

H10574

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC/
SIDE SCAN SONAR**
Field No. **HE-20-2-94**
Registry No. **H-10574**

LOCALITY

State **TEXAS**
General Locality **GULF OF MEXICO**
Sublocality **18.3 NM SSE OF
GALVESTON BAY ENTRANCE**

19 94

CHIEF OF PARTY
..... **LCDR G. E. WHITE, NOAA**

LIBRARY & ARCHIVES

DATE **DEC 21 1996**

HYDROGRAPHIC TITLE SHEET

H-10574

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.

HE-20-2-94

State TEXAS

General locality GULF OF MEXICO

Locality 18.3nm SOUTHEAST OF GALVESTON BAY ENTRANCE

Scale 1:20,000

Date of survey 26 SEP 94 - 18 AUG 95

Instructions dated 08 JULY 1994

Project No. OPR-K353-HE

Vessel NOAA Ship HECK (EDP 9140)

Chief of party George E. White, LCDR, NOAA

Surveyed by LCDR George E. White, LT Gerd Glang, LT Brent Bernard, LTjg Larry Krepp
ENS James Crocker, ST Kevin Shaver, AST Richard Lee Swing

Soundings taken by echo sounder, ~~hand lead, etc.~~

Graphic record scaled by LTjg Larry Krepp, ST Kevin Shaver, AST Richard Lee Swing

Graphic record checked by ENS James Crocker

Protracted by N/A

Automated plot by ENCAD NovaJET Plotter (AMB)
HDAPS (Field)

Verification by Atlantic Hydrographic Section, N/CG244; Mason & Bland

Soundings in ~~fathoms~~ feet at MKW MLLW FEET

REMARKS:

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

AW015/SURP ✓ 11/14/96 SJ1

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29-30 N

29-00 N

94-00 W

94-30 W

95-00 W

OPR-K353-HE-94
APPROACHES TO GALVESTON, TX
LCDR George E. White, CMDG
NOAA Ship HECK
from Chart 11300

FE-418
HE-10-C-95

F

D

B

A

HE-20-2-94
H-10574

Helicopter Crash Site

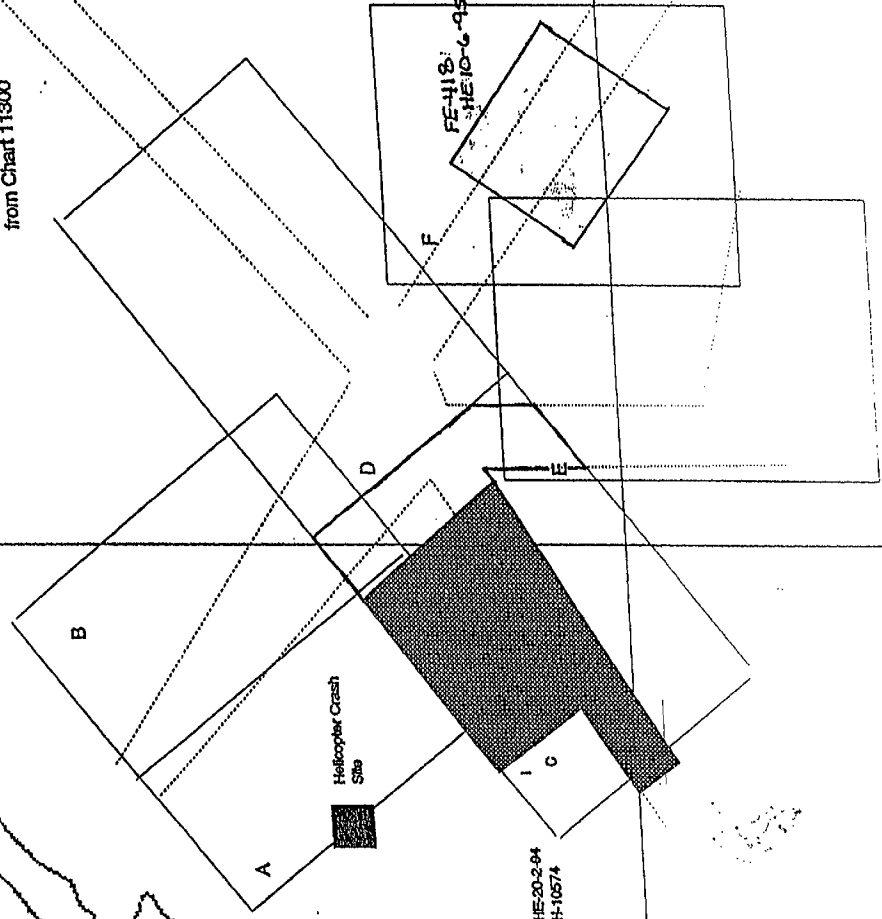
E

Galveston Bay

Gulf of Mexico

Galveston Island

Boiler Failure



DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY H-10574
FIELD NUMBER HE-20-2-94
TEXAS
GULF OF MEXICO
18.3 NM SOUTH SOUTHEAST OF GALVESTON BAY ENTRANCE, TEXAS
Scale 1:20,000
NOAA SHIP HECK S-591
LCDR George E. White, NOAA, CMDG.

A. PROJECT

1. This survey was conducted in accordance with Hydrographic Project Instructions OPR-K353-HE, Approaches to Galveston, Texas. Data was collected during the 1994 and 1995 field seasons.
2. Original Project Instructions are dated July 8, 1994.
3. Change One to the Project Instructions are dated June 9, 1995.
4. This sheet has been designated as Sheet "C". Due to the size of the survey area, Sheet "C" was split in two sections, "C-1" and C-2".
5. The purpose of this project is to accomplish complete side scan sonar coverage (200%, <20 meters of water and 100%, >20 meters of water) of the safety fairway and the fairway anchorages at the approaches to Galveston, Texas. The project area is traversed by vessels accessing the Galveston Bay and the Houston Ship Channel. The major ports of Houston and Galveston are the destination of much of the traffic converging on the Galveston Bay Entrance Channel. Galveston is prominent in commercial fishery landings, while both ports handle large volumes of petroleum products, chemicals, and grain. Tankers and cargo vessels are frequently anchored in the anchorage area to the northeast and southwest of the safety fairway.

B. AREA SURVEYED

1. The survey area, designated Sheet "C", surveyed in sections "C-1" and "C-2", lies in the Gulf of Mexico, 18.3 nm south southeast of the entrance to Galveston Bay, Texas. The survey area consisted only of the anchorage area and the safety fairway contained within the rectangle formed by the following points:

C-1

- a. LAT 28°57'00"N LON 094°35'36"W
- b. LAT 29°03'48"N LON 094°40'35"W
- c. LAT 29°11'00"N LON 094°28'00"W
- d. LAT 29°04'12"N LON 094°23'06"W

2. The approximate survey area is a polygon formed by connecting, in order, the following points:

C-1

- a. LAT 28°59'51"N LON 094°37'42"W
- b. LAT 29°01'27"N LON 094°38'54"W
- c. LAT 29°02'48"N LON 094°36'30"W
- d. LAT 29°05'12"N LON 094°38'12"W
- e. LAT 29°07'24"N LON 094°34'12"W
- f. LAT 29°03'30"N LON 094°31'24"W

C-2

- a. LAT 29°07'24"N LON 094°34'12"W
- b. LAT 29°11'00"N LON 094°28'00"W
- c. LAT 29°05'18"N LON 094°23'54"W
- d. LAT 29°03'42"N LON 094°23'54"W
- e. LAT 29°02'24"N LON 094°26'12"W
- f. LAT 29°06'24"N LON 094°26'12"W
- g. LAT 29°03'30"N LON 094°31'24"W

3. Survey operations for 1994 began on September 26 (DOY 269), and were completed on October 31 (DOY 304). Survey operations for 1995 began on June 13 (DOY 164), and were completed on August ¹⁷₁₈ (DOY ~~229~~²³⁰).

C. SURVEY VESSELS

1. All hydrographic and side scan data were collected by NOAA Ship HECK (EDP 9140). All offset and layback information is contained in the offset table located in section IV of the separates. **Data filed with original field records*

2. No unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING *See also Evaluation Report*

1. Survey data acquisition and processing were accomplished

utilizing HDAPS hardware and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24. A listing of actual programs and versions is appended in Appendix VI. **Data filed with original field records.*

2. Program Velocity (version 2.11) was used to determine velocity corrections.

3. No nonstandard automated acquisition or processing methods were used.

E. SONAR EQUIPMENT

1. HECK is equipped with an EG&G model 260 slant range corrected Side Scan Sonar (SSS) recorder and model 272 single frequency towfish. Serial numbers and dates of usage are as follows:

Towfish	S/N 10823	DOY 269-278 (1994)
	S/N 016989	DOY 278-294 (1994)
	S/N 016697	DOY 294-304 (1994)
Recorder	S/N 0011443	DOY 269-294 (1994)
	S/N 0010884	DOY 294-304 (1994)
Towfish	S/N 016697	DOY 164-229 (1995)
Recorder	S/N 0010884	DOY 164-229 (1995)

2. The beam width and down angle are not adjustable on this unit. The grazing angle dip switches are normally set to 01, unless otherwise noted on the sonargram.

3. All SSS data was collected using 100 Khz frequency.

4. a. Line spacing of 160 meters on the 100 meter scale, 110 meters on the 75 meter scale, and 80 meters on the 50 meter scale were used to maintain the required line overlap as determined by the equation in FPM 7.3.2.2.

b. Confidence checks were obtained, and annotated on the sonargrams, by towing the side scan unit either past known items or linear bottom features. A minimum of two confidence checks were obtained on a daily basis as required.

c. Required proof of sonar coverage is demonstrated through sonar coverage plots produced as HDAPS plots. Quality of bottom coverage to the outer edges of the sonargrams was assured during check scanning to the best of the hydrographer's ability.

d. No anomalies were observed.

e. The towfish was deployed from the stern. All offset and layback information is provided in the offset table located in section IV of the separates.*

5. Significant contacts, > 0.6 meters off the bottom, were further investigated by side scan sonar using a two to three pass "wagon wheel" pattern over the target. Diver investigations were conducted on items that were determined to be significant as a result of side scan sonar developments. Echosounder developments were performed on eight targets identified as shoals, discussed in section N5.

6. The sonar contact list (Side Scan Sonar Manual 3.1.1.1.) is provided through the HECK's side scan survey contact abstract table and the automated HDAPS contact printout that is produced during the computation and logging of contacts. Depths on HDAPS contact printout are raw, however, depths on the side scan survey contact list are manually corrected for draft (+2.1 meters). Both are located in the separates.*

Six separate contact tables were used for each survey sheet, "C-1" and "C-2", during this survey. In order to prevent confusion all items were identified using their position number. Some contacts have more than one target number from successive hits during 200% coverage, developments, and detached positions. In this case the targets plotted on top of each other, however, the recommended charting positions were derived from their DP's.

Annotations required by section 2.6 of the Side Scan Sonar manual (weather data and sea state) are on the sonargrams. Ship's speed and heading are located in the digital records and can be examined in the "Depth/Position Edit" sub-routine of the Post-Survey routine. Weather information is in the weather logs found in Appendix VI.*

F. SOUNDING EQUIPMENT

1. The following Raytheon DSF-6000N echosounders were used during this survey:

S/N A116N	DOY 269-304 (1994)
S/N A111N	DOY 164-170 (1995)
S/N A107N	DOY 170-171 (1995)
S/N A110N	DOY 171-193 (1995)
S/N A109N	DOY 193-229 (1995)

2. The MOD III Diver Held Least Depth gage was used to measure all diver least depths acquired during this survey. The divers least depth gage daily quality assurance log has been submitted with the survey data.

*Data filed with original field records

3. There were no equipment faults that affected the accuracy or quality of sounding data.

4. Both low and high frequency depths were digitized, but only high frequency depths were plotted.

G. CORRECTIONS TO ECHOSOUNDINGS

1. a.1. The following table shows dates and locations of velocity casts conducted using the ODOM Digibar sound velocimeter (S/N 168) during the 1994 field season and the Sea Bird SEACAT CTD (S/N:1251) during the 1995 field season.

1994 Field Season

<u>TABLE</u>	<u>DATE</u>	<u>LOCATION</u>
1	09/28/94 (DOY 271)	29°02'36"N 094°35'00"W
2	10/03/94 (DOY 276)	29°13'12"N 094°37'54"W
3	10/12/94 (DOY 285)	29°04'48"N 094°31'48"W
4	10/19/94 (DOY 292)	29°01'24"N 094°36'18"W
5	10/25/94 (DOY 298)	29°07'42"N 094°30'18"W

1995 Field Season

<u>TABLE</u>	<u>DATE</u>	<u>LOCATION</u>
6 1	06/13/95 (DOY 164)	29°08'07"N 094°28'14"W
7 2	06/19/95 (DOY 170)	29°07'42"N 094°32'24"W
8 3	06/28/95 (DOY 179)	29°08'54"N 094°31'18"W
9 4	07/10/95 (DOY 191)	29°08'06"N 094°33'42"W
10 5	07/19/95 (DOY 200)	29°08'48"N 094°31'18"W
11 6	08/04/95 (DOY 216)	29°04'54"N 094°37'42"W
12 10	08/18/95 (DOY 230)	29°09'48"N 094°29'42"W

The velocity cast data for the Digibar were reduced and velocity corrections calculated using program VELOCITY version 2.11. Data collected by the SEACAT was downloaded to a PC computer using the latest versions of the CAT program provided by the Nautical Charting Division. Data correctors were then generated using program VELOCITY version 2.11.

The Digibar was checked on December 14, 1992 and February 8, 1994 by ODOM and found to be functioning

correctly. Field checks using the prescribed fresh water method were accomplished prior to each cast and recorded on the velocity cast form.

The SEACAT CTD was calibrated on March 17, 1995 by SEA-BIRD Electronics, Inc and found to be functioning correctly. Field checks for the Sea Bird SEACAT CTD were conducted on each cast. The field check consisted in comparing the specific gravity of a surface sea water sample to surface measurements made by the SEACAT using the velocity program.

b. There are no variations in the instrument initial on the DSF-6000N.

c. There are no instrument correctors on the DSF-6000N.

d. On DOY 291 (1994), DOY 297 (1994), DOY 073 (1995), and DOY 221 (1995) dual leadline comparisons were conducted. A mean difference of less than 0.04 meter were obtained on all comparisons resulting in a corrector of 0.0 meter.

e. The computed velocity correctors were applied on line to echosounder depths (both high and low frequency) by entering the correction data into the HDAPS sound velocity table.

f. The static draft of 2.10 meters was applied on line to all echosoundings via the HDAPS offset table.

g. Settlement and squat values for NOAA'S HECK were determined on March 03, 1993 and again on March 15, 1995 in the vicinity of Craney Island fuel pier in Norfolk, Virginia using the level rod method. These correctors are on file at N/CG244 and are included in separates section IV.*

Settlement and squat values were applied on line to hydrographic soundings via the HDAPS offset table located in section IV of the separates.*

h. Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located midships near the transducer. The sensor gathers on line data which is applied to the soundings in near real time. All data have been corrected by applying HIPPY correctors.

2. No unusual methods or instruments for determination of correction to soundings were used.

*Data filed with original field records.

3. No zoning or special correctors were used.
4. The diver least depth gage was used during this survey and the daily quality assurance log is in separates section IV. Pneumogauge calibrations are provided in separates section IV. Any correctors are applied to the pneumogauge readings. * Data filed with original ~~Descriptive Report~~ field records
5. There were no unusual factors affecting DSF records.
6.
 - a. The tidal datum for this survey was mean lower low water (MLLW). The tide station at Galveston Pleasure Pier, Texas (877-1510) was the reference station. The station was inspected and opening and closing levels were run by HECK's crew during the 1994 field season. Opening and closing levels were not required per 1995 updated project instructions. No tide stations were established by HECK in support of this survey.
 - b. All hydrographic depths have been corrected for predicted tides. Zone correctors were specified in the project instructions. Tidal correctors were applied on line via the HDAPS predicted tide table. ~~Tides and zone~~ ^{Approved} ~~zoning~~ were applied during office processing
 - c. Zoning was in accordance with project instructions. No zoning was used.

H. CONTROL STATIONS See also Evaluation Report

1. The horizontal datum for this project is the North American Datum of 1983 (NAD 83).
2. Horizontal control was accomplished using GPS in conjunction with the DGPS beacons at Port Aransas, TX, Galveston, TX, and English Turn, LA. The Houston base station was used in conjunction with the STARFIX II DGPS system employed at the end of the 1994 field season.
3. Coast Guard DGPS beacons were positioned by N/CG241. All control stations were positioned to Third order, Class 1 standards.
4. No horizontal control stations were installed or maintained by HECK.
5. No horizontal control report has been submitted to NOAA Atlantic Hydrographic Section, N/CG244.
6. No known anomalies or unconventional methods of horizontal control were used.

I. HYDROGRAPHIC POSITION CONTROL

1. Position control was by Differential Global Positioning System (DGPS). Control station positions were entered into the HDAPS control station Table. The first, and most commonly used, was the Galveston beacon. The Port Aransas and English Turn beacons were also used for performance checks and occasionally for primary positioning. The list of the DGPS beacons and their positions appear in Appendix III, LIST OF HORIZONTAL CONTROL STATIONS submitted with this survey.

At the end of the 1994 field season the STARFIX II DGPS position receiver was employed. STARFIX II positioning system is privately owned and operated by John E. Chance and Associates. Differential correctors are calculated and transmitted to the STARFIX II receiver on the vessel via satellite from one of several GPS base stations. The Houston base station was monitored for differential correctors during the use of the STARFIX II system.

2. Accuracy requirements were met as specified by the Hydrographic Manual and Field Procedures Manual.

3. Equipment serial numbers appear as part of the header information on each day's data print out. The two GPS receivers on board are Ashtech OEM sensors (s/n 700417B1012 and 7004178B1195, both with version 1E11 D-P EPROMs). The differential receivers are Magnavox MX50R receivers. The serial number for DGPS receiver 1 is 079. The serial number for DGPS receiver 2 is 077.

4. The DGPS beacons used for this survey were the USCG beacons located at Galveston, TX (296 kHz) Port Aransas, TX (304 kHz) and English Turn, LA (293 kHz). The STARFIX II System used a satellite link to the Houston base station.

5. Performance checks using two DGPS positions (Galveston Port Aransas and English Turn) were conducted using the SHIPDIM program. These checks compare positions computed by both DGPS beacons and compare their subsequent position differences. The performance checks were sent to Atlantic Hydrographic Section N/CG244 as part of the data.

Quality control plots of the Houston Base station for STARFIX II were made by John E. Chance and Associates at Houston. The Q.C. plots were made using a Magnavox 4200 receiver with the differentials supplied via the STARFIX II satellite uplink. The Q.C. plots were sent to Atlantic Hydrographic Section N/CG244 as part of the data.

6. When Differential GPS was used, the maximum allowable

HDOP was set at 7.4 for the Galveston beacon and the Houston STARFIX II Base station, 6.0 for the Port Aransas beacon and 4.0 for the English turn beacon to avoid EPE's in excess of the allowable 30 meters for this scale survey. Data not meeting these requirements were examined and either accepted, smoothed or rejected.

7. a. No unusual methods of operating or calibrating electronic equipment were used.

b. On October 12, 1994 the Galveston DGPS beacon went down and stayed off line for the remainder of the 1994 field season. The English Turn DGPS beacon was initialized as the secondary beacon while Port Aransas was used as the primary beacon. The distance of these beacons to the survey area and poor weather conditions caused intermittent signal losses creating times when no differentials were received from either beacons. At these time all survey operations ceased until the signal returned and the HDOP and EPE values came within the survey specifications. To reduce the down time caused by this problem John E. Chance and Associates was contracted to provide differential correctors for DGPS positioning (Harold Foster 1-800-338-9178). The STARFIX II DGPS receiver system was installed on the HECK on October 26, 1994. This system was used for differential positioning for the remainder of the 1994 field season.

There were no significant problems with receiving the DGPS signal from either the Galveston or Port Aransas beacon during the 1995 field season.

c. No unusual atmospheric conditions were noted and did not effect our reception of the DGPS signals.

d. The positioning accuracy using the DGPS beacons was not compromised at all during the survey.

e. No systematic errors were discovered.

f. and g. All survey offsets were applied on-line using the HDAPS Offset Table 1. *Data filed with original field records.

J. SHORELINE

Not applicable as per project instructions.

K. CROSSLINES

1. The first and second 100% coverage were run perpendicular to each other. The second 100% is used as

crossline to compare it to the first 100%.

2. Comparison to mainscheme soundings showed fair agreement with random differences of 0.2 meters. A maximum difference of 0.4 meters was observed.

3. No significant discrepancies were noted.

4. When sounding equipment changes were made, the new echosounder was returned and adjusted as required.

L. JUNCTIONS *See also Evaluation Report*

This survey does not form any junction with any contemporary surveys.

M. COMPARISON WITH PRIOR SURVEYS *See also Evaluation Report*

The Atlantic Hydrographic Section HECK processing team is completing survey comparisons as agreed upon at the start of the 1994 field season.

N. ITEM INVESTIGATION REPORTS

N1. SUMMARY OF ITEMS INVESTIGATED

TGT #	SECTION	STATUS	RECOMMENDATION
51.40 (Tgt)	N2	Not Found	Do Not Chart <i>Concur</i>
518.25 (Tgt)	N2	Not Found	Do Not Chart <i>Concur</i>
590.32 (Tgt)	N2	Not Found	Do Not Chart <i>Concur</i>
1741.05 (Tgt)	N2	Not Found	Do Not Chart <i>Concur</i>
620.56 (Tgt)	N3	Found	Chart Obstruction <i>Concur</i>
2751.05 (Tgt)	N4	Found	Chart Wreck Obstruction <i>Concur</i>
751.58 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
754.70 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
755.70 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
764.33 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
765.20 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
769.45 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
782.45 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
804.05 (Tgt)	N5	Found Shoaling	Chart Sounding <i>Concur</i>
<i>AW015 8969</i>	<i>N6</i>	<i>Found</i>	<i>Chart Wreck Concur</i>

N2 CONTACT NO. 51.40, 518.25, 590.32, 1741.05

These contacts were found with side scan sonar and further developed during the 1994 field season. Diver investigations were not made on these before the end of the 1994 field season. The contacts were developed again with side scan sonar in 1995 prior to conducting diver investigations. None of the contacts developed in 1994 were found in the 1995 developments. No diver investigations were made. The hydrographer believes that these items, if originally

existing, were moved from their 1994 survey location by currents or shrimpers' nets. This phenomenon has been observed before in Gulf of Mexico coastal survey areas.

Recommendation: Do not chart. *Concur*

N3 CONTACT NO. 620.56

This contact is listed in contact table #3 with a computed height of 0.9 meters in 18.2 meters of water. The contact was further investigated on DOY 293 (1994) between fixes 1929 and 1936 with side scan sonar on the 75 meter range. A diver investigation was conducted on August 4, 1995 (DOY 216). Divers found a steel plate 12 feet long, 1/4 inch thick buried in the bottom and rising vertically 4 feet off the bottom. The least depth was determined from DP# 4956.

✓ DP# 4956

Date: August 4, 1995

Time (UTC): 1750

Measured Depth: 16.57 (Diver Least Depth Gage)

Actual Predicted Tide Corrector: -0.24

Corrected Least Depth: 16.37.2 (53ft)

*AWOIS #9834
SSV
11/2/96*

Recommendation: Chart obstruction with least depth of 16.37² (53.1ft) meters, based on *actual* predicted tides, at Latitude 29°04'51.622" N, Longitude 094°37'29.769" W. *Concur*

N4 CONTACT NO. 2751.05

This contact is listed in contact table #8 with a computed height of 2.4 meters in 16.3 meters of water. The contact was further investigated on DOY 202 (1995) between fixes 4777 and 4784 with side scan sonar on the 75 meter range. A diver investigation was conducted on August 18, 1995 (DOY 230). Divers found a V shaped piece of steel of what is believed to be the bow of a fishing boat and a winch motor 24 feet from the piece of steel. The least depth was determined from DP# 4993.

✓ DP# 4993

Date: August 18, 1995

Time (UTC): 1602 1645

Measured Depth: 17.28 (Diver Least Depth Gage)

Actual Predicted Tide Corrector: -0.17

Corrected Least Depth: 17.18 16.6 (54.5ft)

*AWOIS #9835
SSV
11/2/96*

Recommendation: Chart *obstr* wreck with least depth of 16.6 (54.5ft) meters, based on *actual* predicted tides, at Latitude 29°09'43.466" N, Longitude 094°29'25.248" W. *Concur*

N5 CONTACT DESCRIPTION

Contacts 751.58-804.05 listed in section N1 were chosen to position the location of an interesting bottom feature located by both side scan sonar and echosounder. The bottom feature was further developed by echosounder with 80 m line spacing, fixes 2038 - 2081 and determined to be a shoal feature. A bottom sample (DP# 4980) was collected on this feature during the 1995 field season. The bottom sample produced a mixture of ^{cks} fine brown sand, broken shells, and grey mud showing a slight texture difference from surrounding muds.

Recommendation: Replace charted soundings with soundings collected from this survey. *Concur*

0. COMPARISON WITH THE CHART *See also Evaluation Report*

1. The Atlantic Hydrographic Section HECK processing team is completing comparisons with current editions of the following NOS charts as agreed upon at the start of this project:

<u>CHART</u>	<u>EDITION</u>	<u>DATE</u>	<u>SCALE</u>
11300	33rd	NOV 94	1:460,732
11323	54th	AUG 94	1:80,000
11330	10th	DEC 94	1:250,000
11340	57th	SEP 94	1:458,596

2. No Danger to Navigation report ^{was} ~~were~~ submitted during the course of this survey.

3. a. The charted soundings are consistent with the survey depths.
- b. No shoaling or deepening has been observed except for area described in section N5. The depths from this survey should replace all prior depths in the area.
- c. No extraordinary hydrographic features were noted.
- d and e. The survey area did not contain maintained channels. The soundings measured in the safety fairway agreed with charted soundings with the exception of the shoal noted in section N5. These shoal soundings should be charted to more adequately define the bottom in the fairway.

4. There are no non-sounding features other than those mentioned in Section N in this survey.

⁶
No. AWOIS ITEM 8969

1. Area of Investigation

Reported Position:

Latitude: 29°06'33.00"N

Longitude: 094°24'03.00"W

Datum: NAD 83

Depth: 34 feet

Feature: Wreck

2. Description of Item

This item first appeared in LNTM 43/92 and is described as a dangerous submerged wreck of a 95' steel hulled vessel. Least depth 34' reported.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, diver investigation or 200% side scan sonar coverage over a 3000 meter search radius.

4. Method of Investigation

Within the survey area, the USCG had placed a maintained wreck buoy "B". Side scan sonar was run in the vicinity of the wreck buoy and the wreck was located.

5. Results of Investigation

On DOY 174 HECK divers investigated the item and found a 90' steel hulled rig tender boat lying upside down on the bottom. A least depth was taken with a diver held least depth gauge and the wreck was positioned by D.P. #3447. Water visibility was very good at the time of the dive and divers were assured that the shoalest depth was observed on the wreck. Survey depths in the area are 16.8 meters.

1312b 12b

D.P.: #3447

Date: 23 June 1995

Time (UTC): 1425

Average Measured Depth: 12.77m

Actual Predicted Tide Corrector: ~~-0.40m~~ .60

Corrected Least Depth: ~~12.37m~~ 12.2 m (40 ft)

LAT: 29°06'43.187"N

LON: 094°24'08.458"W

E: 67071.2

N: 40123.1

DATUM: NAD 83

Recommendation: Revise charted symbol from "Dangerous Wreck (34' rep)" to "Dangerous Wreck ⁴⁰" based on ^{actual} predicted tides. Revise charted position to reflect the present survey detached position. *Chart 40 wk.*

0. COMPARISON WITH THE CHART

Wrong Survey

1. The Atlantic Hydrographic Section HECK Processing Team is completing comparisons with current editions of the following NOS charts as agreed upon at the start of this project.

<u>CHART</u>	<u>EDITION</u>	<u>DATE</u>	<u>SCALE</u>
11300	33rd	19 Nov 94	1:460,732
11323	54th	20 Jun 92	1:80,000

The survey limits fall within all of the charts listed above, which were compared to FE-418.

2. No danger to navigation reports were filed with this survey.

3. a. The charted soundings compare favorably with depths of the present survey.

b. No trend, shoaling or deepening, is evident within the survey area. Despite assertions of shoaling in the safety fairway south of Heald Bank, made by the ships masters mentioned in the AWOIS items, the hydrographer sees no evidence of a bank migrating into the fairway from the north. There does appear to be a general rise of the bottom approaching from seaward which is likely related to the bank structure to the north, but no unusual shoaling conditions exist.

12
44C

5. No changes are recommended to scale coverage or format of published charts within the survey area.

P. ADEQUACY OF SURVEY *See also Evaluation Report*

1. This survey meets or exceeds 1:20,000 specifications, and is adequate to supersede all prior surveys for the purposes of charting the depths and hazards to navigation within the survey area.

2. No portion of this survey has been identified as substandard or incomplete.

Q. AIDS TO NAVIGATION *See also Evaluation Report*

1. No correspondence was initiated with the Coast Guard regarding floating aids to navigation.

2. There were no floating aids to navigation located within the survey area.

3. There are seven platforms and one mooring buoy within the survey area. They have been positioned by the following detached positions (see attached pictures for some examples of these structures).

✓ DP #4979

Platform WOG-GA-239-1

LAT: 29°01'09.260"N LON: 094°39'38.582"W

E: 41907.6 N: 29854.4

DATUM: 1983

DP position and platform name agree with charted platform. *Concur*

DP #4984

Platform 210-A

LAT: 29°05'51.310"N LON: 094°36'19.857"W

E: 47294.9 N: 38530.8

DATUM: 1983

DP position and platform name agree with charted platform. *Do not Concur.*
Charted name is AHC-GA-210-2

DP #4986

Jack-up Platform GA-209-A

LAT: 29°07'48.849"N LON: 094°32'46.679"W

E: 53061.5 N: 42144.6

DATUM: 1983

DP position and platform name agree with charted platform. *Concur*

DP #4987

Platform HI-208-A

LAT: 29°07'24.256"N LON: 094°30'30.617"W

E: 56739.3 N: 41385.8

DATUM: 1983

This platform is charted as two separate platforms located next to each other. Recommend removing platforms from chart and charting a platform at the DP position. *Do not concur. See Section 9 of the Evaluation Report*

DP #4988

Platform HI-207-A

LAT: 29°07'40.039"N LON: 094°28'03.169"W

E: 60725.3 N: 41871.3

DATUM: 1983

DP position and platform name agree with charted platform. *Do NOT concur. Charted name is EAOI-HI-207-A*

DP #4989

Platform HI-194-JA

LAT: 29°07'46.194"N LON: 094°28'01.216"W

E: 60778.1 N: 42060.8

DATUM: 1983

DP position and platform name agree with charted platform. *concur*

DP #4990

Platform HI-193-A

LAT: 29°09'21.325"N LON: 094°29'40.394"W

E: 58097.6 N: 44989.8

DATUM: 1983

DP position and platform name agree with charted platform. *Do NOT concur. Charted as Platform*

DP #4992

Mooring buoy

LAT: 29°09'30.750"N LON: 094°30'05.532"W

E: 57418.3 N: 45280.1

DATUM: 1983

The mooring buoy is uncharted. Recommend charting white buoy (priv) at DP position *Do not concur. See Evaluation Report Section 9.*

4. There are no bridges or tunnels within the survey area.

5. No submarine cables, or ferry routes were noted within the survey area. Three submarine pipelines run through the survey area. Positions of the submarine pipelines observed during this survey agreed with charted submarine pipeline positions.

6. There are no uncharted ferry terminals within this survey area.

R. STATISTICS

<u>ITEM</u>	<u>AMOUNT</u>
a. Square NM Hydrography	62.7 NMI ²
b. Days of Production	46 Days
c. Detached Positions	21
d. Bottom Samples	10
e. Tide Stations Established	None
f. Current Stations Established	None
g. Velocity Casts Performed	12 Casts
h. Magnetic Stations Established	None

S. MISCELLANEOUS

See also Evaluation Report

1. a. The water in this area of the Gulf of Mexico is silty which results in a muddy bottom type.
- b. No unusual submarine features were noted.
- c. No unusual tide conditions were observed.
- d. No unusual current conditions were observed.
- e. No magnetic anomalies were noted.
2. Ten bottom samples were taken during the course of this survey as per project instructions. Bottom types are the same as those charted. Bottom samples were not sent to the Curator, Division of Paleobiology, Smithsonian Institution.

T. RECOMMENDATIONS

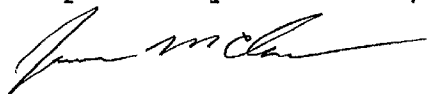
1. No additional field work is recommended.
2. No salvage or dredging operations should affect this survey.
3. No further investigation of unusual features or sea conditions is recommended.

U. REFERRAL TO REPORTS

1. A User Evaluation Report was submitted to N/CG241 and N/CG244 at the end of the project.
2. A Coast Pilot Report was submitted to N/CG244 and N/CG222 at the end of this project.
3. No horizontal control report or electronic control report will be submitted for this survey.

SUBMISSION

Respectfully Submitted,



James M. Crocker, ENS, NOAA
NOAA Ship HECK

LETTER OF APPROVAL

Field operations contributing to the accomplishment of this survey were conducted under my direct supervision with daily personal checks of progress and data quality. This report, field sheets, and data records have been closely reviewed and are complete and adequate for charting.

George E. White

George E. White, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

CONTROL STATIONS as of 22 Sep 1995

No	Type	Latitude	Longitude	H	Cart	Freq	Del Code	MM/DD/YY	Station Name
1		027:50:18.156	097:03:32.646	0	0	0.0	0.0	09/26/94	PORT ARANSAS DGPS STATION
2		029:19:45.090	094:44:10.482	0	0	0.0	0.0	09/26/94	GALVESTON DGPS STATION
3		025:52:44.000	089:56:31.000	0	0	0.0	0.0	09/26/94	ENGLISH TURN DGPS STATION
4		029:35:04.361	095:30:10.783	0	0	0.0	0.0	10/26/94	STARFIX II HOUSTON BASE STYE

GEOGRAPHIC NAMES

H-10574

Name on Survey

A ON CHART NO. 11323, 11330, 11340
 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

Name on Survey	A	B	C	D	E	F	G	H	K	
GALVESTON BAY ENTRANCE	X		X							1
CHANNEL (title)										2
MEXICO, GULF OF	X		X							3
TEXAS (title)	X		X							4
										5
										6
										7
										8
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Approved

Charles C. Long
Chief Geographer

APR 29 1996

11/01/96

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10574

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	4993
NUMBER OF SOUNDINGS	30633

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	110	09/20/95
VERIFICATION OF FIELD DATA	120	10/03/96
QUALITY CONTROL CHECKS	22	
EVALUATION AND ANALYSIS	34	
FINAL INSPECTION	4	10/17/96
COMPILATION	29	10/31/96
TOTAL TIME	319	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		10/29/96

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10574 (1995)**

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Hydrographic Processing System (HPS)
NADCON, version 2.10
AutoCAD, Release 12
QUICKSURF, version 5.1
MicroStation, version 5.0
I/RAS B, version 5.01

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

H. CONTROL STATIONS

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

To place this survey on the NAD 27 datum move the projection lines 0.873 seconds (26.880 meters or 0.269 mm at the scale of the survey) north in latitude, and 0.675 seconds (18.252 meters or 0.182 mm at the scale of the survey) west in longitude.

All geographic positions listed in this report are on NAD83 datum unless otherwise specified.

L. JUNCTIONS

There are no junctional surveys. Present survey depths are in harmony with the charted hydrography in the junctional areas.

M. COMPARISON WITH PRIOR SURVEYS

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

O. COMPARISON WITH CHART 11323 (54th Edition, Aug 6/94)
11300 (33rd Edition, Nov 19/94)

The hydrographer makes adequate chart comparisons in Sections N. and Q. of the Descriptive Report. The following should be noted:

1) The charted Dumping Ground (discontinued) in Latitude 29°05'00"N, Longitude 94°35'00"W, was not completely investigated by the present survey. It is recommended that charted depths within the limits be updated to reflect the findings of the present survey and that the limits be retained as charted but that the note be changed to read Depths from surveys of 1979 and 1994.

2) A charted unknown obstruction, PA with a danger curve in Latitude 29°07'48.849"N, Longitude 94°32'46.679"W was partially investigated during present survey operations. No indication of the obstruction was found in the charted location and it is certain that the obstruction is not in the charted location. The entire search radius of this item was not investigated because it did not fall within the survey limits of this sheet, therefore the item cannot be taken off the chart. It is recommended that there be no change in charting at this time.

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

P. ADEQUACY OF SURVEY

3. This is an adequate side scan sonar survey; no additional field work is recommended.

Q. Aids to Navigation

3. The platform located in Latitude 29°05'51.310"N,

*AWOLs #
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11/21/96
Canting...
see 2/14/96
for
salvage
documentation
551
11/4/96*

Longitude 94°36'19.857"W is addressed in the Descriptive Report as 210-A but shown on the chart as HC-GA-210-2. The platform located in Latitude 29°07'40.039"N, Longitude 94°28'03.169"W is addressed in the Descriptive Report as EXXON-HI-207-A but shown on the chart as EAOI-HI-207-A. The platform located in Latitude 29°09'21.325"N, Longitude 94°29'40.394"W is addressed in the Descriptive Report as EXXON-HI-193-A but is shown on the chart as Platform. The platform located in Latitude 29°07'24.256"N Longitude 94°30'30.617"W is addressed in the Descriptive Report as ELF-HI-208-A but is also shown on the chart as Platform. It is recommended that these names be further investigated during compilation in Silver Spring, MD and that a decision be made there as to whether the names should be changed on the chart.

In the vicinity of Latitude 29°07'24.256N, Longitude 94°30'30.617"W two platforms are charted. The field found one of the charted platforms in the above location, but they found an obstruction in the location of the second charted platform. It is recommended that the platform charted in Latitude 29°07'24.256N, Longitude 94°30'30.617"W remain as charted, but that the platform charted in Latitude 29°07'26.893N, Longitude 94°30'28.516"W be removed from the chart. It is further recommended that a 44ft sounding on an obstruction, with a danger curve be charted in Latitude 29°07'26.893N, Longitude 94°30'28.516"W.

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The field recommends that an uncharted privately maintained mooring buoy located in Latitude 29°09'31.311"N Longitude 94°30'06.709"W be charted. This buoy is not listed in the light list, so it is not recommended that it be charted, unless subsequent data indicates otherwise.

S. MISCELLANEOUS

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

HECK PROCESSING TEAM

Douglas V. Mason
Douglas V. Mason
Cartographic Technician
Verification of Field Data

Deborah A. Bland
Deborah A. Bland
Cartographer
Evaluation and Analysis

APPROVAL SHEET
H-10574

Initial Approvals:

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



Date: 10-29-96

Robert G. Roberson
Chief, Cartographic Section

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



Date: 10-29-96

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

Final Approval:

Approved: 

Date: Dec 16, 1996

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

