

H12058

NOAA FORM 76-35A  
U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE

## DESCRIPTIVE REPORT

Hydrographic Multibeam & 200% Sidescan

Type of Survey: \_\_\_\_\_

Field No. : Sheet A

Registry No. : H12058

### LOCALITY

State: Texas

General Locality: Approaches to Galveston

Sublocality: Approaches to South Sabine Lightering Area, Zone 1 West

2009

CHIEFS OF PARTY  
Scott Croft, Joseph Burke

### LIBRARY & ARCHIVES

DATE: \_\_\_\_\_

**HYDROGRAPHIC TITLE SHEET**

State: Texas

General Locality: Approaches to Galveston

Locality: Approaches to South Sabine Lightering Area, Zone 1 West

Scale: 1:20,000 Date of Survey: April 2009 to May 2009

Instructions Dated: March 13,2009 Project Number: OPR-K159-KR-09

Vessels: Inez McCall

Chiefs of Party: Scott Croft, Joseph Burke

Surveyed by: J.Baker, C. Taylor, K. Williams, J. White, T. Mallett, R. Ledford, J. Maslak, B. Davis

Soundings taken by echosounder, hand lead line, or pole: Simrad EM3002 Multibeam Echosounder

Graphic record scaled by: N/A

Graphic record checked by: N/A

Protracted by: N/A Automated plot by: HP 1055 Plotter

Verification by: C&C Technologies Personnel

Soundings in: Feet: X Fathoms:          Meters:          at MLW:          MLLW: X

***H-Cell units in ft at MLLW***

**Remarks:** Multibeam Hydrographic Survey of Sheet A  
Data collection in meters, referenced to MLLW, later converted into feet  
200% side scan sonar coverage  
UTC time was used exclusively  
Tidal Zones: WGM 292, 293, 294, 304, 305  
Tidal Station: 8771510 (Galveston Pleasure Pier, TX)

***Bold, Red, Italic notes in the DR were made during office processing***

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<i>Appendix VI</i>	<i>AWOIS</i>

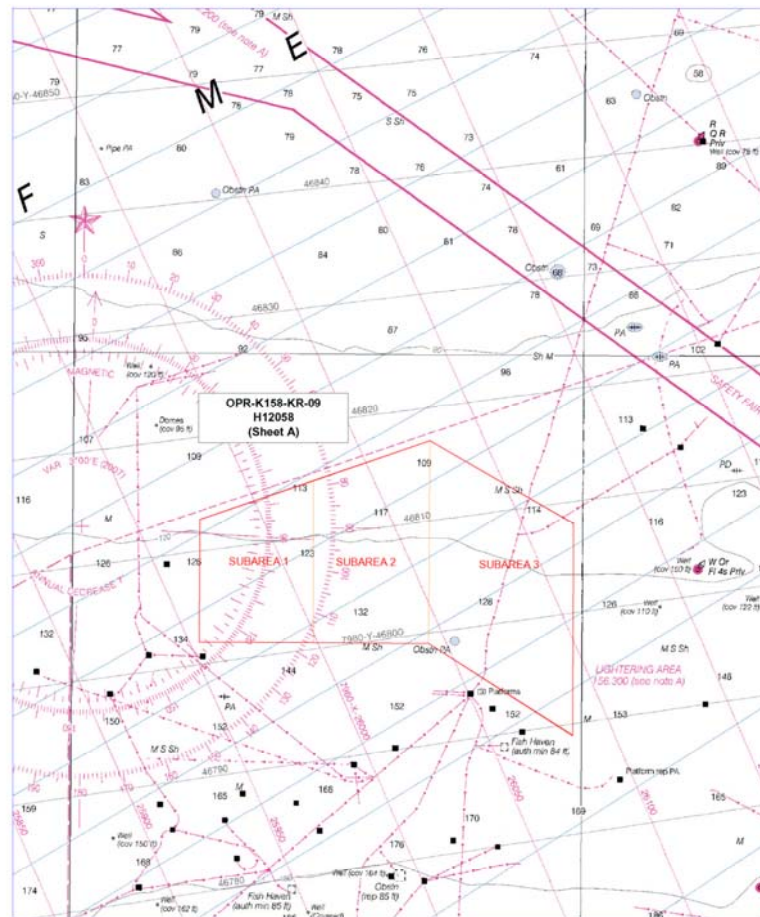
## **\*SEPARATES**

Separates I	Acquisition and Processing Logs
Separates II	Sonar Contact Table Side Scan Data Reproductions Correlator Sheets
Separates III	Sound Velocity Profile Data
Separates IV	Statement of Work
Separates V	Crossline Comparisons

*\*Included as part of AHB H-Cell deliverables.*

## A. AREA SURVEYED

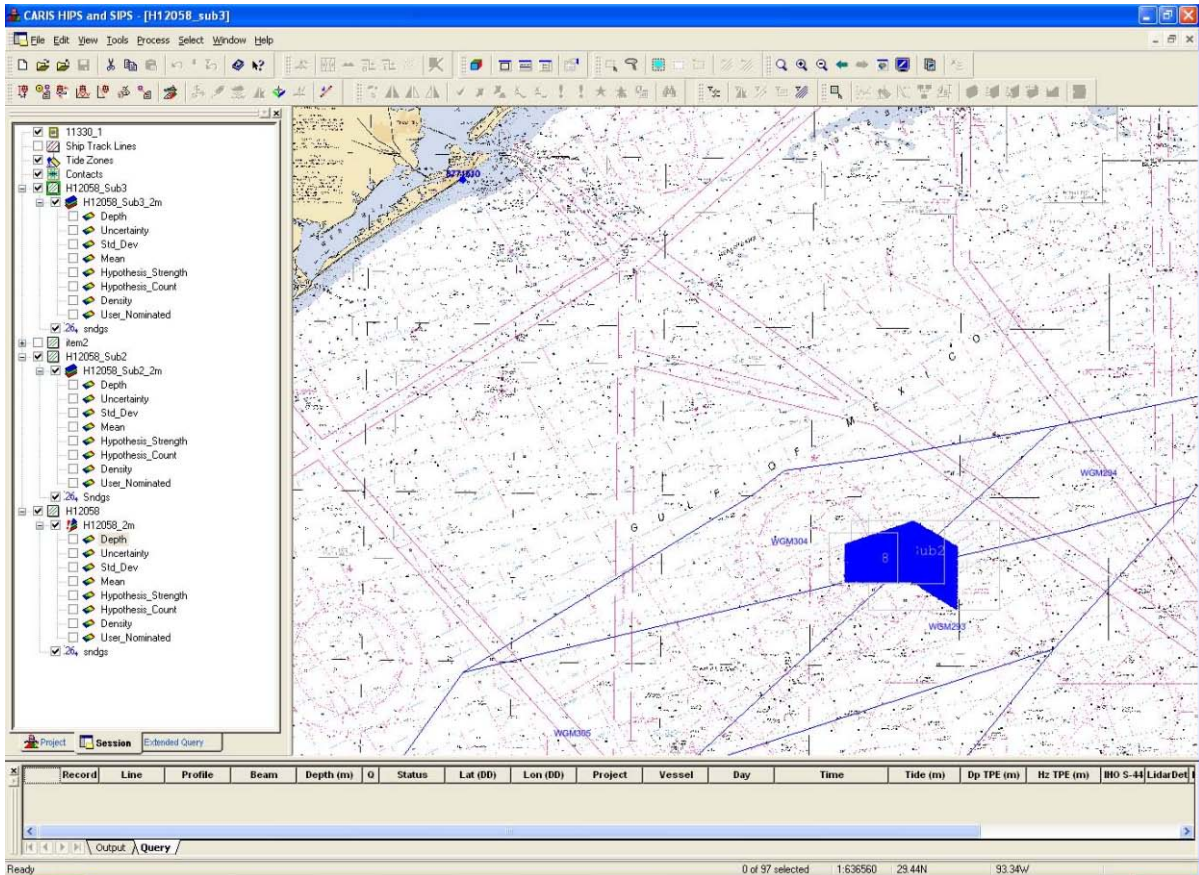
The survey area is located south of Galveston and Sabine Safety Fairway in the Gulf of Mexico. The following sketch shows the layout of Sheet A (H12058) of Project (OPR-K158 9-KR-09) and. Water depths in the survey area range from 77.9 feet to 159.7 feet Mean Lower Low Water (MLLW).



# Descriptive Report to Accompany Hydrographic Survey H12058



The survey area was broken down into three sub-areas to allow for more efficient data processing and data management. The sub-areas were defined based on the predicted data set sizes prior to survey commencement. Subarea 1 is split by tidal zones WGM304 and WGM305. Subarea 2 is split by tidal zones WGM293, WGM294, and WGM304. Subarea 3 is split by tidal zones WGM293 and WGM294. Tidal data from the Galveston Pleasure Pier tide station (8771510) was used to process all of the tidal data. The following sketch shows the layout of the tidal zones and subareas.



## B. DATA ACQUISITION AND PROCESSING

### B.1 EQUIPMENT

System	Manufacturer	Model
Multibeam Sonar	Simrad	EM3002
Side Scan Sonar	Klein	5000
Single Beam Sonar	Echotrac	3200
Motion Sensor (Inez McCall)	POS MV	
Primary Positioning System	CNAV	2050
Secondary Positioning System	CNAV	2050
Sound Speed at Transducer	Endeco	YSI
Sound Velocity Profiler	Seabird	SBE19

See *\*Data Acquisition and Processing Report* for a detailed description of the equipment used for hydrographic operations.

The *M/V Inez McCall*, a 33.5-meter vessel, conducted all survey operations for this project. The vessel is 7.5 meters wide with an approximate draft of 2.75 meters. A central reference point was established prior to the survey from which all relevant offsets were measured. Relevant offsets are presented in the following table where X is positive forward, Y is positive starboard, and Z is positive down.

	EM3002 Head	Side Scan Sonar Towpoint	Port POS/MV Antenna	Starboard F180 Antenna	POS/MV MRU
X/Y Offset	14.80 m	-17.976 m	2.99 m	3.044 m	14.976 m
Y/X Offset	0.0 m	0.0 m	-0.971 m	0.965 m	0.0 m
Z Offset	2.475 m	-2.722 m	-6.50 m	-6.478 m	-1.205 m

Detailed vessel diagrams and patch test results are presented in the *\*Data Acquisition and Processing Report*.

*\*Included as part of AHB H-Cell deliverables.*



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## B.2 QUALITY CONTROL

In order to most efficiently carry out this survey, the survey lines were oriented roughly east-west in subareas 1 and 2, and southeast-northwest in subarea 3. Line spacing of 150 meters was used throughout the survey area. The side scan sonar was operated at a 150 meters per channel range depending upon the local line spacing. This line spacing/range combination was decided upon during the initial planning stage of the survey, at which time it was clear that every effort should be made to clear the entire survey area for use by deep draft vessels in as short a time period as possible. The criteria of 200 percent side scan coverage using Technique 1 as set forth in Section 6.1 of the “Specifications and Deliverables” document was met for the majority of the survey. Used in tandem with the multibeam coverage, the final survey data set provided ample coverage for this purpose of the survey. The angular sector on the multibeam was set so that the criterion of two times water depth, as well as all accuracy, resolution, and detection criteria as set forth in Sections ~~5-2~~ **5.1.2** and ~~5-3~~ **5.1.3** of the “Specifications and Deliverables” document, were met.

The internal consistency of the multibeam depth values is quantified in the cross line statistics that were performed at the end of each main line. Cross lines were run prior to the collection of main line data so that quality control statistics could be performed on the data after each line. Based on pre-plot calculations, the total cross line miles was 123.8 nm, while the total main line miles was 2240.4 nm. The cross lines comprised about 5% of the total data set as compared to the main scheme lines. Rerun line miles are not included in these totals. As can be seen in the sample statistics found in \*Separates V, the main lines and cross lines depth values showed very good agreement. Each main line was compared to all cross lines for which there was overlapping data. The graphs shown in \*Separates V are a random sample of the graphs that were produced. The graphs show the mean difference, RMS difference, and confidence interval for each beam. The



results show that the multibeam data was repeatable with 90% of the soundings within about 10 to 20 centimeters across the swath.

Multibeam quality control procedures are outlined in Section B.1 of the accompanying *\*Data Acquisition and Processing Report*.

Sheet A (H12058) adjoins with Sheet B (H12059), which was submitted in conjunction with Sheet A.

*\*Included as part of AHB H-Cell deliverables.*

**B.3 CORRECTIONS TO ECHO SOUNDINGS**

No deviations from the Correction to Echo Soundings section in the *\*Data Acquisition and Processing Report* occurred.

*\*Included as part of AHB H-Cell deliverables.*

**C. VERTICAL AND HORIZONTAL CONTROL**

Tide and water level corrections were determined and applied in accordance with Attachment #7 of the *\*Statement of Work*. Data from Galveston Pleasure Pier, TX (8771510) were used. The following table shows the tidal zone and correctors that were used for this sheet. Tidal data were processed using the 1983-01 epoch.

Tide Zone	Reference Station	Time Corrector (min)	Range Ratio
WGM294	8771510	0	0.86
WGM293	8771510	6	0.81
WGM292	8771510	6	0.76
WGM304	8771510	0	0.86
WGM305	8771510	0	0.81

The horizontal datum for the survey is the North American Datum of 1983 (NAD 83). The projection is Universal Transverse Mercator (UTM) Zone 15 North. The vertical datum for the soundings is Mean Lower Low Water (MLLW).

*\*Submitted with original field records*



## D. RESULTS AND RECOMMENDATIONS

### D.1 CHART COMPARISON

#### D.1.1 CHARTS AND NOTICES TO MARINERS

The following charts were used for comparison purposes.

Chart Number	Scale	Edition	Edition Date
1116A	1:458,596	73	Aug 08
11330	1:250,000	19	Aug 08
11340	1:458,596	73	Aug 08

The Local Notices to Mariners were reviewed beginning with Notice 09/09 dated March 4, 2009 through Notice Number 19/09 dated May 13, 2009. During this time, there were three local notice to mariners changes listed for these charts within the survey bounds.

In LNM 08/118<sup>th</sup> district, an add Symbol: “Dangerous Wreck (PA)” (Rig) (CGD8 049-09) at 28°34’55.8”N, 093°43’45.6”W was listed. This notice refers to the wreck of ENSCO 74. In LNM 08/128<sup>th</sup> district, an add lighted buoy “WR”, QR, Red at 28°34’52.978”N, 093°43’47.128”W was listed. This buoy was placed at the location of the wreck. This wreck is discussed in further detail in section D.1.5, item 1.

In LNM 08/118<sup>th</sup> district, an add submarine pipeline, starting at 28°32’29.095”N, 093°41’59.385”W and ending at 28°26’54.122”N, 093°42’19.974”W was listed for charts 11330, 11340, and 1116A.



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### D.1.2 CHARTED SOUNDINGS

#### 11330

Survey soundings and charted soundings show good correlation. Survey soundings and charted soundings matched within +/- 2 feet. **Concur.**

#### 11340

Survey soundings and charted soundings show good correlation. Survey soundings and charted soundings matched within +/- 1 fathom. **Concur.**

#### 1116A

Survey soundings and charted soundings show good correlation. Survey soundings and charted soundings matched within +/- 1 fathom. **Concur.**

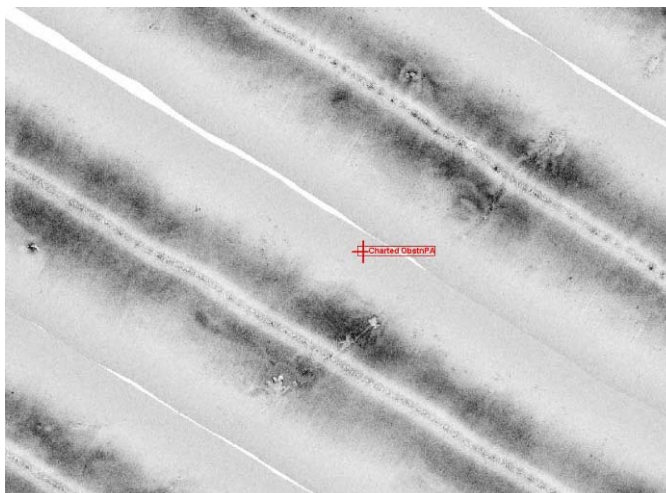
### D.1.3 SHOALS AND HAZARDOUS FEATURES

The purpose of this survey was to locate hazardous features within the Lightering Zone following the collision of an oil tanker and the wrecked hull of ENSCO 74. ENSCO 74 was wrecked and lost during Hurricane Ike.

There are several large pieces of debris within the survey area lying along the drag scar left by the rig as it drifted to its current position, in addition to the wreck of the hull. Objects considered navigationally significant are discussed in detail in section D.1.5.

A charted Obstrn PA at approximate position 28°30'01.0344"N, 93°44'57.789"W was surveyed during this project. No evidence of a navigationally significant obstruction was found by this survey. There is a pipeline located approximately 80 meters to the east of this obstruction's position. Survey coverage extends at least 1100 meters in all directions from this obstruction's charted position.

**Concur. Remove charted Obstrn PA.**



#### D.1.4 AWOIS ITEMS

There were no AWOIS items assigned for investigation. *Concur.*

#### D.1.5 INVESTIGATION ITEMS

Additional investigation work was performed for two significant sonar contacts, which have been recommended for charting. A set of two to six additional multibeam and side scan lines were run over each of these targets.

##### Item 1

Least Depth: 35.00ft (*QUASOU: value reported (not confirmed)*)

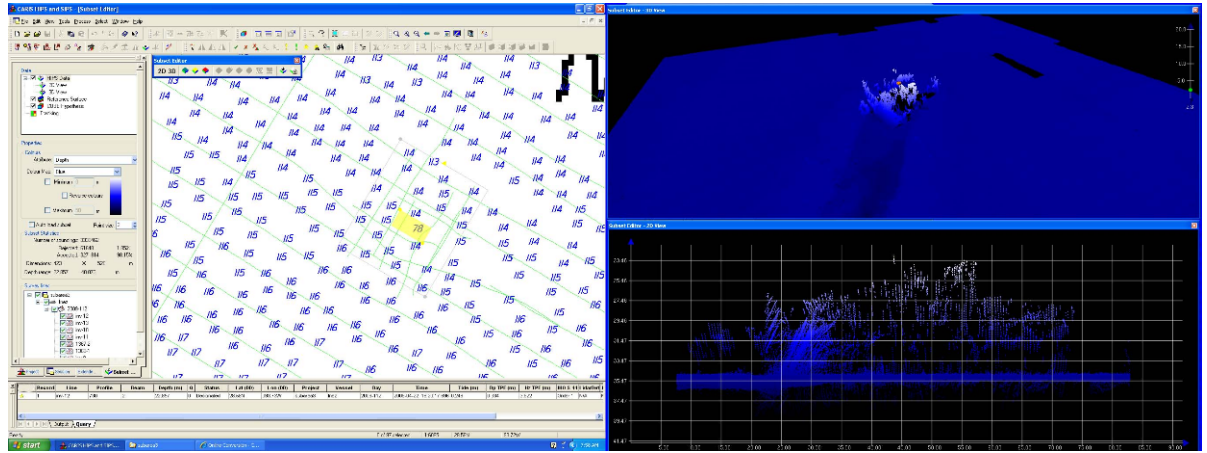
Multibeam Line: INV-12

Position: 29<sup>8</sup>° 34' 57.456" N, 93° 43' 47.369" W (WGS84)

Time Stamp: NA

Hydrographer's recommendations: This investigation item is the remains of the ENSCO 74 rig. This wreck is currently charted as a wreck PA. The position and least depth listed in this report were determined by an ROV operated by a *ENSCO* salvage team. The position was confirmed by our survey. The rig is currently lying upside down on the bottom, with pieces of its legs sticking up towards the surface of the water. The least depth could not be confirmed, but is

being recommended as the charted depth because of the strong possibility that the multibeam system did not correctly identify the true least depth. The least depth was identified on top of a narrow steel beam that had been part of the rigs leg. It is recommended that a 35-foot dangerous wreck be charted at this location. There is a possibility that this wreck will be salvaged and removed for the seafloor in the near future. ***Concur with clarification. Currently shown on chart 11330\_1 (19<sup>th</sup> Edition, Aug 08) as a dangerous submerged wreck PA, least depth unknown, from Local Notice to Mariners. Revise feature to dangerous obstruction at survey position and text “35ft Rep 2009”. See also evaluation report.***





Item 2

Least Depth: 92.818ft **93.0709ft**

Multibeam Line: inv-6

Position: 28° 34'05.8135" N, 93° 42'27.25217" W (WGS84)

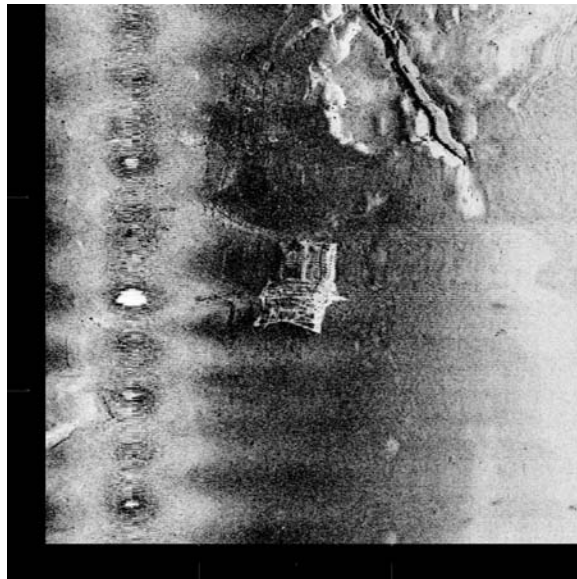
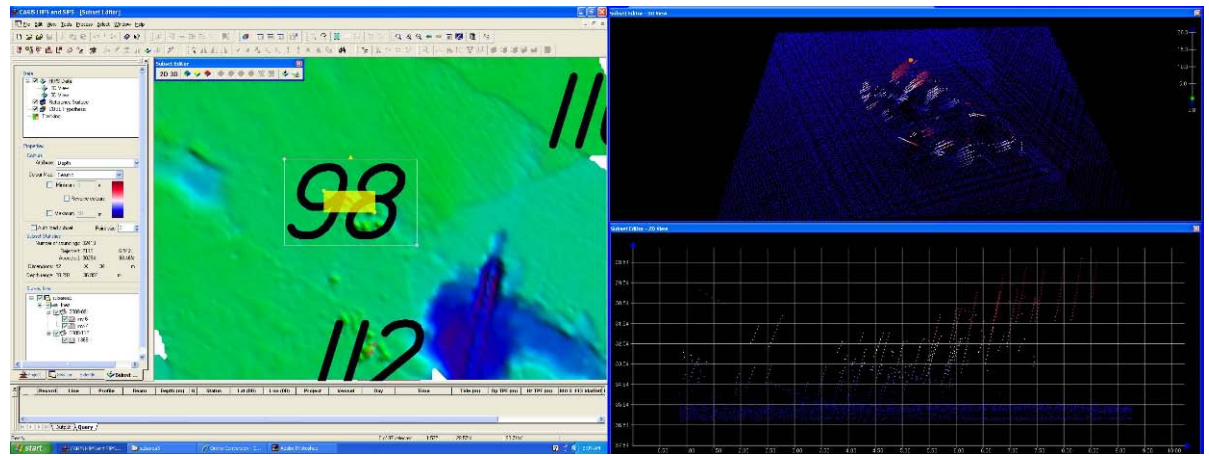
Time Stamp: 2009-03-22 17:38:32.058

Hydrographer's recommendations: This contact has been marked as a designated sounding within the H12058 Caris project submitted in conjunction with this report. This item has been previously submitted as DTON 3 of this project.

There is a debris field surrounding this item, which is the remnant of one of ENSCO 74's legs. To the east of this item, there is a large scour surrounding an exposed section of the HIOS 42" compressed gas pipeline. It is likely that the rig collided with the pipeline following Hurricane Ike, causing the pipeline to rupture, and resulting in both the scour and debris field. It is recommended that this contact be charted as a 93-foot submerged obstruction at 28° 34'05.8135" N, 93° 42'27.25217" W (WGS84). ***Concur with clarification. Submitted as DTON-3.***

***Currently shown on chart 11330\_1 (19th Edition, Aug 08) as a non-dangerous obstruction, least depth 93 feet. Revise feature to survey position. See also Appendix I.***

# Descriptive Report to Accompany Hydrographic Survey H12058



## D.1.6 DANGER TO NAVIGATION REPORTS

One Danger to Navigation Report was issued. A copy of this report has been included in \*Appendix I. *Concur.*

## D.2 ADDITIONAL RESULTS

### D.2.1 PRIOR SURVEYS

Comparison with prior surveys was not required under this Task Order. See Section D.1 for comparison to nautical charts. *Concur.*



D.2.2 AIDS TO NAVIGATION

There are no Aids to Navigation within the survey area. *Concur.*

D.2.3 EXISTING INFRASTRUCTURE

The following charted structure was found as charted.

Survey Position			
Latitude	Longitude	Structure Type	Structure Name
28°32'29.2008"N	93°41'59.7126"W	Satellite	HIA-247 A

*Concur. Retain charted platform.*

*\*Appended to this report*

D.2.4 OTHER PERTINENT INFORMATION

The purpose of this survey was to identify any hazards to navigation that might exist in the lightering zones south of Galveston and the Sabine River following the collision of a large oil tanker and the wreck of ENSCO 74. ENSCO 74 was a production rig that was toppled by Hurricane Ike, which subsequently drifted approximately ~~100~~ **115** miles to its current location. Several other large pieces of the rig were identified by this survey, and submitted to NOAA as DTONs.

Draft corrections are verified on a daily basis, and entered into the multibeam collection software to be applied in real-time.

Three separate BASE surfaces were created for this project, one for each subarea. All three BASE surfaces were created at 2-meter resolution.

All of the side scan data collected for this project has been layback corrected. Data should be imported into Caris using fish position and zero layback correction.

S57 feature files for significant contacts, and oil and gas infrastructure have been submitted in a Caris Notebook project.



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**LETTER OF APPROVAL**

REGISTRY NUMBER H12058

This report and the accompanying smooth sheet are respectfully submitted.

Field operations contributing to the accomplishment of the survey H12058 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and CARIS project have been closely reviewed and are considered complete and adequate as per the Statement of Work.

This report is accompanied by the Data Acquisition and Processing Report for project OPR-K387-KR.

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Joseph Burke  
Chief of Party  
C&C Technologies  
May 2009



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**APPENDIX I**

**DANGER TO NAVIGATION REPORTS**

**1.1) 93-ft Obstruction (plat ruins)****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 28° 34' 05.815" N, 093° 42' 27.217" W  
**Least Depth:** 28.35 m (= 93.00 ft = 15.500 fm = 15 fm 3ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]  
**Timestamp:** 2009-081.17:38:32.000 (03/22/2009)  
**GP Dataset:** XLS\_DtoN\_Template.xls  
**GP No.:** 1  
**Charts Affected:** 11330\_1, 1116A\_1, 11340\_1, 411\_1

**Remarks:**

This contact has been marked as a designated sounding within the H12058 Caris project. There is a debris field surrounding the feature, which is the remnant of one of ENSCO 74's legs. To the east of this feature is a large scour surrounding an section of the HIOS 42" compressed gas pipeline. It is likely that the rig collided with the pipeline following Hurricane Ike, causing the pipeline to rupture and resulting in both the scour and debris (platform ruins).

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
XLS_DtoN_Template.xls	1	0.00	000.0	Primary

**Hydrographer Recommendations**

It is recommended to chart a 93-ft obstruction located in 28°34'05.813"N, 093°42'27.252"W.

**Cartographically-Rounded Depth (Affected Charts):**

93ft (11330\_1)

15fm (1116A\_1, 11340\_1, 411\_1)

**S-57 Data**

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CONDTN - 2:ruined  
 INFORM - Platform Ruins  
 NATCON - 7:metal

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QUASOU - 6:least depth known  
RECDAT - 200903022  
SORDAT - 20090322  
SORIND - US,US,nsurf,H12058  
TECSOU - 2,3:found by side scan sonar,found by multi-beam  
VALSOU - 28.2909 m  
WATLEV - 3:always under water/submerged

## **Office Notes**

Concur with clarification. Submitted as DtoN-3. Currently shown on chart 11330\_1 (19th Edition, Aug 08) as a non dangerous obstruction, least depth 93 feet. Revise feature to survey position. See also Item-2 of section "D.1.5 Item Investigations" of the Descriptive Report.

### Feature Images

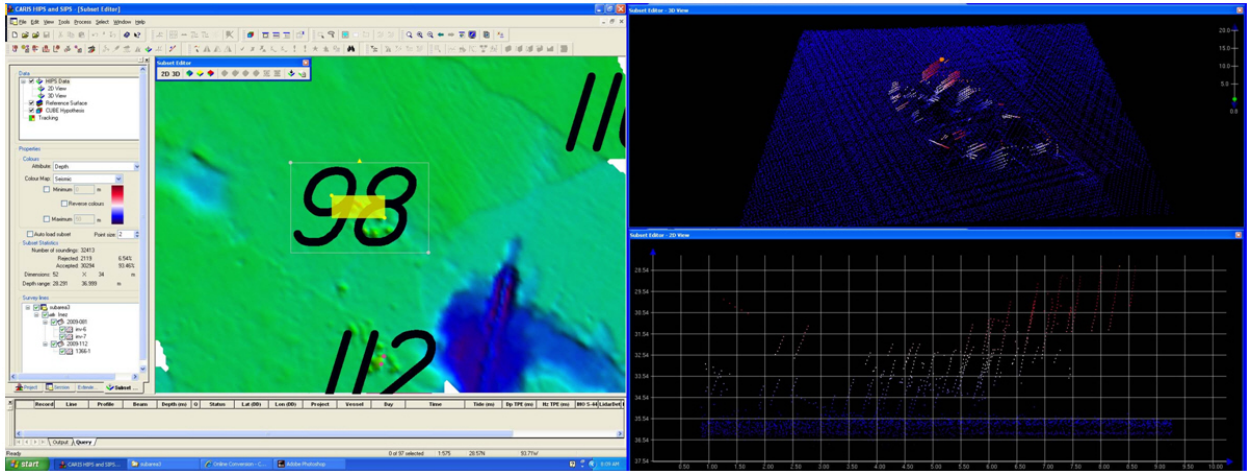
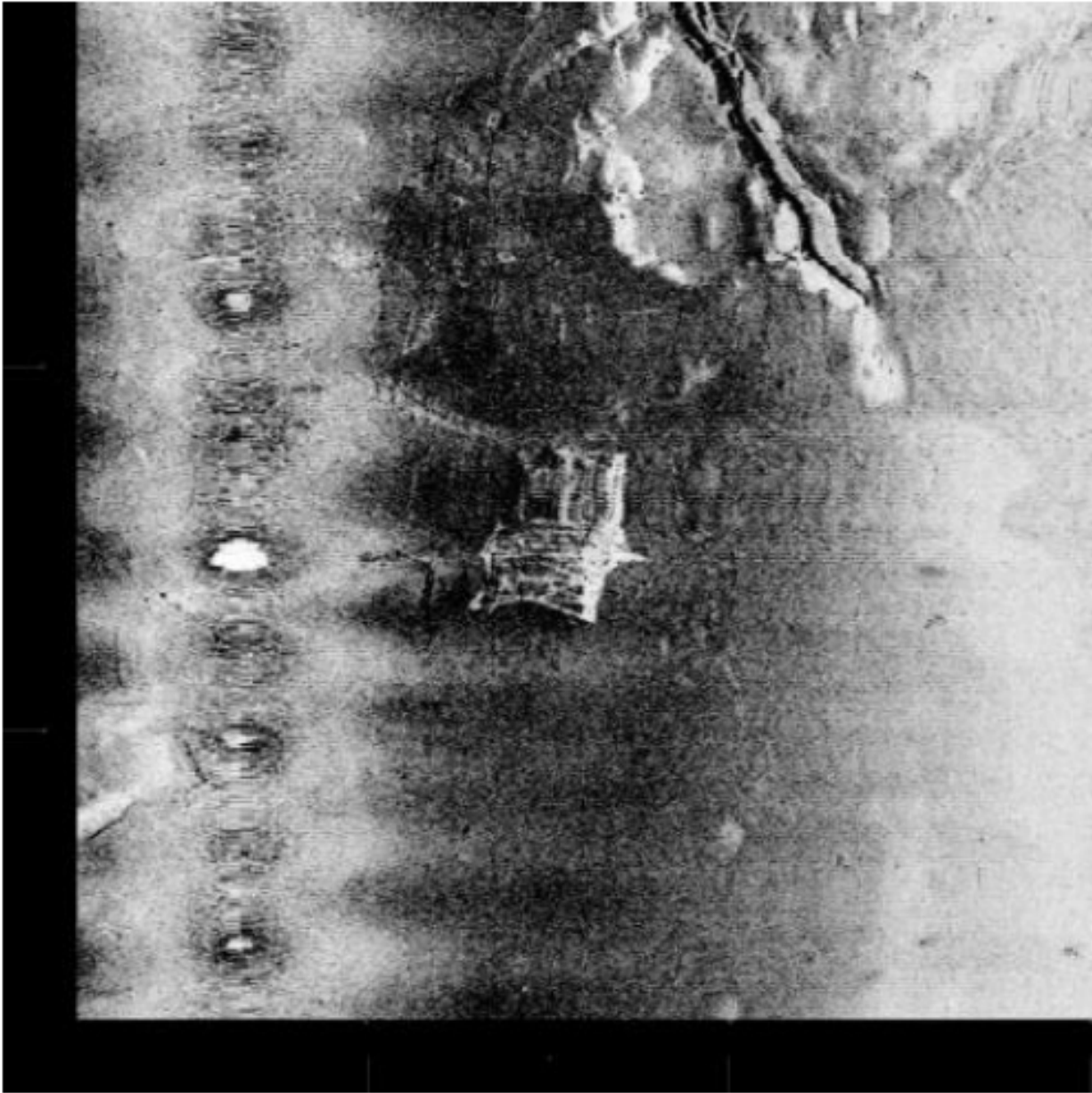


Figure 1.1.1



*Figure 1.1.2*



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**APPENDIX II**

**LIST OF GEOGRAPHIC NAMES**



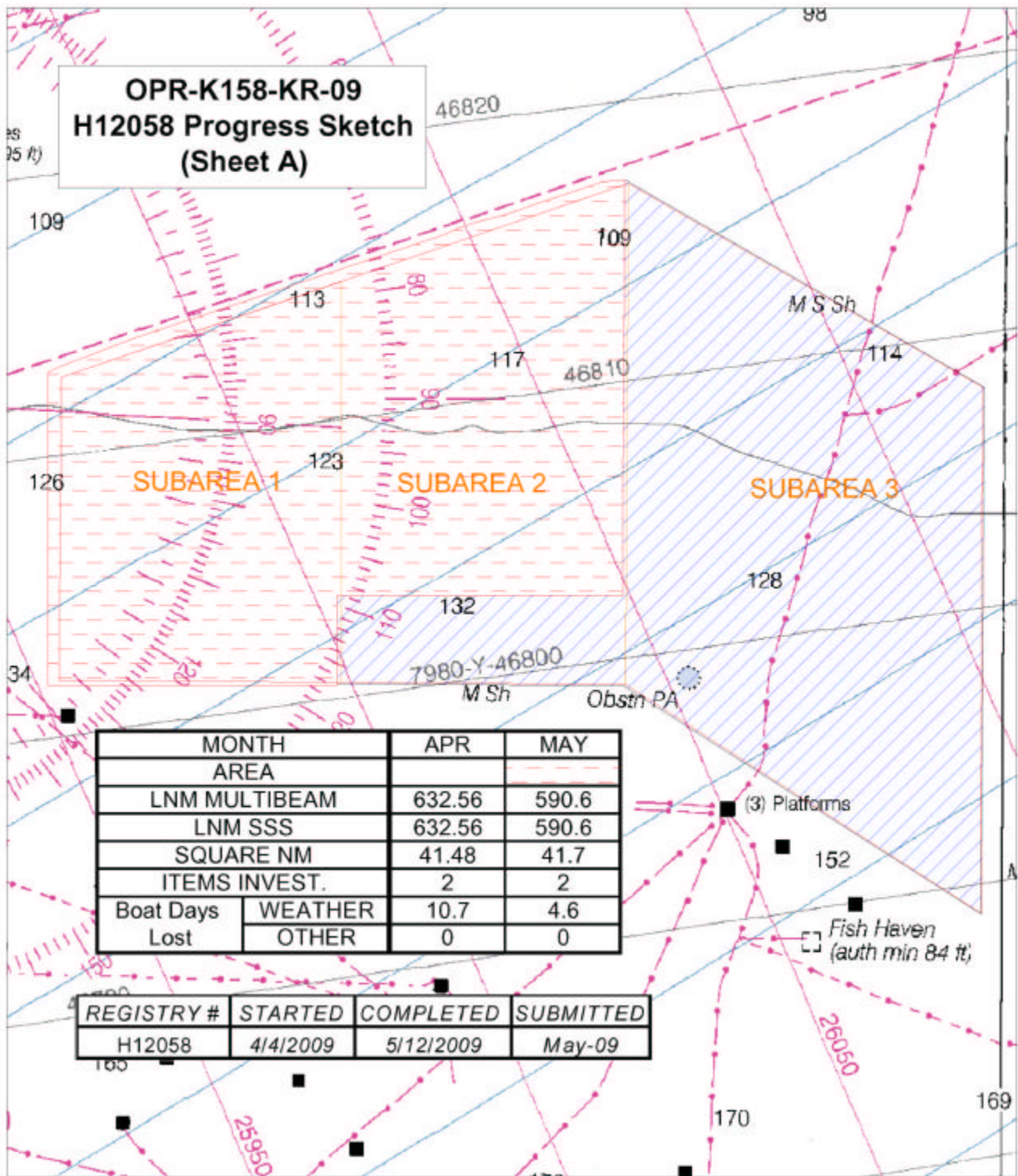
No new geographic names were found within the survey area. No corrections to the currently charted geographic names within the survey area are needed.



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**APPENDIX III**

**PROGRESS SKETCH**





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**APPENDIX IV**

**TIDES AND WATER LEVELS**



ABSTRACT OF TIMES OF HYDROGRAPHY

Project: OPR-K159-KR-09

Registry No.: H12058

Contractor Name: C & C Technologies, Inc.

Date: May 2009

Inclusive Dates: 3/22/09 - 5/12/09

Sheet Letter: A

TIME (UTC)

Julian Day	VESSEL	Times	Year
81	Inez McCall	0000-1000	2009
94	Inez McCall	0800-1928	2009
104	Inez McCall	0055-1320	2009
105	Inez McCall	1219-2400	2009
106	Inez McCall	0000-2400	2009
110	Inez McCall	1759-1900	2009
111	Inez McCall	1715-2400	2009
112	Inez McCall	0000-2400	2009
113	Inez McCall	0000-2029	2009
122	Inez McCall	0000-1157	2009
125	Inez McCall	0242-2400	2009
126	Inez McCall	0000-2400	2009
127	Inez McCall	0000-1458	2009
131	Inez McCall	0000-2400	2009
132	Inez McCall	0000-0529	2009



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**APPENDIX V**

**SUPPLEMENTAL SURVEY RECORDS  
AND CORRESPONDANCE**



The least depth of the ENSCO 74 wreck could not be determined by this survey. A least depth and position was determined by an ROV and provided to NOAA by Ensco. This least depth was forwarded to NOAA in the following email.

***C&C's contact at ENSCO:***

**Sean O'Connor** | Manager – Engineering

Ensco | 620 Moulin Road | Broussard, LA 70518

Office: (337) 837-8529 | Fax: (337) 839-3379 | e-mail: [soconnor@enscointernational.com](mailto:soconnor@enscointernational.com)



Re: ENSCO 74 least depth

**Subject:** Re: ENSCO 74 least depth  
**From:** Jeffrey Ferguson <Jeffrey.Ferguson@noaa.gov>  
**Date:** Wed, 18 Mar 2009 15:12:41 -0400  
**To:** scott.croft@cctechol.com  
**CC:** "Joe Burke (E-mail)" <joe.burke@cctechol.com>, Sean Oconnor <soconnor@enseointernational.com>

Thanks Scott.

Appreciate the update. Pass our thanks onto the Ensco folks for agreeing to share the info.

Jeff

Scott Croft wrote:

Jeff,

We tried to survey the rig site last night, but there is a 4 point anchor dive boat on the location right now. I am trying to get a rough idea on when they might depart, but have not got that information yet. We will go to the site when we see it clear and run the lines, but they may be there a while.

We called ENSCO this morning and asked for permission to provide you the least depth of the ROV survey and they have agreed. The least depth reported by the ROV survey is 35 feet. Our first bathy survey for ENSCO did not show any depth that shallow, but the 35 feet number is from a piece of leg on the north end of the rig so it is hard to pick it up in multibeam.

ENSCO 74  
28 34' 57.456" N  
93 43' 47.369" W  
35 feet least depth

[Jeffrey Ferguson <jeffrey.ferguson@noaa.gov>](mailto:jeffrey.ferguson@noaa.gov)

Chief, Hydrographic Surveys Division

Office of Coast Survey

301-713-2700 x124



## **APPENDIX V**

### **AWOIS**



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No AWOIS items were assigned for investigation as a part of this survey.

This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

## AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	<i>H12058</i>
PROJECT No.	<i>OPR-K159-KR-09</i>
FIELD UNIT	<i>C&amp;C</i>
DATE OF SURVEY	<i>3/22/09-5/12/09</i>
LARGEST SCALE CHART	<i>11330, edition 19, 20090801, 1:250,000</i>
ADDITIONAL CHARTS	<i>11340, edition 74, 20090801, 1:458,596</i> <i>1116A, edition 74, 20090801, 1:458,596</i>
SOUNDING UNITS	<i>11330:Feet, 11340:Fathoms, 1116A:Fathoms</i>
COMPILER	<i>Katrina Wyllie</i>

Source Grids	File Name
	H:\Compilation\H12058_K159-C&C\AHB_H12058\E-SAR Final Products\GRIDS
	<i>H12058_2m_AHB1_Final</i>
	<i>H12058_2m_AHB2_Final</i>
	<i>H12058_2m_AHB3_Final</i>
	<i>H12058_2m_AHB4_Final</i>
	<i>H12058_2m_AHB5_Final</i>
	<i>H12058_2m_AHB6_Final</i>
	<i>H12058_2m_AHB7_Final</i>
Surfaces	File Name
	H:\Compilation\ H12058_K159-C&C\AHB_H12058\COMPILE\Working
<i>Combined</i>	<i>H12058_8m_Combined.hns</i>
<i>Interpolated TIN</i>	<i>\Interpolated TIN\H12058_8m_InterpTIN.hns</i>
<i>Shifted Interpolated TIN</i>	<i>\Shifted Surface\H12058_8m_InterpTIN_Shifted.hns</i>
Final HOBs	File Name
	H:\Compilation\ H12058_K159-C&C\AHB_H12058\COMPILE\Final_Hobs\
<i>Survey Scale Soundings</i>	<i>H12058_SS_Soundings.hob</i>
<i>Chart Scale Soundings</i>	<i>H12058_CS_Soundings.hob</i>
<i>Contour Layer</i>	<i>H12058_Contours.hob</i>
<i>Feature Layer</i>	<i>H12058_Features.hob</i>
<i>Meta-Objects Layer</i>	<i>H12058_MetaObjects.hob</i>
<i>Blue Notes</i>	<i>H12058_BlueNotes.hob</i>

Meta-Objects Attribution	
Acronym	Value
<b>M_COVR</b>	
CATCOV	<i>Coverage available</i>
SORDAT	<i>20090512</i>
SORIND	<i>US,US,survey,H12059</i>
<b>M_QUAL</b>	
CATZOC	<i>6</i>
INFORM	<i>H12058, OPR-K159-KR-09, Inez McCall</i>
POSACC	<i>10</i>
SORDAT	<i>20090512</i>
SORIND	<i>Us,US,survey,H12058</i>
SUREND	<i>20090512</i>
SURSTA	<i>20090322</i>

DEPARE	
DRVALV 1	<b>75.1017</b>
DRVALV2	<b>158.9370</b>
SORDAT	<b>20090512</b>
SORIND	<b>US,US,nsurf,H12058</b>

SPECIFICATIONS:

- I. COMBINED SURFACE:
  - a. Number of ESAR Final Grids: **7**
  - b. Resolution of Combined (m): **8**
  
- II. SURVEY SCALE SOUNDINGS (SS):
  - a. Radius
  - b. Shoal biased
  - c. Use Single-Defined Radius (mm at Map Scale): ; Radius Value = **1.2**
  - d. Queried Depth of All Soundings
    - i. Minimum: **75.1017 ft**
    - ii. Maximum: **158.9370 ft**
  
- III. INTERPOLATED TIN SURFACE:
  - a. Resolution (m): **8**
  - b. Linear
  - c. Shifted value: **-0.229** [-0.229m (feet), ( $\leq 10$  fathoms)]  
[-1.372m (fathoms), ( $> 10$  fathoms)]
  
- IV. CONTOURS:
  - a. Use a Depth List: **H12058\_NOAA\_depth\_curves\_list.txt**
  - b. Line Object: DEPCNT
  - c. Value Attribute: VALDCO
  
- V. FEATURES:
  - a. Total Number of Features:**4**
  
- VI. CHART SURVEY SOUNDINGS (CS):
  - a. Number of ENC CS Soundings: **8**
  - b. Radius
  - c. Shoal biased
  - d. Use Single-Defined Radius: m on the ground
    - i. Radius Value (m):
    - ii. Or use a Sounding Space Range Table (if applicable): HXXXXX\_SSR.txt
  - e. Filter: Interpolated != 1
  - f. Number Survey CS Soundings:**10**

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT to ACCOMPANY  
SURVEY H12058 (2009)**

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.

**B. DATA ACQUISITION AND PROCESSING**

**B.1 DATA PROCESSING**

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

CARIS HIPS/SIPS version 6.1 SP2 HF 1-8  
CARIS Bathymetry Manager version 2.1 SP1 HF 1-10  
DKART INSPECTOR, version 5.0 Build 732 SP1  
CARIS HOM version 3.3 SP3  
CARIS S57 Composer version 2.0 HF 1-2

**B.2. QUALITY CONTROL**

**B.2.1. H-Cell**

The AHB source depth grid for the survey's nautical chart update product entailed using AHB's seven re-schemed 2m grids, combined at 8 meter resolution. The survey scale soundings were created from the combined surface at 1.2mm radius at 1:250000. The chart scale selected soundings are a subset of the survey scale selected soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

A TIN (Triangulated Irregular Network) surface was created from the survey scale soundings from which an interpolated surface was generated for the purpose of generating depth curves. Depth curves were manually edited and forwarded to MCD for reference only. The curves were utilized during chart scale sounding selected and quality assurance efforts at AHB. The depth curves are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications.

The compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Compile Log attached at the end of this document. The SAHOB files included depth areas (DEPARE), depth contours (DEPCNT), sounding selections (SOUNDG), features (OBSTRN, OFSPLF), US3GC02M\_ENC Features (SBDARE), Meta objects (M\_COVR, M\_QUAL), and cartographic Blue Notes (\$CSYMB).

All of the components with the exception of the sounding selection and depth contours were inserted into one feature layer (including the Bluenotes, as dictated by Hydrographic Technical Directive 2008-8 and HSD's H-Cell Specifications 2009). The SAHOB H-Cell layer was exported to S-57 format for H-Cell deliverable. H12058 H-Cell chart scale selected soundings were selected based upon the scale of the applicable chart. The H-Cell's SS deliverable includes survey scale sounding selected and depth contours.

Both S-57 files were converted in CARIS HOM for output of H-Cell in chart units (feet). The final deliverables are two S-57 files; one that contains the chart soundings, all the features, Meta objects, and Bluenotes (H12058\_CS.000), and one that contains the sounding selections and depth contours (H12058\_SS.000). Quality assurance checks were made utilizing CARIS S-57 Composer version 2.0 validation checks and DKART INSPECTOR, version 5.0, tests

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

H12058 CARIS H-Cell final deliverables include the following products:

H12058_CS.000	1:250,000 Scale	H12058 H-Cell (Chart Scale)
H12058_SS.000	1:20,000 Scale	H12058 Selected Soundings (Survey Scale)

### **C. VERTICAL AND HORIZONTAL CONTROL**

Final vertical correction processing was completed by the field unit with additional correction required by Atlantic Hydrographic Branch. Two of the three subareas did not have the zone definition file applied to the data. AHB reapplied tide to these two areas and remerged the data. The office personnel applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for H12058. Sounding datum is Mean Lower Low Water (MLLW). Vertical datum is Mean High Water (MHW)

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 15N.

### **D. RESULTS AND RECOMMENDATIONS**

#### **D.1 CHART COMPARISON**

##### **11330 (19th Edition, AUG. /08)**

Corrected through NM 08/22/2009  
Corrected through LNM 08/11/2009  
Scale 1:250,000

11340 (74<sup>th</sup> Edition, AUG. /09)  
Corrected through NM 08/29/2009  
Corrected through LNM 08/18/2009  
Scale 1:458,596

1116A (74<sup>th</sup> Edition, AUG. /09)  
Corrected through NM 08/29/2009  
Corrected through LNM 08/18/2009  
Scale 1:458,596

## ENC Comparison

## US3GC02M

Mermentau River to Freeport  
Edition 16  
Application Date 2009-04-15  
Issue Date 2009-08-17  
Chart 11330

## US2GC13M

Vermilion Bay to Corpus Christi  
Edition 7  
Application Date 2008-08-23  
Issue Date 2008-08-23  
Chart 4145

### **D.1.1 Hydrography**

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section "D" and Appendix 1&2 of the Descriptive Report. The following exceptions are noted:

a. The field unit was not directed to obtain bottom samples in the Letter Instructions; therefore the charted sea bed characteristic (SBDARE) object was retained as charted. The spatial and feature attributes of the SBDARE point features were carried forward from the ENC (US3GC02M).

b. Field provided an obstruction in the feature file that was outside the survey limits. The location of the obstruction provided from the field is 29° 34' 57.46" N, 093° 43' 47.37"W. The obstruction is actually the remains of the ENSCO 74 rig located at 28° 34' 57.46" N, 093° 43' 47.37"W. The error was an incorrect latitude degree value.

Office processing determined that the multibeam survey least depth did not encompass the entire wreckage. Email correspondence provided in Appendix V of the Descriptive Report discuss that multibeam bathymetry could not be acquired over the ENSCO rig wreckage due to the presence of a 4 point anchored ENSCO dive boat on location. No attempt was made by C&C to return to the wreckage site to acquire a least depth when the area was free of vessels. The ENSCO ROV depth of 35 ft is the shoalest and most reliable reported depth. Contact information provided by C&C for ENSCO point of contact is provided in Appendix V. Currently shown on chart 11330\_1 (19<sup>th</sup> Edition, Aug 2008) as a dangerous submerged wreck PA, least depth unknown, from Local Notice to Mariners. Revise feature to dangerous obstruction at survey position and text, "35ft Rep 2009." It is recommended that an accurate least depth be acquired or salvage documentation be obtained as soon as practical.

c. Charted Obstrn PA located at 28° 35' 29.1001" N, 093° 46' 11.1000"W was not discussed by field. No evidence of an obstruction in SSS or MBES was found during the survey. Delete disproved non-dangerous obstruction PA, least depth unknown. Chart survey soundings in common area.

### **D.3. MISCELLANEOUS**

Charted pipelines were not observed in bathymetry or sidescan sonar data except where ENSCO rig impacted pipeline at the charted position. See DtoN#3. Retain pipelines are charted.

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. See Section D.1. of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey:

#### **D.4. ADEQUACY OF SURVEY**

The present survey is adequate to supersede the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell BASE Cell File or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.

**APPROVAL SHEET**  
**H12058**

**Initial Approvals:**

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, disposition of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the Evaluation Report.

All final products have undergone a comprehensive review per the Hydrographic surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

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**Katrina Wyllie**  
Hydrographic Intern  
Atlantic Hydrographic Branch

I have reviewed the H-Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet National Ocean Service requirements and standards for products in support of nautical charting except where noted.

Approved: \_\_\_\_\_

**For: Richard T. Brennan**  
Lieutenant Commander, NOAA  
Chief, Atlantic Hydrographic Branch