly 2.26 meters (7.4 feet). 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 (877-0570) at Sabine Pass, Texas, served as control for datum determination. The station at Galveston, Texas served as the reference station for predicted tides, the correctors for which were applied on-line using the HDAPS predicted tide table. The following correctors for time and height were taken from the Project Instructions.

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

See APPENDIX V for HDAPS predicted tide tables.

A request for smooth tides was mailed on November 23, 1990. A copy of this letter is provided in APPENDIX V.
APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING.
The ship's shallow water (0-70 FSW) pneumo depth gage was purchased this field season and was calibrated by the manufacturer (3-D Instruments) on April 27, 1990. 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 ALSO SECTION 2.a. OF THE EVALUATION REPORT.

The horizontal datum for this project, unless noted otherwise, 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, and from published positions which were converted to NAD 83 using NADCON 1.01. The control station list, which includes station names, numbers, and geographic positions, is provided in APPENDIX III. APPENDIX III also contains recovery notes for these stations.

Because two different navigation systems were in use during this survey, station numbers are in two series. The ARGO network was deployed on stations 101-104. The Mini-Ranger network was deployed on stations 401-404. All stations remained in their original deployment throughout this survey as shown on the Control Station table included in APPENDIX III.

I. HYDROGRAPHIC POSITION CONTROL

Vessel survey navigation was accomplished by the range-range method utilizing the Cubic Western Data ARGO DM54 hydrographic positioning system. The Motorola Mini-Ranger Falcon 484 system was used only to calibrate the ARGO system.

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 de-selected from the solution due to lane loss. 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 never exceeded 30 meters, or 1.5 mm at the survey scale.

MINI-RANGER

A pre-project baseline calibration of the Mini-Ranger system was conducted at the Atlantic Marine Center on February 27, 1990. Two other baseline calibrations were conducted (one in Lake Charles, LA on July 22, 1990; the other in Sabine, TX on October 08, 1990) for units which were replaced during the field season. During these calibrations, the range correctors were determined for each combination of transponder and shipboard R/T and RPU. 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 were entered in the HDAPS system using the Pre-Survey C-O Table Utility. These tables 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.

On September 12, 1990 (DOY 255), the original HDAPS C-O Table No. 1 had a -0.2 meter error (-12.2 instead of -12.0) for Mini-Ranger Code 6 (S/N E2959) on Station No. 402 (SLICK). This error was noticed after the completion of survey operations on DOY 255, at which time the valid corrector was applied to the table. The data collected on that day (AWOIS Items 7011, 7012, 7013, and 7018) were not directly affected, as the Mini-Ranger system was used solely to calibrate the ARGO positioning system using the HDAPS Secondary by Primary calibration utility. RUDE believes that any possible error introduced into the ARGO calibration for that date was insignificant. The C-O Tables used during this survey are included in SEPARATE III.

ARGO

To our knowledge, this survey is only the third NOS survey to utilize ARGO in the multiple LOP mode, the first two being RUDE's recently-submitted surveys of the approaches to Cameron, LA, (FE-346-SS and FE-347-SS). 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 is 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 identify the deteriorated LOP, and that 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 prior to this season, 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.

During this survey, the ARGO network was calibrated exclusively using the HDAPS Secondary by Primary system calibration. The Secondary (ARGO) by Primary (Mini-Ranger) method involved calibration of the ARGO directly to the Mini-Ranger. This software calculated a position based upon Mini-Ranger rates, and displayed correctors for each of the ARGO LOP's. These correctors were then applied to the ARGO rates. The procedure was iterated until each ARGO rate had a residual of less than 10 meters. In late August 1990, RUDE received change 90-01 to the Field Procedures Manual. The change verified RUDE's on-line ARGO positioning techniques and calibration procedures.

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

DOY	METHOD
255	Secondary by Primary
256	Secondary by Primary
257	Secondary by Primary
267	Secondary by Primary
282	Secondary by Primary
283	Secondary by Primary
284	Secondary by Primary
285	Secondary by Primary
291	Secondary by Primary
292	Secondary by Primary
295	Secondary by Primary
297	Secondary by Primary
298	Secondary by Primary
299	Secondary by Primary
302	Secondary by Primary
303	Secondary by Primary
304	Secondary by Primary
309	Secondary by Primary
310	Secondary by Primary
311	Secondary by Primary

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.

On October 30, 1990, (DOY 303), the shipboard ARGO RPU (S/N R047859) was accidentally switched to "MASTER" in the STATION CONFIGURATION mode, freezing the four LOPs. After switching the unit back into "SLAVE," and following several unsuccessful attempts to bring the system back up, a repair party was dispatched to each of the ARGO shore stations. The repair party found none of the stations to be transmitting. Station 103 (MONK) was brought back up as "MASTER" and Station 104 (STEVE) was dismantled to provide spare ARGO components for the ship, if needed. The RPU from STEVE (S/N R047843) was installed aboard RUDE, brought up in the "SLAVE" mode, and locked onto the three remaining ARGO shore stations. From DOY 304 until the end of the survey, RUDE continued to use three ARGO LOP's for positioning with no adverse affect to position quality evidenced.

The AWOIS positions for the items covered by this report were published in NAD 27. These positions were converted to NAD 83 using the NADCON Program Version 1.01. See SEPARATE III for copies of these conversions.

J. SHORELINE - SEE SECTION 2.b. OF THE EVALUATION REPORT.

Not Applicable

K. CROSSLINES SEE SECTION 3.9. OF THE EVALUATION REPORT.

Not Applicable

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

Not Applicable

M. COMPARISON WITH PRIOR SURVEYS SEE 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:

N1. AWOIS ITEM 7010 INVESTIGATION SEE SHEET 1 OF 9.

Area of Investigation

AWOIS Item:	7010
State	Louisiana
Parish:	Cameron
Locality:	4.0 nm SW of Buoy "21," Sabine Bank Channel
Latitude:	29° 30' 06.828" N } NAD 83
Longitude:	93° 48' 06.594" W } NAD 83
Depth:	8.77 meters

AWOIS Item Description

According to prior survey H8795/64, 11.3 meter depths exist in the general vicinity of AWOIS item 7010. AWOIS item 7010 was described in LNM28/84 as a shoal, reported by a 8.77-meter draft vessel which grounded in the fairway at latitude 29° 30' 06" N, longitude 93° 48' 06" W (NAD 27), position approximate. A subsequent investigation, bound by latitude 29° 30.4' N, longitude 93° 47.5' W; 29° 30.1'N, 93° 47.4' W; 29° 29.85'N, 93° 48.62'W; and 29° 30.15' N, 93° 48.7' W (NAD 27), detected no shoaling. Present survey requirements called for an echosounder development to a 1000-meter radius. AWOIS item 7010 is charted as a legend ("Shl rep 1984") on NOAA 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:	7010
Positioning:	ARGO
Echo Sounding:	DOY 291, 297, and 304
Field Sheet:	RU-20-3L-90

There were no significant problems encountered with the positioning system. RUDE ran main scheme hydrography using 90-meter line spacing, to insure a maximum of 100-meter spacing as specified in the Hydrographic Manual, Section 4.3.4.1. Cross lines were also run to detect discrepancies as specified in Section 4.3.6. Six main scheme sounding lines were run on DOY 291. On DOY 297, RUDE ran three cross lines. When this data was smooth-plotted, there was a decided lack of agreement between their respective soundings. The reason for this disagreement is not completely understood. After a careful review of all the applied correctors, the only explanation RUDE could find was a possible incorrectly predicted tide. Verification of this hypothesis can only be made after application of approved tides. On DOY 304, RUDE re-ran the six main scheme lines from DOY 291, this time yielding good agreement with the cross line data. During the echosounder development, no contacts were discovered and no indication of shoaling was evidenced.

AWOIS Item 7010 Summary and Recommendations

AWOIS item 7010 is considered disproved through echosounder development. RUDE recommends that the legend, "Shl rep 1984" be deleted from future chart editions. - Concur

Soundings acquired while investigating this item were found to be generally .3 to 1.2 meters (1 - 4 feet) deeper than depths depicted on chart 11341 and soundings from prior survey H-8795. ~~RUDE recommends that the present (shoaler) depths remain as charted.~~ RUDE further recommends that the chart comparison be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7010

Present survey depths in the area surveyed range from 11^6 to 12^4 meters (38 to 40 feet). These depths are 1 to 2 feet (0^3 to 0^6 meters) deeper than prior survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

M2. AWOIS ITEM 7011 INVESTIGATION SEE SHEET 2 OF 9.

Area of Investigation

AWOIS Item:	7011
State:	Louisiana
Parish:	Cameron
Locality:	1.8 nm NE of Buoy "14", Sabine Bank Channel
Latitude:	29° 31' 28.433" N NAD 83
Longitude:	93° 39' 53.983" W
Depth:	10 meters

AWOIS Item Description

AWOIS item 7011 was reported in FE326/75WD as metal debris rising approximately 1 meter off the bottom, located at latitude 29° 31' 27.6" N, longitude 93° 39' 53.4" W (NAD 27). The debris was cleared to an effective depth of 9.1 meters and grounded at an effective depth of 9.4 meters. Current survey requirements called for determination of present condition through 200% side scan sonar investigation to a 50-meter search radius; and echosounder development or diver's investigation and least depth, if found. While AWOIS item 7011 is not presently charted, its reported position lies on chart 11341, Calcasieu Pass to Sabine Pass, 26th edition, dated March 26, 1988.

Survey Procedures

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

AWOIS Item:	7011
Positioning:	ARGO
Sonar Search:	DOY 255
Diving:	DOY 268
Sonification:	200% SSS coverage
Contacts:	One significant contact: 60.29S
Field Sheet:	RU-20-3M-90

There were no significant problems encountered with the positioning or side scan systems. No significant contacts were identified on the 200% side scan sonar coverage; however, one contact (60.29S) was incidentally discovered outside the search radius during testing of the side scan equipment. This contact was investigated by divers on DOY 268 and a least depth and position were determined at that time.

In order to reduce the number of swath plots submitted, the edited swath plot depicts only the first 100% side scan sonar coverage in its correct geographic position. The additional 100% coverage was deliberately offset for legibility.

Contact 60.29S Investigation

(a) Contact 60.29S Dive Summary

Contact 60.29S was investigated by divers on September 25, 1990 (DOY 268). LTJG Rogers and ENS Oberlies descended the marker buoy line to the bottom at 11 meters. The object, a cylindrical piece of steel machinery or hardware, was sighted 5 meters from the buoy line. A least depth was obtained by pneumo depth gage.

(b) Contact 60.29S Description

Contact 60.29S is a 5-meter long piece of machinery, the main portion consisting of a 1-meter diameter steel pipe. The upper portion has a flared end with a rod projecting from the center. The object rises 2 meters off the bottom.

(c) Contact 60.29S Least Depth Determination

A least depth of Contact 60.29S was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	60.29S
Date:	September 25, 1990 (DOY 268)
Time:	1932 Z
Average Pneumo Depth:	9.7 meters
Pneumo Gage Corrector:	+0.0
~~PREDICTED~~ Tidal ~~Zone~~ Cor:	~~-0.2~~ -0.6
APPROVED	
Actual Least Depth:	9.5 / meters (30 FEET)

(d) Contact 60.29S Positioning

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

Contact:			60.29S	
HDAPS Position Numbers:			612 - 614	
Average Easting:			39230.1 E	
Average Northing:			113541.6 N	
Computed Latitude:			29° 31' 27.59$" N	
Computed Longitude:			93° 39' 45.~~629~~ 163" W	
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11040.3	26419.8	46947.8	64012.6
Loran SNR:	942	917	603	513
Master:	850			

(e) Contact 60.29S Recommendation

RUDE recommends that this item be charted at the above position using symbol No. 41, section "K," (obstruction, least depth known) from Nautical Chart No. 1. This symbol should show a least depth of 9.1 meters inside a danger circle, labeled "Obstn." CONCUR - (30 FEET)

AWOIS Item 7011 Summary and Recommendations

AWOIS Item 7011 is considered resolved. Although discovered outside the assigned search area, RUDE is confident that contact 60.29S is AWOIS Item 7011. This item should be charted as recommended in paragraph (e), above.

Soundings acquired during this survey were found to be 0.6 to 1 meter (2-3 feet) deeper than those depths depicted on chart 11341 and on prior survey H8796. RUDE recommends ~~retention of the charted (shoaler) depths; also,~~ that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7011

Prior survey depths surrounding the least depth of 9^1 meters (30 feet) are 10^4 meters (34 feet). Because this AWOIS item was found and a least depth was obtained no comparison with the prior survey data was performed. No change in charted depths is recommended.

AWOIS 7011

CONTACT # 60.29S

LEAST DEPTH

N3. AWOIS ITEM 7012 INVESTIGATION SEE SHEET 3 OF 9.

Area of Investigation

AWOIS Item:	7012
State	Louisiana
Parish:	Cameron
Locality:	0.4 nm SE of Buoy "18," Sabine Bank Channel
Latitude:	29° 31' 35.229" N } NAD 83
Longitude:	93° 42' 53.185" W } NAD 83
Depth:	9.2 meters (collapsed survey platform)

AWOIS Item Description

From survey H8796/64, depths in the vicinity of AWOIS 7012 were found to be 10.7 meters. AWOIS item 7012 was described in prior survey FE337/73WD as a collapsed survey platform, covered 9.2 meters, with an effective cleared depth of 7.6 meters; hung at an estimated 10 meters, and extending 1.8 meters off the bottom at latitude 29° 31' 34.4" N, longitude 93° 42' 52.6" W (NAD 27). This item was later investigated in survey CL983/73 RU/HE which yielded the same data as above, but at latitude 29° 31' 33.73" N, longitude 93° 42' 51.84" W (NAD 27). Present survey requirements called for 200% side scan sonar investigation to a 100-meter search radius; and echosounder development, or diver's investigation and least depth, if found; or salvage documentation. Present survey requirement comments also called for RUDE to determine the item's present condition, and to center our search area about the position from prior survey FE337. AWOIS item 7012 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:	7012
Positioning:	ARGO
Sonar Search:	DOY 255 & 268
Sonification:	25% SSS coverage
Contacts:	One significant contact: 42.08P
Field Sheet:	RU-20-3K-90

There were no significant problems encountered with the positioning or side scan systems. Only one significant contact was identified during the side scan sonar coverage. The contact was discovered on the first line, and additional reconnaissance lines were then run about the contact. This contact was later investigated by divers, and a least depth and position were determined for Contact 42.08P. Since this AWOIS item was found through 25% side scan investigation, no smooth swath plot sheet

is submitted with the data; an edited depth plot and the original on-line swath sheet comprise all the sheets for this item.

Contact 42.08P Investigation

(a) Contact 42.08P Dive Summary

Contact 42.08P was investigated by divers on September 25, 1990 (DOY 268). LCDR Tuell and ENS Oberlies descended the marker buoy line to the bottom at 11 meters. A 30-meter radius circle search was conducted about the marker buoy anchor. An old, collapsed survey platform, with mangled pipes, was found rising approximately 3 meters off the bottom. A least depth was obtained by pneumo depth gage.

(b) Contact 42.08P Description

Contact 42.08P is an old, collapsed survey platform, interspersed with mangled pipes, approximately 7 meters long, rising 3 meters off the bottom.

(c) Contact 42.08P Least Depth Determination

A least depth of Contact 42.08P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	42.08P
Date:	September 25, 1990 (DOY 268)
Time:	2122 Z
Average Pneumo Depth:	9.9 meters
Pneumo Gage Corrector:	+.0
~~PREDICTED~~ Tidal ~~Zone~~ Cor:	~~-0.2~~ -0.6
Approved	
Actual Least Depth:	9.73 meters (30 FEET)

(d) Contact 42.08P Positioning

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

Contact:	42.08P
HDAPS Position Numbers:	617 - 619
Average Easting:	34214.7 E
Average Northing:	113747.7 N
Computed Latitude:	29° 31' 34.025" N
Computed Longitude:	93° 42' 51.894" W

Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11038.8	26390.9	46948.3	64011.7
Loran SNR:	946	913	625	524
Master:	880			

(e) Contact 42.08P Recommendation

RUDE recommends that this item be charted at the above position using symbol No. 41, section "K," (Obstruction, least depth known) from Nautical Chart No. 1. This symbol should show a least depth of 9.~~3~~meters inside a danger circle, labeled "Obstn." CONCUR (30 FEET)

AWOIS Item 7012 Summary and Recommendations

AWOIS item 7012 was found through 25% side scan investigation close to its charted location. RUDE recommends that AWOIS 7012 be charted as described in section (e) above. CONCUR

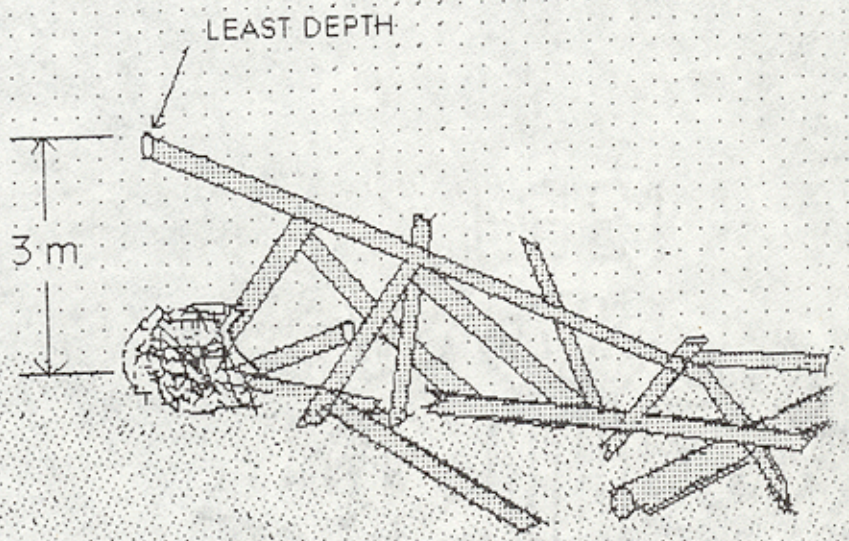
Depths acquired during this survey were found to be 0.3 meter (1 foot) greater than those depicted on chart 11341, and 0.6 - 0.9 meter (2-3 feet) greater than those from prior survey H8796. RUDE recommends retention of the charted (shoaler) depths. RUDE further recommends that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7012

Prior survey soundings surrounding the least depth of 9^3 meters (30 feet) are 10^7 meters (35 feet). Because this AWOIS item was found and a least depth was obtained no comparison with the prior survey data was performed. No change in charted depths is recommended.

AWOIS 7012

CONTACT # 42.08P



N4. AWOIS ITEM 7013 INVESTIGATION SEE SHEET 3 OF 9.

Area of Investigation

AWOIS Item:	7013
State	Louisiana
Parish:	Cameron
Locality:	0.4 nm NNW of Buoy "18," Sabine Bank Channel
Latitude:	29° 32' 08.927" } NAD 83
Longitude:	93° 43' 12.585" }
Depth:	Unknown (Wreckage)

AWOIS Item Description

AWOIS item 7013 was described in CL1085/75 as a drive shaft which was cleared to 8.38 meters and hung at 8.84 meters, located at latitude 29° 32' 09" N, longitude 93° 43' 15" W (NAD 27). During FE326/75WD, the hydrographer reportedly hung upon wreckage (engine block and drive line) at 8.54 meters. Poor visibility had made positive identification impossible. The hang was cleared by two strips with effective depths of 7.93 and 8.23 meters. The object rose 1.8 meters off the bottom at latitude 29° 32' 08.1" N, longitude 93° 43' 12" W (NAD 27). Present survey requirements called for a 200% side scan sonar investigation to a 50-meter search radius, towing at 2.5 knots; and echosounder development, or diver investigation and least depth, if found; or salvage documentation. The wreckage is charted on NOAA 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:	7013
Positioning:	ARGO
Sonar Search:	DOY 255 and 269
Sonification:	200% SSS coverage
Contacts:	No significant contacts discovered
Field Sheet:	RU-20-3J-90

There were no significant problems encountered with either the positioning or the side scan sonar systems. One potentially significant contact was identified on the first 100%, but was determined insignificant through side scan sonar reconnaissance.

On DOY 269, the quality of the side scan sonar trace between Fix numbers 685 and 686 was adversely affected by a bad connection in the towfish cable. This line was rejected and immediately re-run.

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 3.0 knots during main scheme, and generally was between 2.2 and 2.7 knots. During reconnaissance of a disproved contact, the speed averaged 3.9 knots.

In order to reduce the number of swath plots submitted, the edited swath plot depicts only the first 100% side scan sonar coverage in its correct geographic position. The second 100% coverage was deliberately offset for legibility.

Side scan sonar confidence checks for DOY 255 are filed with data for AWOIS 7011 and 7018.

AWOIS Item 7013 Summary and Recommendations

AWOIS item 7013 is considered disproved through 200% 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, be deleted. Concur

Soundings acquired during this survey were found to be generally 0.6 - 0.9 meters (2 - 3 feet) deeper than depths depicted on chart No. 11341 and soundings from prior surveys H-8796 and H-8796. ~~RUDE recommends retention of the charted, shoaler depths~~. RUDE further recommends that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7013

Prior survey soundings in the area are approximately 1 foot (0^3 meters) ~~deeper~~ SHOALER than present survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

N5. AWOIS ITEM 7014 INVESTIGATION SEE SHEET 4 OF 9.

Area of Investigation

AWOIS Item:	7014
State:	Louisiana
Parish:	Cameron
Locality:	.6 nm SW of Buoy "21," Sabine Bank Channel
Latitude:	29° 32' 45.823" N } NAD 83
Longitude:	93° 45' 37.587" W } NAD 83
Depth:	Unknown (Wreck)

AWOIS Item Description

Depths in the vicinity of AWOIS Item 7014 were described in H8795/64 as being approximately 11.6 meters. LNM32/81 reported the F/V MASTER JASON sunk at latitude 29° 32' 45" N, longitude 93° 45' 37" W (NAD 27). Present survey requirements called for a 200% side scan sonar investigation to a 1000-meter search radius; and echo sounder development, or diver investigation and least depth, if found; or salvage documentation. The wreck is charted on NOAA 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:	7014
Positioning:	ARGO
Sonar Search:	DOY 256, 257, 267, & 269
Sonification:	200% SSS Coverage
Contacts:	One significant contact: 383.12P
Field Sheet:	RU-20-3I-90

Two contacts were identified on the side scan sonar coverage. Contact 309.30S was noted on the second 100% coverage. Had it been a legitimate contact, however, it should have been noted between Fix numbers 220 - 221 on the first 100%, but was not. Through further reconnaissance investigation (Fix numbers 486-491), contact 309.30S was disproved as fish. Contact 383.12P was insonified on the starboard channel just after Fix 242 (DOY 256); but because there was no apparent shadow, this contact was not flagged until the second 100% side scan coverage. Contact 383.12P was investigated by divers on DOY 269, and a least depth and position were determined at that time. On DOY 256, the quality of the side scan sonar trace at Fix numbers 105, 107, 242, 266, 271, & 290 was adversely affected by the sea state (up to 1.5 meters) jerking the towfish cable. This sea action can also be seen on the fathometer trace. These lines were not rerun as the resulting white streaks were not severe enough to have

obscured the fishing vessel, and the affected areas were clearly presented during the second 100% coverage. A lane jump occurred on ARGO Code 4 on DOY 256 at Fix 224. This station was then deselected from the positional computation in HDAPS with no subsequent degradation to the positional accuracy. On DOY 257, Fix numbers 301 - 304 were rejected due to boat traffic breaking the line, and Fix numbers 318 - 333 were rejected because of weather. On DOY 267, Fix numbers 456 - 458 were rejected due to both an interface problem between the EG&G side scan recorder and HDAPS, and the printer test option inadvertently being started by the system operator. On DOY 267, from Fix numbers 452 - 500, the side scan recorder mechanically reduced the paper speed, resulting in a somewhat compressed image. These areas were not rerun, however, since any contacts would still be easily identifiable through these compressed areas.

Contact 383.12P Investigation

(a) Contact 383.12P Dive Summary

Contact 383.12P was investigated by divers on September 26, 1990 (DOY 269). LTJG Rogers and ENS Oberlies descended the marker buoy line to the bottom at 12 meters. A circle search of 30-meter radius was conducted about the marker buoy anchor. A 0.5 meter diameter by 7 meter long steel pipe was found lying partially buried on the bottom. A least depth was obtained by pneumo depth gage.

(b) Contact 383.12P Description

Contact 383.12P is a 7-meter long steel pipe, approximately 0.5 meter in diameter with one end partially buried, rising 0.6 meter off the bottom.

(c) Contact 383.12P Least Depth Determination

A least depth of Contact 383.12P was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	383.12P
Date:	September 26, 1990 (DOY 269)
Time:	1539 Z
Average Pneumo Depth:	11.4 meters
Pneumo Gage Corrector:	+.0
~~PREDICTED~~ Tidal ~~Zone~~ Cor: Approved	~~-0.3~~ -0.6
Actual Least Depth:	~~11.1~~ meters (36 FEET) 10.9

(d) Contact 383.12P Positioning

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

Contact:			383.12P	
HDAPS Position Numbers:			682 - 684	
Average Easting:			30169.8 E	
Average Northing:			116747.2 N	
Computed Latitude:		29° 33' 11.177" N		
Computed Longitude:		93° 45' 22.352" W		
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11035.7	26375.6	46952.2	64009.3
Loran SNR:	950	913	711	690
Master:	909			

AWOIS # 8747

(e) Contact 383.12P Recommendation

RUDE recommends that this item be charted at the above position using symbol No. 41, section "K," (Obstruction, least depth known) from Nautical Chart No. 1. This symbol should show a least depth of ~~11.1~~ 10.9 meters (36 FEET) inside a danger circle, labeled "Obstn." CONCUR

AWOIS Item 7014 Summary and Recommendations

AWOIS item 7014 is considered disproved through 200% side scan sonar investigation. RUDE recommends that the wreck presently charted at latitude 29° 32' 45.823" N, longitude 93° 45' 37.587" W, be deleted. Contact 383.12P should be charted as recommended in paragraph (e), above. CONCUR

Soundings acquired during this survey were found to be generally 1.2 to 1.5 meters (4 - 5 feet) deeper than those depicted on chart No. 11341 and on prior surveys H-8767 and H-8795. ~~RUDE recommends retention of the charted, shoaler depths.~~ RUDE further recommends that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

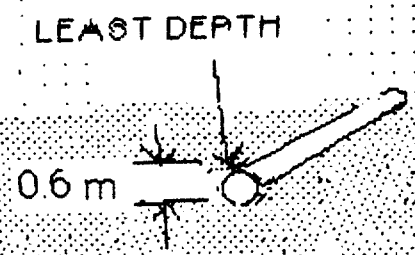
EVALUATOR'S NOTE FOR AWOIS ITEM #7014

Prior survey soundings in the area are approximately 2 to 3 feet (0^6 to 0^9 meters) deeper than present survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

#8747

AWOIS ~~7014~~

CONTACT 383.12P



M6. AWOIS ITEM 7016 INVESTIGATION SEE SHEET 4 OF 9.

Area of Investigation

AWOIS Item:	7016
State	Louisiana
Parish:	Cameron
Locality:	1.0 nm SE of Buoy "25," Sabine Pass Channel
Latitude:	29° 33' 36.820" N } NAD 83
Longitude:	93° 46' 06.587" W } NAD 83
Depth:	Unknown (obstruction)

AWOIS Item Description

AWOIS item 7016 was described in LNM5/82 as a submerged obstruction, reported in the safety fairway at latitude 29° 33' 36" N, longitude 93° 46' 06" W (NAD 27). Present survey requirements called for a 400% side scan sonar investigation to a 1000-meter search radius, not to include the maintained channel, as shown on the PSR chart; and echo sounder development, or diver investigation and least depth, if found. The obstruction is charted on NOAA chart 11341, Calcasieu Pass to Sabine Pass, 31th Edition, dated March 26, 1988.

Survey Procedures

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

AWOIS Item:	7016
Positioning:	ARGO
Sonar Search:	DOY 267, 268, 269, and 277
Sonification:	400% SSS Coverage
Contacts:	No significant contacts discovered
Field Sheet:	RU-20-3H-90

There were no significant problems encountered with the positioning system. Two minor problems were experienced with the side scan sonar system. On DOY 268 between fixes 667 and 668, the side scan recorder paper take up speed was inconsistent and compressed the data record. This imagery was rejected and re-run on DOY 269. On DOY 269, the seas were so calm, RUDE's wake lingered for as long as 45 minutes, causing poor sonar imagery when this area was covered on overlapping lines. To alleviate this problem, many lines were initially skipped, and run after the wake had dissipated. All poor imagery resulting from crossing the wake was identified and highlighted on the on-line swath plot. These areas were re-run on DOY 277. Four potentially significant contacts were identified on the 1st 100% coverage, but were determined to be insignificant through side scan sonar reconnaissance.

AWOIS Item 7016 Summary and Recommendations

AWOIS item 7016 is considered disproved through 400% side scan sonar investigation. RUDE recommends that the obstruction presently charted at latitude 29° 33' 36.820" N, longitude 93° 46' 06.587" W, be deleted. - CONCUR

Soundings acquired during this survey were found to be generally 0.9 - 1.2 meters (3 - 4 feet) deeper than depths depicted on chart No. 11341 and soundings from prior survey H-8795. ~~RUDE recommends retention of the charted, shoaler depths.~~ RUDE further recommends that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7016

Prior survey soundings in the area are approximately 2 to 3 feet (0^6 to 0^9 meters) ~~deeper~~ SHOALER than present survey depths. Along the edge of the dredged channel differences of up to 8 feet (2^4 meters) were seen. These differences can be attributed to withdrawal of gas and oil deposits in the region and dredging in the area. It is recommended the present survey results supplement the charted data in the common area.

M7. AWOIS ITEM 7017 INVESTIGATION SEE SHEET 4 OF 9.

Area of Investigation

AWOIS Item:	7017
State	Louisiana
Parish:	Cameron
Locality:	1 nm SE of Buoy "26", Sabine Bank Channel
Latitude:	29° 33' 52.920" N } NAD83
Longitude:	93° 45' 35.686" W } NAD83
Depth:	7.3 meters

AWOIS Item Description

AWOIS item 7017 was reported in FRE337/73WD as a collapsed survey platform at latitude 29° 33' 52.1" N, longitude 93° 45' 35.1" W (NAD 27). A 7.3 meter clearance was reported over the obstruction with surrounding depths of 11.6 meters. Present survey requirements called for determination of present condition through 200% side scan sonar investigation to a 200-meter search radius; echo sounder development or diver investigation and least depth, if found; or salvage documentation. AWOIS item 7017 appears on chart 11341, Calcasieu Pass to Sabine Pass, 26th edition, dated March 26, 1988.

Survey Procedures

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

AWOIS Item:	7017
Positioning:	ARGO
Sonar Search:	DOY 256
Diving:	DOY 268
Sonification:	25% SSS coverage
Contacts:	One significant contact: 72.00S
Field Sheet:	RU-20-3G-90

There were no significant problems encountered with the side scan or positioning systems. One significant contact was discovered on the first line of coverage; contact 72.00S was investigated by divers on DOY 268 and identified as AWOIS Item 7017. A least depth and position were determined at that time.

Contact 72.00S Investigation

(a) Contact 72.00S Dive Summary

Contact 72.00S was investigated by divers on September 25, 1990 (DOY 268). LCDR Tuell and LTJG Rogers descended the marker buoy line to the bottom at 10 meters. The remains of the survey platform were sighted approximately 5 meters from the buoy line.

A 10-meter circle search was conducted about the highest point of the debris, and a least depth was obtained by pneumo depth gage.

(b) Contact 72.00S Description

Contact 72.00S is a collapsed survey platform, made up of 0.5-meter diameter pipes, forming an "H" and covering an area approximately 10 meters in diameter. The highest point of the debris rises 1.3 meters off the bottom.

(c) Contact 72.00S Least Depth Determination

A least depth of Contact 72.00S was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	72.00S
Date:	September 25, 1990 (DOY 268)
Time:	1734 Z
Average Pneumo Depth:	11.4 meters
Pneumo Gage Corrector:	+.0
~~PREDICTED~~ Tidal ~~Zone~~ Cor:	~~-.2~~ -0.3
Approved	
Actual Least Depth:	11.~~2~~1 meters (36 FEET)

(d) Contact 72.00S Positioning

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

Contact:	72.00S
HDAPS Position Numbers:	608 - 610
Average Easting:	29796.7 E
Average Northing:	118022.2 N
Computed Latitude:	29° 33' 52.560" N
Computed Longitude:	93° 45' 36.317" W

Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11034.8	26377.1	46953.9	64008.6
Loran SNR:	972	910	605	484
Master:	895			

(e) Contact 72.00S Recommendation

RUDE recommends that this item be charted at the above position using symbol No. 41, section "K," (obstruction, least depth known) from Nautical Chart No. 1. This symbol should show a

least depth of 11.2 meters inside a danger circle, labeled "Obstn." CONCUR (36 FEET)

AWOIS Item 7017 Summary and Recommendations

AWOIS item 7017 is considered resolved through side scan sonar investigation. The item has been discovered and identified close to its charted position. RUDE recommends that symbol No. 40, Section "K" (Obstruction, depth unknown) from Nautical Chart No. 1, presently charted at latitude 29° 33' 52.1" N longitude 93° 45' 35.1" W, be deleted. The investigated contact (72.00S) should be charted in its stead as recommended in paragraph (e), above. - CONCUR

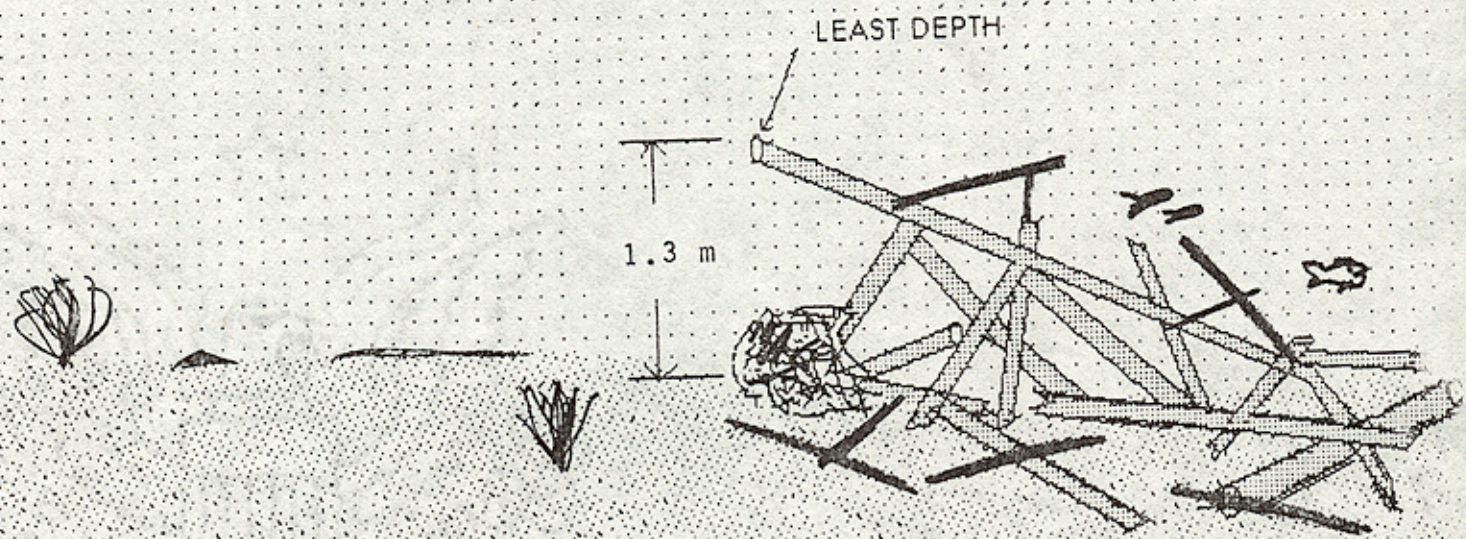
Soundings acquired during this survey were found to be 0.6 to 1 meter (2-3 feet) deeper than those depicted on chart 11341 and on prior survey H8795. RUDE recommends retention of the charted (shoaler) depths; also, that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7017

Prior survey depths surrounding the least depth of 11[1] meters (36 feet) are 11[6] meters (38 feet). No change in charted depths is recommended. Because this AWOIS item was found and a least depth was obtained no comparison with the prior survey data was performed. No change in charted depths is recommended.

AWOIS 7017

CONTACT #72.00S



H8. AWOIS ITEM 7018 INVESTIGATION SEE SHEET 5 OF 9.

Area of Investigation

AWOIS Item:	7018
State	Louisiana
Parish:	Cameron
Locality:	1.6 nm SW of Buoy "29", Sabine Bank Channel
Latitude:	29° 34' 25.016" N ? NAD 83
Longitude:	93° 49' 03.093" W

AWOIS Item Description

From survey H8795/64, depths in the vicinity of AWOIS 7018 were found to be 11.3 meters. AWOIS item 7018 was described in LNM 66/71 as the 135.6-meter long double-bottom section of the liberty ship, SS WILLIAM BEAUMONT, reportedly covered by 9.1 meters of water at latitude 29° 34' 30"N, longitude 93° 49' 06"W (NAD 27) Position Approximate. During survey FE337/73WD, the hydrographer hung on the SS WILLIAM BEAUMONT at an effective depth of 7.6 meters. The hang was cleared to 6.7 meters, and was found to rise 1.8 meters off the bottom at latitude 29° 34' 24.2"N, longitude 93° 49' 02.5"W (NAD 27), or approximately 230 meters SE of the charted position. At that time, the wreck was reported as being overturned and having a double-bottom. Present survey requirements called for a 200% side scan sonar investigation to a 250-meter search radius; and echosounder development, or diver's investigation and least depth, if found; or salvage documentation. Present survey requirements also called for RUDE to determine the wreck's present condition. AWOIS 7018 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:	7018
Positioning:	ARGO
Sonar Search:	DOY 255 & 268
Sonification:	50% SSS coverage
Contacts:	One significant contact: 1.37S
Field Sheet:	RU-20-3F-90

There were no significant problems encountered with either the positioning or the side scan sonar systems. One contact was identified on the side scan sonar coverage. This contact, 1.37S, was investigated by divers on DOY 268; and a least depth and position were determined for the contact at that time. Since this item was discovered through only 50% side scan sonar investigation, no smooth swath plot sheet is submitted with the

data. An edited depth plot and the original on-line swath sheet constitute all the sheets for this item.

Side scan operations on DOY 267 ended with Fix number 595. On DOY 268, side scan operations began with Fix number 597. Hence, Fix number 596 was not used in this survey.

Contact 1.37S Investigation

(a) Contact 1.37S Dive Summary

Contact 1.37S was investigated by divers on September 25, 1990 (DOY 268). LCDR Tuell and LTJG Rogers descended the marker buoy line to the bottom at 12 meters. A circle search of 30-meter radius was conducted about the marker buoy anchor. An overturned hull of a liberty ship was found, rising approximately 2.3 meters off the bottom. A least depth was obtained by pneumo depth gage on the highest point.

(b) Contact 1.37S Description

Contact 1.37S is the overturned hull of the SS WILLIAM BEAUMONT, rising approximately 2.3 meters off the bottom, a dimension which gradually decreases along the rest of the ship's length.

(c) Contact 1.37S Least Depth Determination

A least depth of Contact 1.37S was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	1.37S
Date:	September 25, 1990 (DOY 268)
Time:	1540 Z
Average Pneumo Depth:	10.4 meters
Pneumo Gage Corrector:	+0.0
~~[illegible]~~ Tidal ~~Zone~~ Cor:	~~-0.3~~ -0.4
Approved	
Actual Least Depth:	10.~~1~~0 meters (33 FEET)

(d) Contact 1.37S Positioning

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

Contact:	1.37S
HDAPS Position Numbers:	602 - 604
Average Easting:	24172.0 E
Average Northing:	119144.3 N

Computed Latitude:		29° 34' 28.548" N		
Computed Longitude:		93° 49' 05.390" W		
Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11032.7	26347.3	46955.4	64007.0
Loran SNR:	957	926	591	575
Master:	900			

(e) Contact 1.378 Recommendation

RUDE recommends that this item be charted at the above position using symbol No. 27, section "K," (Wreck, least depth known, swept by diver) from Nautical Chart No. 1. This symbol should show a least depth of 10.14 meters (33 FEET) inside a danger circle, labeled "Wk." CONCUR

AWOIS Item 7018 Summary and Recommendation

AWOIS item 7018 was found through 50% side scan investigation close to its charted location. RUDE recommends that AWOIS 7018 be charted as described in section (e) above. The charted symbol, wreck, PA (30 feet reported) should be deleted. CONCUR

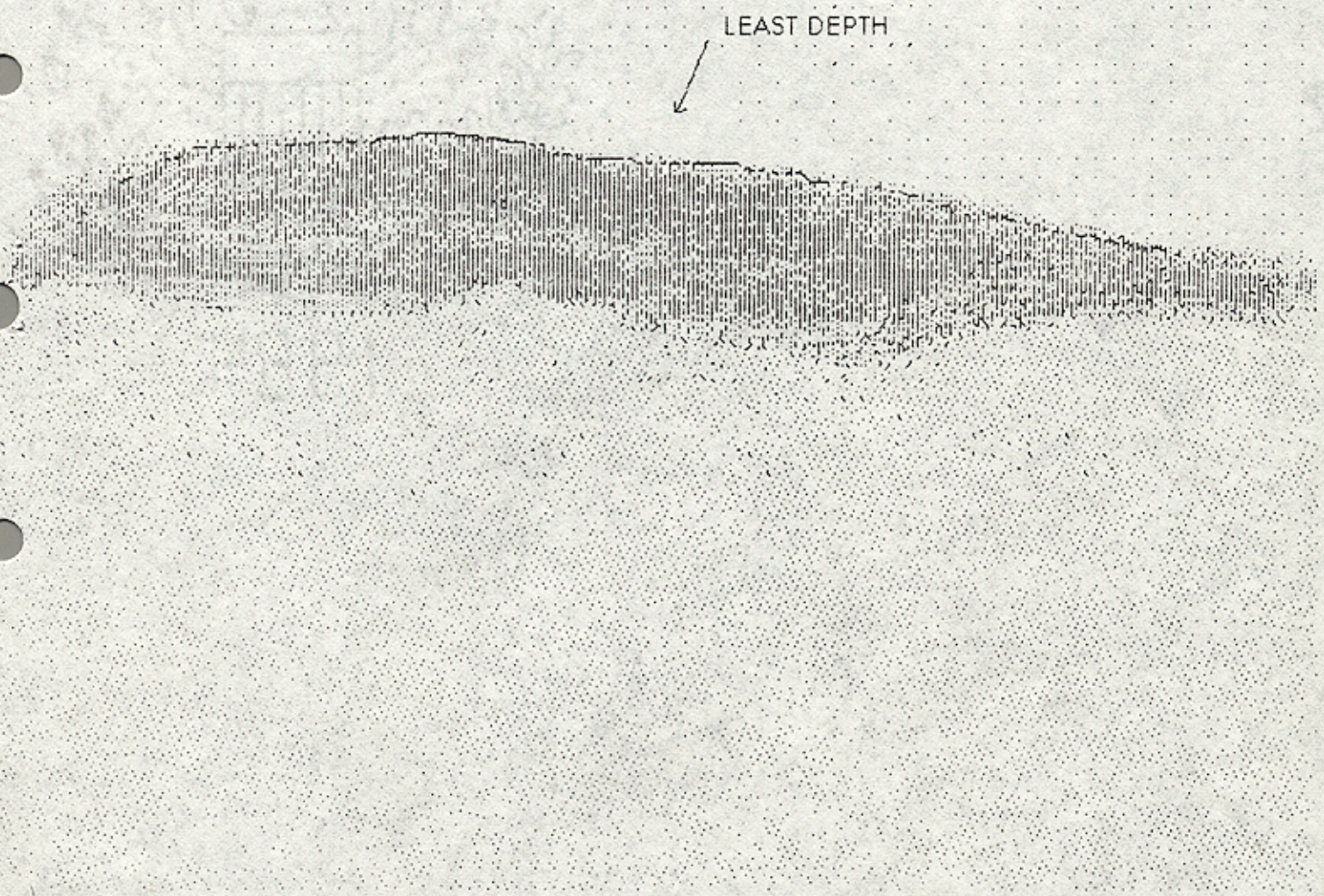
Soundings acquired during this survey were found to be 1.2 meters (4 feet) deeper than depths depicted on chart 11341, and 0.9 meter (3 feet) deeper than soundings from prior survey H8795. RUDE recommends retention of the charted (shoaler) depths. RUDE further recommends that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7018

Prior survey depths surrounding the least depth of 10 meters (33 feet) are 11[3] meters (37 feet). No change in charted depths is recommended. Because this AWOIS item was found and a least depth was obtained no comparison with the prior survey data was performed. No change in charted depths is recommended.

AWOIS 7018

CONTACT # 137S



M9. AWOIS ITEM 7024 INVESTIGATION SEE SHEET 6 OF 9.

Area of Investigation

	AWOIS Item:	7024
	State	Louisiana
*	Parish:	Cameron
	Locality:	7.5 nm E of Sabine Pass Jetty
	Latitude:	29° 40' 30.807" N } NAD 83
	Longitude:	93° 41' 24.576" W }
	Depth:	Unknown (wreck)

AWOIS Item Description

AWOIS item 7024 was described in LNM21/86 as the F/V Lillian R, 20 meters long, with outriggers and mast. The vessel was reportedly broken up and lying on the bottom, at latitude 29° 40' 30" N, longitude 93° 41' 24" W (NAD 27). Present survey requirements called for a 200% side scan sonar investigation to a 500-meter search radius; and echosounder development, or diver investigation and least depth, if found. The wreck is charted on NOAA 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:	7024
Positioning:	ARGO
Sonar Search:	DOY 284 and 285
Sonification:	200% SSS coverage
Contacts:	No significant contacts discovered
Field Sheet:	RU-20-3B-90

RUDE attempted to contact the owner of the F/V Lillian R at the address given in the AWOIS listing. Aquarius Shrimp Co. did not reply to our correspondence. A copy of RUDE's letter is included in Appendix VI.

There were no significant problems encountered with either the positioning or the side scan sonar systems. One possible contact was identified during the 200% coverage, but was found to be insignificant through further reconnaissance sonar imagery. On DOY 284, the incorrect offset table (#4) was selected, shifting the on-line swath plot 30 meters ahead. The edited swath plot was done with the correct offset table (#3) and is correctly positioned. Holidays created by this error were found and covered on DOY 285. All edited plots of this data should be made using offset table #3 instead of the table recorded in the data.

After correcting the offset table, a new swath plot was prepared for on-line data collection using edited data from DOY 284 (labeled 2B). This plot was used while collecting data on DOY 285. The edited data from DOY 285 was inadvertently plotted on the original on-line data sheet from DOY 284 (2A). Final edited swath plots with correct offsets were also prepared (2C and 2D).

One small holiday exists immediately north of Fix number 2143, but this area was adequately covered by 100% side scan sonar in the second 100% and is deemed free of obstructions.

Upon completion of the edited swath sheets, two swath fixes were not plotted because of an improper annotation on the daily data abstract form. The error was corrected prior to this survey's submission, and consequently, Fix numbers 2264 - 2265 were hand drawn onto the smooth swath sheet.

AWOIS Item 7024 Summary and Recommendations

AWOIS item 7024 is considered disproved through 200% side scan sonar investigation. RUDE recommends that the wreck symbol be deleted from future chart editions. CONCUR

Soundings acquired during this survey were found to be generally 0.9 - 1.2 meters (3 - 4 feet) deeper than depths depicted on chart No. 11341 and soundings from prior survey H-8796. ~~RUDE recommends retention of the charted, shoaler depths.~~ RUDE further recommends that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7024

Present survey depths in the area surveyed range from 7^8 to 8^7 meters (25 to 28 feet). These depths are 2 to 3 feet (0^6 to 0^9 meters) deeper than prior survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

N10. AWOIS ITEM 7030 INVESTIGATION SEE SHEET 7 OF 9.

Area of Investigation

AWOIS Item:	7030
State	Louisiana
Parish:	Cameron
Locality:	Rectangular dumping ground on the East side of the Sabine Bank Channel between Buoys "18" and "30".

Location of Boundaries:

Latitude	Longitude
29 ° 38' 13.805"	93 ° 49' 13.591"
29 ° 38' 36.805"	93 ° 48' 09.588"
29 ° 36' 20.812"	93 ° 47' 04.587"
29 ° 35' 57.812"	93 ° 48' 07.590"

} NAD 83

Depth: 6 to 10 meter depths in the area

AWOIS Item Description

AWOIS item 7030 was described in CL579/65 as a dumping ground, bound by the NAD 83 coordinates given above, running along the East side of the Sabine Bank Channel. The area was discontinued as a dumping ground in 1977, but no depths have been charted since its termination. Present survey requirements called for an echo sounder development of the area with line spacing not to exceed 50 meters, and full development of any irregularities. AWOIS item 7030 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:	7030
Positioning:	ARGO
Echosounding:	DOY's: 277, 278, 282, 283, 284, 285
Field Sheet:	RU-20-3E-90

There were no significant problems encountered with the echo sounder or positioning systems, however the Heave/Roll/Pitch sensor (HIPPY) temporarily failed on DOY's 278 and 282. Consequently, lines "-650A" and "70A" were not depth plotted with HIPPY data; however, this did not affect the corrected depths by more than plus or minus 0.2 meters.

Line spacing was 45 meters for the entire area, and no contacts were identified during the coverage. When all main scheme lines had been run, the tracks were re-plotted at a larger scale than was used for the on-line track plot. This facilitated

identification of holidays, which were covered on DOY's 283 and 284.

The edited depth plots were also done at this large scale (1:5000) for legibility. These larger scale sheets were labeled RU-20-3Y-90 on the Pre-Survey plotter sheet table.

AWOIS Item 7030 Summary and Recommendations

AWOIS item 7030 is considered resolved. Soundings obtained during this survey were found to vary widely from depths depicted on chart No. 11341 and soundings from prior survey H-8795. They ranged from 0.3 meters on the Southern end to 1.6 meters on the Northern end (1 to 5 feet) deeper than depths previously charted.

RUDE recommends that soundings acquired during this survey be charted as depths on subsequent editions of the affected charts, and that the "Dumping Ground" legend be removed. ~~DO NOT~~ CONCUR ~~CHANGE LABEL TO "DISCONTINUED DUMPING GROUND".~~ and limit-line

EVALUATOR'S NOTE FOR AWOIS ITEM #7030

Present survey depths in the area surveyed range from 7^4 to 13 meters (24 to 42 feet). These depths are 2 to 3 feet (0^6 to 0^9 meters) deeper than prior survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

M11. AWOIS ITEM 7031 INVESTIGATION SEE SHEET 8 OF 9.

Area of Investigation

AWOIS Item:	7031
State	Louisiana
Parish:	Cameron
Locality:	0.9 nm E of Buoy "34," Sabine Bank Channel
Latitude:	29° 38' 00.807" N } NAD 83
Longitude:	93° 48' 00.588" W }
Depth:	Unknown (wreck)

AWOIS Item Description

AWOIS item 7031 was described in LNM119/70 as the fishing vessel Beulah, reportedly sunk at latitude 29° 38' N, longitude 93° 48' W (NAD 27). Present survey requirements called for a 200% side scan sonar investigation to a 1500-meter search radius; and echosounder development, or diver investigation and least depth, if found; or salvage documentation. AWOIS item 7031 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:	7031
Positioning:	ARGO
Sonar Search:	DOY's: 291, 295, 296, 298, 299, 302, 306, 309
Diving:	DOY's: 296, 310, 311
Sonification:	200% SSS coverage
Contacts:	Two significant contacts: 2862.05S, 2862.19S
Field Sheet:	RU-20-3C-90

There were no significant problems encountered with either the side scan or positioning systems. Two significant contacts were identified on the 200% side scan sonar coverage. These contacts, 2862.05S and 2862.19S, were investigated separately, although they appeared to be two sections of the same wreck, based on their alignment. They were investigated by divers on DOY's 296 and 311 respectively, and least depths and detached positions were determined on those days.

On DOY 296, RUDE began side scan operations on AWOIS Item 7031, then temporarily broke off operations to begin side scan investigations on the offshore survey, ending AWOIS Item 7031 with Fix number 2894. After completing work on the offshore items, RUDE returned to AWOIS Item 7031 to continue operations, but inadvertently began collecting data with Fix number 2903. Hence, Fix numbers 2895 through 2902 were never used in this

survey. At position 3178 the towfish lost bottom tracking for a short period of time creating a reduced effective swath. This problem created a 100 meter long holiday in the N/S side scan coverage. This holiday is covered by positions 3763 - 3768, but is not shown on the edited swath plot.

On DOY 309, side scan operations ended with Fix number 3839. On DOY 310, dive operations also began with Fix number 3839 as a buoy deployment on Contact 2859.13S. Thus, there are two Fix numbers 3839 indicative to this survey.

Due to adverse weather conditions on DOY 291, data quality for reference line 80A was poor, and was therefore rejected. This main-scheme line was re-run on DOY 298.

Contact 2862.05S Investigation

(a) Contact 2862.05S Dive Summary

Contact 2862.05S was investigated by divers on October 23, 1990 (DOY 296). LCDR Tuell and LTJG Rogers descended the marker buoy line to the bottom at 9 meters, where they found a large section of a steel-hulled vessel. A least depth was obtained by pneumo depth gage.

(b) Contact 2862.05S Description

Contact 2862.05S is the forward portion of a steel-hulled ship, approximately 30 meters long, overturned, and rising approximately 2 meters off the bottom.

(c) Contact 2862.05S Least Depth Determination

A least depth of Contact 2862.05S was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	2862.05S
Date:	October 23, 1990 (DOY 296)
Time:	1937 Z
Average Pneumo Depth:	6.2 meters
Pneumo Gage Corrector:	+.0
~~[redacted]~~ Tidal ~~Zone~~ Cor:	~~-0.2~~ -0.4
Approved	
Actual Least Depth:	~~6.0~~ meters (19 FEET) 5.8

(d) Contact 2862.05S Positioning

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

Contact:	2862.05S
HDAPS Position Numbers:	2900 - 2902
Average Easting:	24782.7 E
Average Northing:	126551.8 N
Computed Latitude:	29° 38' 29.181" N
Computed Longitude:	93° 48' 43.441" W

Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11028.0	26371.9	46964.4	64003.1
Loran SNR:	970	940	621	510
Master:	879			

(e) Contact 2862.05S Recommendation

Refer to the recommendation for contact 2862.19S below.

Contact 2862.19S Investigation

(a) Contact 2862.19S Dive Summary

Contact 2862.19S was investigated by divers on November 6 and 7, 1990 (DOY 310 and 311). On DOY 310, LCDR Tuell and ENS Oberlies dove on the contact; but, due to poor visibility and a strong current, they aborted the dive.

A second attempt was made on DOY 311. LTJG Rogers and ENS Oberlies descended the marker buoy line to the bottom at 9 meters, where they found a steel-hulled vessel. A least depth was obtained by pneumo depth gage.

(b) Contact 2862.19S Description

Contact 2862.19S is the aft section of an overturned steel-hulled ship, 45 meters long and rising approximately 3 meters off the bottom. RUDE is confident that contact 2862.05S is the forward section of the same ship, broken in two large pieces lying end-to-end.

(c) Contact 2862.19S Least Depth Determination

A least depth of Contact 2862.19S was taken by divers using a pneumo depth gage on the highest point of the contact.

Contact:	2862.19S
Date:	November 7, 1990 (DOY 311)
Time:	1935 Z
Average Pneumo Depth:	5.4 meters

Pneumo Gage Corrector:	5.4 +.0
~~PREDICTED~~ Tidal ~~Zone~~ Cor:	~~+.0~~ -0.1
Approved	------
Actual Least Depth:	5.43 meters(17 FEET)

(d) Contact 2862.19S Positioning

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

Contact:	2862.19S
HDAPS Position Numbers:	3844 - 3846
Average Easting:	24702.2 E
Average Northing:	126517.0 N
Computed Latitude:	29° 38' 28.044" N
Computed Longitude:	93° 48' 46.430" W

Loran-C Rates:	7980-W	7980-X	7980-Y	7980-Z
Average Loran:	11028.0	26371.4	46964.3	64003.0
Loran SNR:	971	923	587	490
Master:	845			

(e) Contact 2862.19S Recommendation

RUDE recommends that this item be charted using symbol No. 27, section "K," (Wreck, least depth known, swept by diver) from Nautical Chart No. 1, at latitude 29° 38' 28.044" N, longitude 93° 48' 46.430" W. This symbol should show a least depth of 5.43 meters inside a danger circle, labeled "Wk." A Danger to Navigation Report was mailed to the Eighth U.S. Coast Guard District on December 04, 1990 pertaining to AWOIS Item 7031; a copy of this report is included in APPENDIX I.

Due to the proximity of contact 2862.05S, RUDE maintains that a wreck symbol charted at the above coordinates will cover the positions of contacts 2862.05S and 2862.19S, as well as the debris scattered nearby. CONCUR

AWOIS Item 7031 Summary and Recommendations

AWOIS item 7031 is considered disproved through 200% side scan sonar investigation. RUDE recommends that the wreck presently charted at latitude 29° 38' 00.807" N, longitude 93° 48' 00.588" W, be deleted. CONCUR

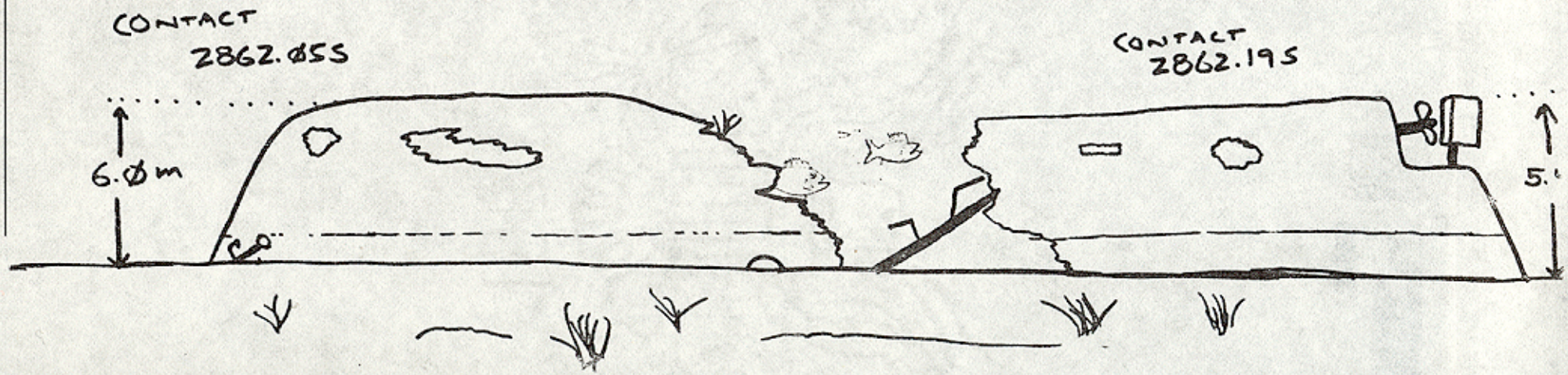
The two contacts investigated should be charted using one wreck symbol as stated in paragraph "e," from the summary of contact 2862.19S, above. CONCUR

Soundings acquired during this survey were found to be 0.9 to 1.2 meters (3 to 4 feet) deeper than depths depicted on chart No. 11341 and soundings from prior survey H-8795. RUDE recommends ~~retention of the charted, shoaler depths; also,~~ that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7031

Prior survey depths surrounding the least depth of 5^3 meters (17 feet) range from 8 to 8^2 meters (26 to 27 feet). Present survey depths in the area surveyed range from 7^4 to 9^6 meters (24 to 31 feet). These depths are 1 to 3 feet (0^3 to 0^9 meters) deeper than prior survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

AWOIS 7031
CONTACTS
2862.055 & 2862.195



N12. AWOIS ITEM 7551 INVESTIGATION SEE SHEET 9 OF 9.

Area of Investigation

AWOIS Item:	7551
State	Louisiana
Parish:	Cameron
Locality:	9.1 nm E of Buoy "32," Sabine Bank Channel
Latitude:	29° 37' 24.119" N } NAD 83
Longitude:	93° 38' 17.376" W }
Depth:	10 meters (Wreck)

AWOIS Item Description

AWOIS item 7551 was described in FE337/73WD as a partially buried wooden-hulled wreck, hung at an effective depth of 10 meters. The position given was latitude 29° 37' 23.3" N, longitude 93° 38' 16.8" W (NAD 27). Present survey requirements called for 200% side scan sonar investigation to a 200-meter search radius; and echosounder development or diver's investigation and least depth, if found; or salvage documentation. AWOIS item 7551 is uncharted, but plots 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:	7551
Positioning:	ARGO
Sonar Search:	DOY 284
Sonification:	200% SSS coverage
Contacts:	No significant contacts.
Field Sheet:	RU-20-4D-90

There were no significant problems encountered with the positioning or side scan systems. One contact (2048.00P) was flagged on-line, but was deemed insignificant through additional reconnaissance sonar imagery.

In order to reduce the number of swath plots submitted, the edited swath plot depicts only the first 100% side scan sonar coverage in its correct geographic position. The additional 100% coverage was deliberately offset for legibility.

AWOIS Item 7551 Summary and Recommendations

AWOIS item 7551 is considered disproved through 200% side scan sonar investigation. RUDE recommends that this item remain uncharted. CONCUR

Soundings acquired while investigating this item were found to be generally 0.6 to 1.2 meters (2 to 4 feet) deeper than depths depicted on chart 11341 and soundings from prior survey H-8796. RUDE recommends ~~that the present (shoaler) depths be retained, but~~ that the depth comparisons be repeated during the hydrographic verification process after the application of approved tides.

EVALUATOR'S NOTE FOR AWOIS ITEM #7551

Present survey depths in the area surveyed range from 10^6 to 10^8 meters (34 to 35 feet). These depths are 1 foot (0^3 meters) deeper than prior survey depths. These differences can be attributed to withdrawal of gas and oil deposits in the region. It is recommended the present survey results supplement the charted data in the common area.

O. 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

Several of the buoys marking the Sabine Pass Ship Channel are incorrectly charted as being black. During RUDE's transits of this channel, it was noted that all of the black buoys have been replaced with green buoys. The following is a list of buoys which are now green and the charts which should be updated to reflect this change: Buoys 21, 25, 29, 33, 17, & 27 on chart 11341, 31st Edition, dated March 26, 1988; buoys 21, 25, 29, 33, 17, & 27 on chart 11332, 22nd Edition, dated April 07, 1990; buoys 33, 17, & 27 on chart 11342, 42nd Edition, dated August 20, 1988; and buoy 29 on chart 11340, 52nd Edition, dated December 12, 1988.

Q. STATISTICS

Number of Positions.....3848

Linear Nautical Miles Run.....333.4

Square Nautical Miles Covered.....8.5

Days of Production.....25

Detached Positions.....39

Velocity Casts.....3

Bottom Samples.....0

R. MISCELLANEOUS

Not Applicable

S. RECOMMENDATIONS

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

AWOIS	STATUS	RECOMMENDATION
7010	Disproved	Delete Charted Legend, "Shl rep 1984" CONCUR see page 10
7011	Resolved	Chart "Obstn, least depth known" CONCUR see page 13

AWOIS STATUS RECOMMENDATION

7012	Resolved	Change chart symbol to "Obstn, least depth known" CONCUR see page ~~16~~ 17
7013	Disproved	Delete Charted Obstn CONCUR see page ~~18~~ 20
7014	Disproved	Delete Charted Wreck; Chart "Obstn, least depth known" CONCUR see page ~~21~~ 23
7016	Disproved	Delete Charted Obstn CONCUR see page ~~23~~ 26
7017	Resolved	Delete "Obstn, depth unknown"; Chart "Obstn, least depth known" CONCUR see page ~~26~~ 29
7018	Resolved	Change Chart symbol to "Wreck, least depth known, swept by diver." CONCUR see page ~~29~~ 33
7024	Disproved	Delete Charted Wreck CONCUR see page ~~31~~ 36
7030	Resolved	Delete Charted Legend, "Dumping Ground" see page ~~33~~ 38 SEE PAGE 38 FOR CHARTING RECOMMENDATION
7031	Disproved	Delete Charted Wreck; Chart "Wreck, least depth known, swept by diver." CONCUR see page ~~37~~ 42
7551	Disproved	Remain Uncharted CONCUR see page ~~38~~ 45-46

T. REFERRAL TO REPORTS

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

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

APPENDIX III.
LIST OF HORIZONTAL CONTROL STATIONS

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

SPN	STATION NAME	GPN CODE K	LATITUDE DEG MN SEC	LONGITUDE DEG MN SEC	G-NB
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 52.68663	93 50 21.53021	
7	SABINE PASS JETTY CHAN RG F LT	9	29 41 31.54031	93 50 16.10654	
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	
20	TENN	5	29 45 13.60600	93 38 48.38100	
21	JANICE	5	29 46 35.92700	93 16 45.25900	
22	STEVE	5	29 43 52.58400	92 49 50.60300	
23	NANCY	5	29 46 25.35400	93 11 33.25000	
24	LEIGH	5	29 45 50.31600	93 20 32.32100	
25	MIKE	5	29 45 36.11400	93 7 29.17800	
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 4.51 PRE-SURVEY: CONTROL STATION TABL

Station No ? 101

No	Type	Lat	Lon	H	Cart	Freq	Vel	Code	MM/DD/YY
101	A	029:41:23.135	093:50:34.747	0	250	1646.7	299670	1	03/26/90
102	A	029:45:13.606	093:38:48.381	0	250	1646.7	299670	2	03/26/90
103	A	029:46:44.466	093:20:35.749	0	250	1646.7	299670	3	03/26/90
104	A	029:43:52.584	092:49:50.603	0	250	1646.7	299670	4	03/26/90

* Stations 101-104 were designated as ARGO station sites; names of these stations are listed below:

101 Tom (Code 1)
102 Tenn (Code 2)
103 Monk (Code 3)
104 Steve (Code 4)

NAVISOFT 300 4.51 PRE-SURVEY: CONTROL STATION TABL

Station No ? 401

No	Type	Lat	Lon	H	Cart	Freq	Vel	Code	MM/DD/YY
~~751~~	~~F~~	~~029:37:24.119~~	~~093:38:17.376~~	~~0~~	~~243~~	~~0.0~~	~~0~~		~~09/09/90~~
~~730~~	~~F~~	~~029:37:00.810~~	~~093:48:00.589~~	~~0~~	~~243~~	~~0.0~~	~~0~~		~~09/09/90~~
~~752~~	~~F~~	~~029:22:20.253~~	~~093:38:33.086~~	~~0~~	~~243~~	~~0.0~~	~~0~~		~~08/05/90~~
~~02~~	~~F~~	~~029:22:34.860~~	~~093:27:52.577~~	~~0~~	~~243~~	~~0.0~~	~~0~~		~~08/05/90~~
~~408~~	~~F~~	~~029:33:18.824~~	~~093:43:00.583~~	~~0~~	~~243~~	~~0.0~~	~~0~~		~~10/22/90~~
401	F	029:41:14.415	093:58:51.485	0	0	0.0	0	2	09/11/90
402	F	029:41:48.566	093:51:11.080	0	0	0.0	0	3	10/09/90
403	F	029:41:52.687	093:50:21.530	0	0	0.0	0	7	10/09/90
404	F	029:45:22.165	093:36:18.158	0	0	0.0	0	8	09/11/90

* Station 401-404 were designated as Mini-Ranger sites; names of these stations are listed below:

401 Chesson
402 Slick
403 Sabine Pass Jetty Channel Rear Range Light
404 Ocean

APPENDIX I.
DANGER TO NAVIGATION REPORT

One Danger to Navigation Report was submitted to the Eighth Coast Guard District Aids to Navigation Branch. This report covered an obstruction found during this survey while investigating AWOIS Item 7031. Copies of this report were forwarded to N/CG221 in accordance with Hydrographic Survey Guideline No. 66.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NOAA Ship RUDE
439 West York St.
Norfolk, VA 23510
December 04, 1990

Commander, Eight 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 a dangers to navigation in the vicinity of the Sabine Pass Channel. The hazard is a 250-foot long portion of a steel-hulled ship. This hazard is approximately .6 nm SE of Sabine Channel Jetty Light R "18." Attachments are included showing where this item 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.

CHART	POSITION	DATUM	LEAST DEPTH
11332	029° 38′ 28.044″ N 093° 48′ 46.430″ W	NAD 83	17 feet
11340	029° 38′ 28.044″ N 093° 48′ 46.430″ W	NAD 83	2.9 fathoms
11341	029° 38′ 28.044″ N 093° 48′ 46.430″ W	NAD 83	17 feet
11342	029° 38′ 28.044″ N 093° 48′ 46.430″ W	NAD 83	17 feet

Please include this information in the next Local Notice to Mariners. This work was completed under Project No. OPR-K454-RU-90. Any comments or questions on this matter can be referred to my Navigation Officer LT(jg) Rogers. He can be contacted at 804-441-6388 between 0800 - 1630 EST during weekdays. Future correspondence should be referred to NOAA Atlantic Marine Center, Hydrographic Surveys Branch phone 804-441-6746.

Sincerely,

LCDR Grady H. Tuell
Commanding Officer
NOAA Ship RUDE

LETTER OF APPROVAL

REGISTRY NO. FE-351-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 H. 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: Feb. 5, 1991

MARINE CENTER: Atlantic

OPR: K454

HYDROGRAPHIC SHEET: FE-351

LOCALITY: Louisiana, Inshore Approaches to Sabine

TIME PERIOD: September 12 - November 7, 1990

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

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.78 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 20 min time correction.

for Brian K. Gunn
CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-351 SS

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
MEXICO, GULF OF (title)										1
SABINE (title)										2
TEXAS (title)										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
					Approved:					15
										16
					Charles L. Harrington					17
					Chief Geographer - N/CG2x3					18
					NOV - 4 1992					19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

02/09/93

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-351SS

NUMBER OF CONTROL STATIONS	4
NUMBER OF POSITIONS	3707
NUMBER OF SOUNDINGS	13101

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	79	03/19/91
VERIFICATION OF FIELD DATA	152	09/18/91
ELECTRONIC DATA PROCESSING	106	
QUALITY CONTROL CHECKS	56	
EVALUATION AND ANALYSIS	44	11/24/92
FINAL INSPECTION	15	02/05/93
TOTAL TIME	452	

ATLANTIC HYDROGRAPHIC SECTION APPROVAL 02/08/93

NOAA FORM 61-27 (12-71)

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

REFERENCE NO.
N/CG244-21-92

LETTER TRANSMITTING DATA

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

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

TO:

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

DATE FORWARDED
10 Feb 1993

NUMBER OF PACKAGES
2 Boxes

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-351 SS (1990)

Texas, Gulf of Mexico,
Inshore Approaches to Sabine

Pkg. 1 Box
1 Original Descriptive Report containing 9 Final Smooth Sheets in Descriptive Report
1 Envelope containing 9 final position overlay plots and excess sounding overlay plots
2 Accordion file containing Fathograms, Side Scan Sonargrams, and Data Printouts, for VESNO 9040 for JD's--291, 295-296, 298-299, 302, 306, 309-311
4 Envelopes containing fathograms, side scan sonargrams, and data printouts for VESno 9040 for JD's--268, 284-285
3 Envelopes containing fathograms and data printouts for VESno 9040 for JD's--291, 297, 304

Pkg. 2 Box
4 Accordion file containing Fathograms, Side Scan Sonargrams, and Data Printouts, for VESNO 9040 for JD's--291, 295-296, 298-299, 302, 306, 309-311
1 Binder containing Data removed from original Descriptive Report
1 Cahier containing FINAL POSITION PRINTOUT
1 Cahier containing FINAL SOUNDING PRINTOUT and L-File
1 Envelope containing Supplemental Data

FROM: *(Signature)*
Norris A. Wike

RECEIVED THE ABOVE
(Name, Division, Date)
D. S. Clark
3-24-93

Return receipted copy to:

Atlantic Hydrographic Section, N/CG24411
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S.GPO:1983-0-664-006/1192

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: FE-351SS FIELD NO.: RU-20-3-90

Texas, Gulf of Mexico, Inshore Approaches to Sabine

SURVEYED: 12 September through 7 November 1990

SCALE: 1:20,000 PROJECT NO.: OPR-K454-RU-90

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

CONTROL: CUBIC WESTERN DM-54 ARGO (Range/Range)

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

Surveyed by.....J. E. Rix
.....R. R. Rogers
.....M. J. Oberlies
.....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.

b. Two (2) 1:10,000 scale page size smooth plots and seven (7) 1:20,000 scale page size smooth plots were generated during office processing and are attached to this report.

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., I., and T. of the Descriptive Report.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the survey datum and the North American Datum of 1927 (NAD27).

To place the 1:10,000 scale plots 6 and 9 of 9 on the NAD27 move the projection lines 0.820 seconds (25.24 meters or 2.52 mm at the scale of the survey) north in latitude, and 0.586 seconds (15.76 meters or 1.58 mm at the scale of the survey) west in longitude.

To place the 1:20,000 scale plots 1, 2, 3, 4, 5, 7, and 8 of 9 on the NAD27 move the projection lines 0.820 seconds (25.24 meters or 1.26 mm at the scale of the survey) north in latitude, and 0.586 seconds (15.76 meters or 0.79 mm at the scale of the survey) west in longitude.

b. There is no shoreline within the limits of the smooth plots.

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, standard depth curves could be drawn in their entirety.

c. The development of the bottom configuration and determination of least depths of items located and shown on the smooth plots is considered adequate.

4. CONDITION OF SURVEY

The smooth plots and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL and the FIELD PROCEDURES MANUAL.

5. JUNCTIONS

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

6. COMPARISON WITH PRIOR SURVEYS

H-8795 (1964) 1:40,000
H-8796 (1964) 1:40,000

The prior surveys listed above cover the present survey area in its entirety. Specific recommendations for individual AWOIS item investigations are appended to the hydrographer's recommendations for each item in the Descriptive Report. See pages 9-48 of the Descriptive Report.

7. COMPARISON WITH CHART 11330 (5th Edition, July 30/88)
11341 (32nd Edition, June 2/90)
11342 (42nd Edition, August 20/88)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and miscellaneous sources. Discussion of the charted items investigated are on pages 9-48 of the Descriptive Report.

The present survey is adequate to supersede/supplement the charted hydrography in the common areas.

b. Aids to Navigation

There are no fixed or floating aids to navigation in the areas surveyed.

8. COMPLIANCE WITH INSTRUCTIONS

This survey complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is an adequate survey; no additional field work is recommended.

Robert Snow
Cartographic Technician
Verification of Field Data

Robert G. Roberson
Supervisory Cartographer
Evaluation and Analysis

Leroy G. Cram
Supervisory Cartographic Technician
Verification Check

APPROVAL SHEET
FE-351SS

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the 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.

Date: 8FEB93

N. A. Wike
Cartographer
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.

Date: 8 February 1993

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°49'00"

93°48'00"

93°47'00"

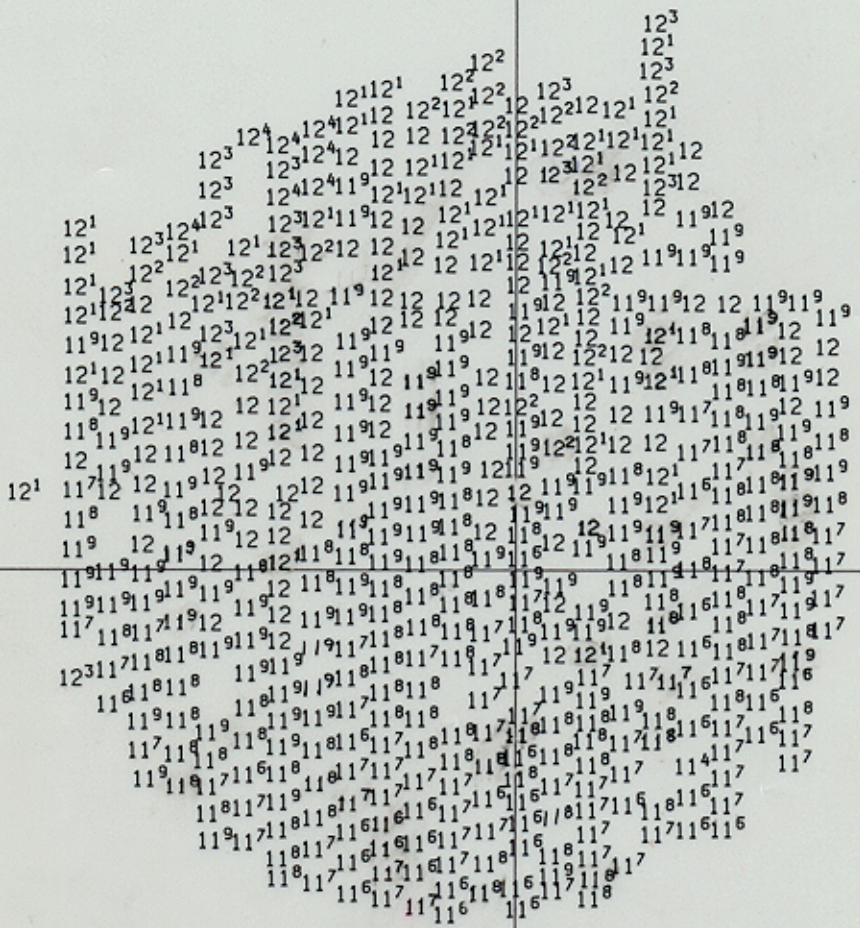
93° 47' 00"

29° 31' 00"

NAD 27

XYNETICS 1201

✓ RS 8-13-91



29°30'00"

FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
18,24,31, OCT.,1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 1 OF 9
AWOIS NUMBER 7010

29°29'00"

93°41'00"

93°40'00"

93°39'00"

29°33'00"

29°32'00"

9¹ *Obstr (steel cylinder)*

93° 40' 00"

NAD 27 — 29° 31' 00"

XYNETICS 1201

✓RS 8-13-91

29°31'00"

FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
25 SEPT., 1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 2 OF 9
AWOIS NUMBER 7011

93°44'00"

93°43'00"

93° 43' 00"

29° 33' 00"

NAD 27
XYNETICS 1201
✓RS 8-13-91

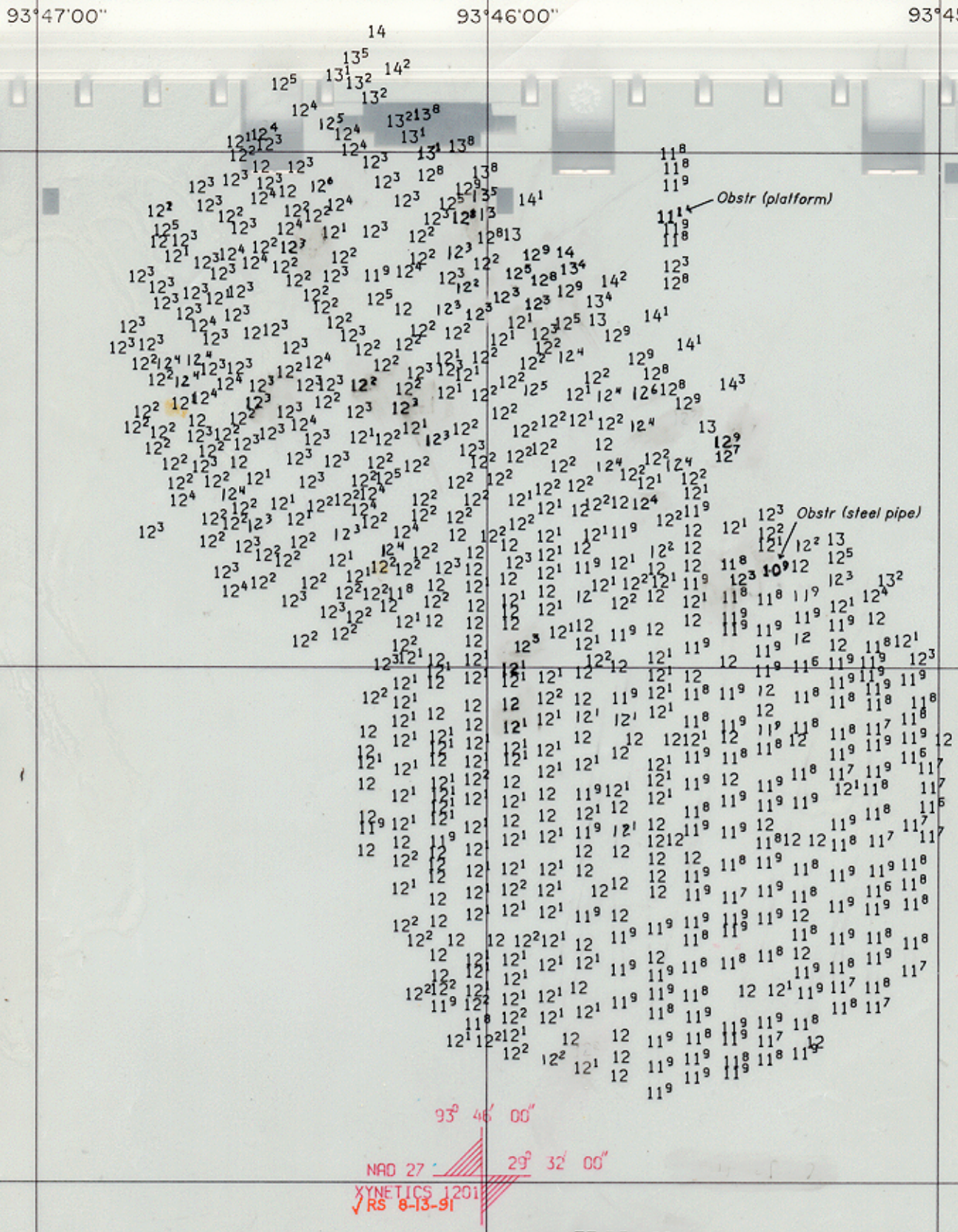
29°33'00"

29°32'00"

29°31'00"

g3 Obstr (platform)

FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
12,26 SEPT., 1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 3 OF 9
AWOIS NUMBERS 7012 AND 7013



FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
25,26 SEPT., 1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 4 OF 9
AWOIS NUMBER 7014,7016,7017

93°50'00"

93°49'00"

29°35'00"

10 WKY ("SS WILLIAM BEAUMONT")

29°34'00"

FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
25 SEPT., 1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 5 OF 9
AWOIS NUMBER 7018

93° 49' 00"

NAD 27 29° 33' 00"

29°33'00"

XYNETICS 1201
RS 8-14-91

93°41'30"

93°41'00"

93° 41' 00"

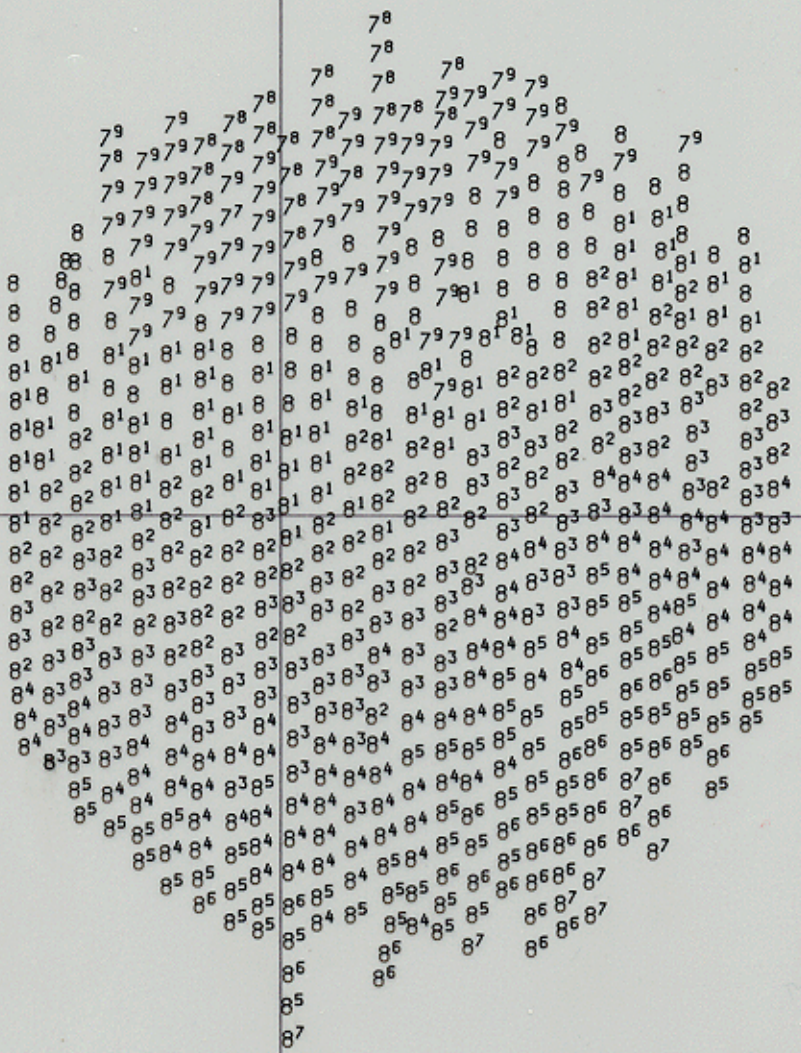
29° 41' 00"

NAD 27

XYNETICS 1201

✓RS 8-14-91

29°41'00"



29°40'30"

FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
11,12 OCT.,1990
SCALE 1: 10,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 6 OF 9
AWOIS NUMBER 7024

29°40'00"

93°49'00"

93°48'00"

93°47'00"

29°38'00"

29°37'00"

29°36'00"

93° 47' 00"

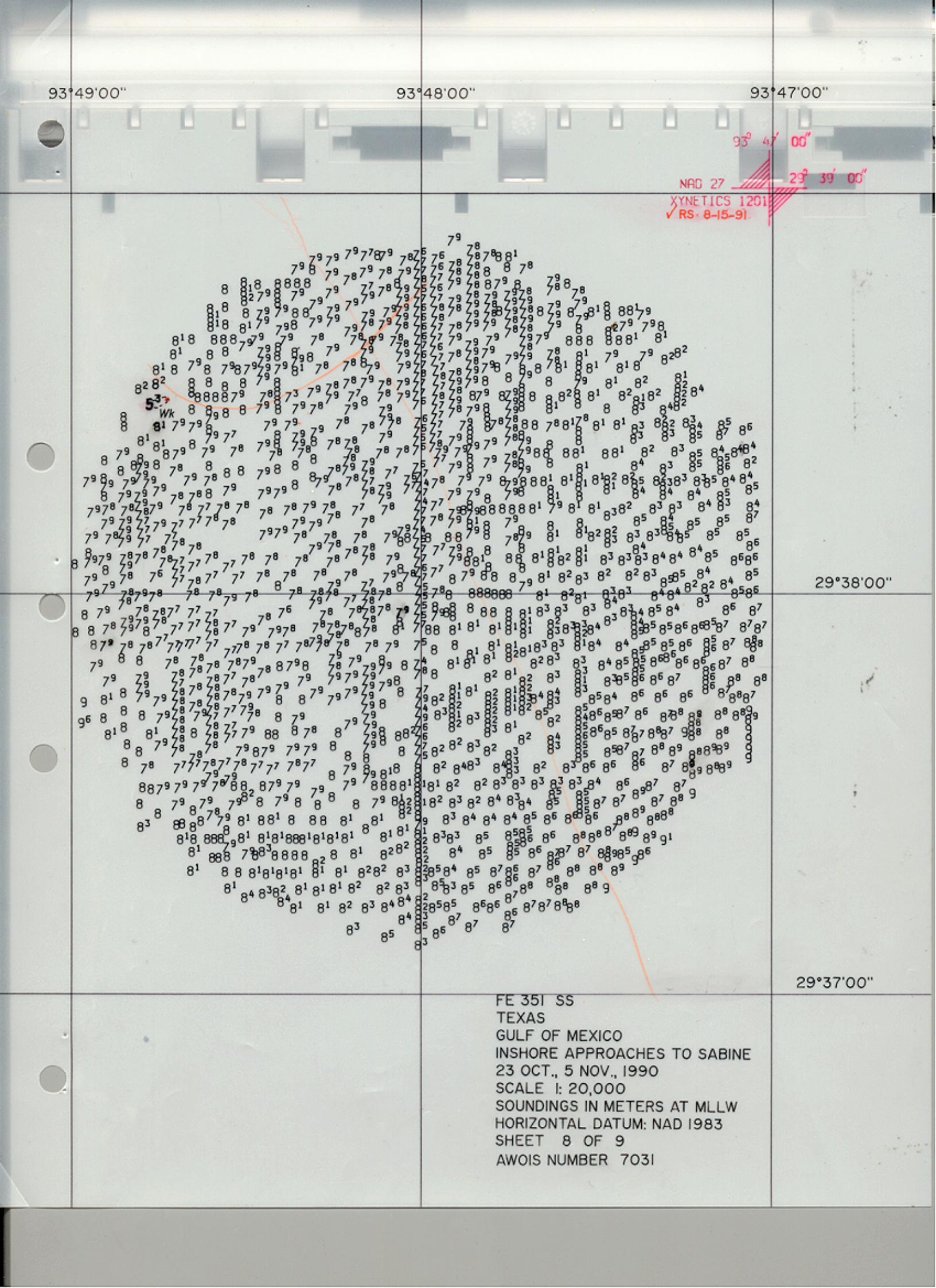
NAD 27

29° 36' 00"

XYNETICS 1201

✓ RS 8-15-91

FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
4,9,10,11, OCT., 1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM : NAD 1983
SHEET 7 OF 9
AWOIS ITEM NUMBER 7030



FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
23 OCT., 5 NOV., 1990
SCALE 1: 20,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 8 OF 9
AWOIS NUMBER 7031

93°38'30"

93°38'00"

93° 38' 00"

NAD 27

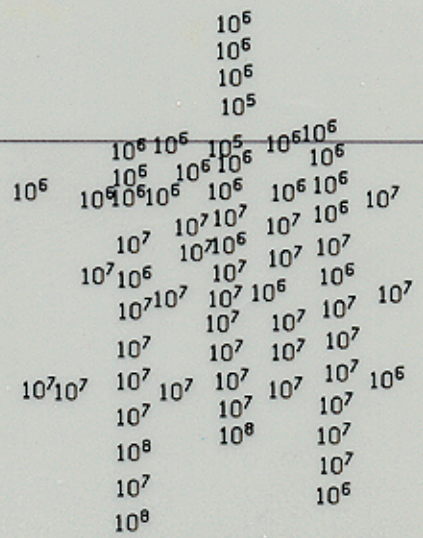
29° 38' 00"

XYNETICS 1201

√ RS 8-14-91

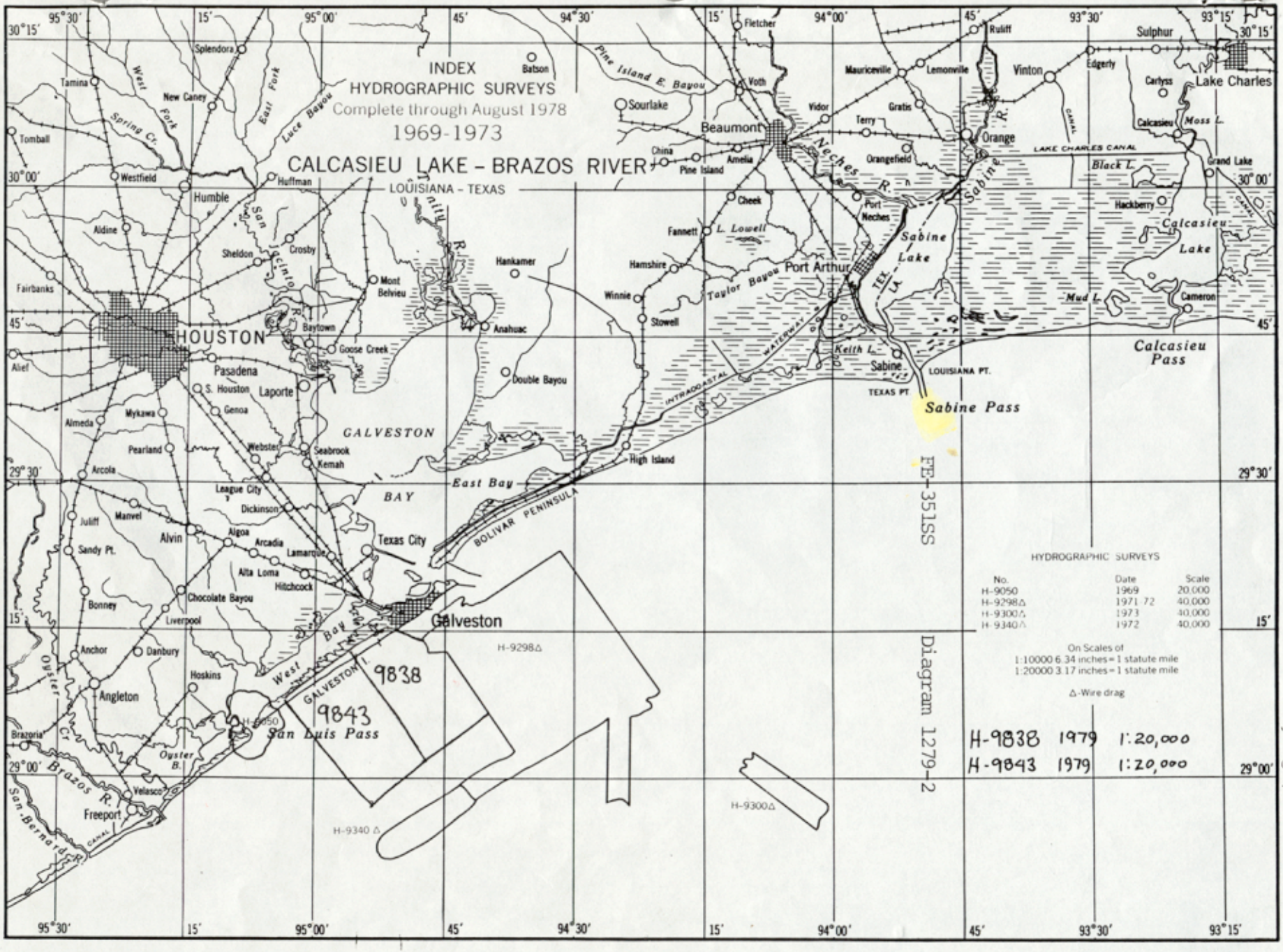
29°38'00"

29°37'30"



FE 351 SS
TEXAS
GULF OF MEXICO
INSHORE APPROACHES TO SABINE
II, OCT.,1990
SCALE 1:10,000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 9 OF 9
AWOIS NUMBER 7551

29°37'00"



FE-351SS

Diagram 1279-2

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

Hydrographic Index No. 89 G

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-351SS

INSTRUCTIONS

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

CHART	DATE	CARTOGRAPHER	REMARKS
11342	9/22/93	Paul Spence	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via PRIOR TO SIGNATURE
			Drawing No. 44, FULLY APPLIED
11332	11/30/93	[signature]	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via E
			Drawing No. 30, FULLY APPLIED
11341	5/18/94	R. A. Lillis	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 50
11340	10/6/94	Mark S. Tuffin	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. thru #50 11341
11330	11-16-94	JEFF TAYLOR	Full ~~Part~~ Before After Marine Center Approval Signed Via
			Drawing No. 9
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED