

**H11087**

NOAA FORM 76-35A

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

**DESCRIPTIVE REPORT**

*Type of Survey* **Hydrographic / Side Scan**

*Registry No.* **H11087**

**LOCALITY**

*State* **Texas**

*General Locality* **Gulf of Mexico**

*Sub-locality* **Offshore - Approaches to  
Freeport**

**2001 & 2002**

CHIEF OF PARTY  
**Art Kleiner**

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NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NO.  <b>H11087</b>
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**HYDROGRAPHIC TITLE SHEET**

<b>INSTRUCTIONS</b> - 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.  Sheet B
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State: Texas

General locality: Gulf of Mexico

Locality: Offshore -- Approaches to Freeport

Scale: 1:40,000 Date of Survey: October 30, 2001 to July 18, 2002

Instructions Dated: October 24, 2001 Project No.: OPR-K397-KR

Vessel: M/V Moana Wave

Chief of Party: Art Kleiner, C&C Technologies, Inc.

Surveyed by: R. Larsen, J. Lynch, S. Allerman, D. Fontenot, J. Peacock

Soundings taken by echo sounder hand lead, pole: Simrad EM3000 Multibeam Echosounder

Graphic record scaled by survey personnel: N/A

Graphic record checked by survey personnel: N/A

Protracted by: N/A Automated plot by: HP 1055 Plotter (field)  
Hewlett Packard Design Jet 2500CP (AHB)

Verification by: Atlantic Hydrographic Branch Personnel

Soundings in fathoms, feet, meters at MLW, MLLW  
Bold, Italic, Red notes in Descriptive Report were made during office processing.

REMARKS: Multibeam Hydrographic Survey of Sheet B  
 Data collection in meters, referenced to MLLW, later converted to feet  
 200% Side Scan Sonar Coverage  
 UTC time was used exclusively  
 Grab samples were taken  
 Tidal Zones: WGM622, WGM637, WGM649  
Handwritten notes in the DR were made during office processing.



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- Appendix A Danger to Navigation Reports
- \*Appendix B List of Geographic Names
- \*Appendix C Progress Sketch
- \*Appendix D Tides and Water Levels
- \*Appendix E Supplemental Survey Records and Correspondence

## **SEPARATES**

- \*Separates I Acquisition and Processing Logs
- \*Separates II Side Scan Contact Listing and Images of Significant Contacts  
Correlator Sheets
- \*Separates III Sound Velocity Profile Data
- \*Separates IV Statement of Work
- \*Separates V Crossline Comparisons

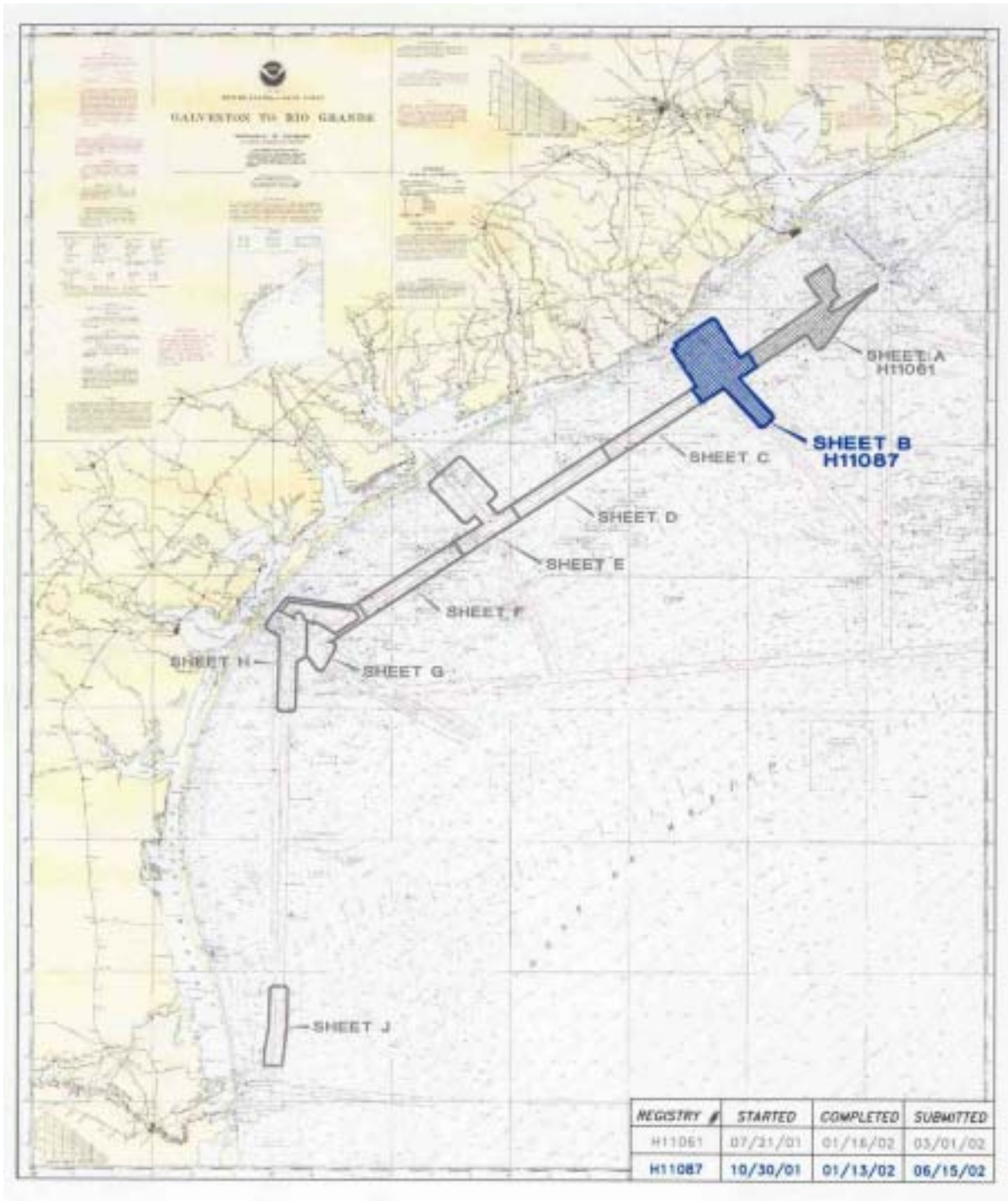
***\*Filed with original field records.***

## **A. AREA SURVEYED**

The survey area is located on the approaches to Freeport, Texas in the Gulf of Mexico. The following sketches show the layout of the Project (OPR-K379-KR) and the Sheet (H11087). Water depths in the survey area range from 29 feet Mean Lower Low Water (MLLW) to 104 feet MLLW.

The survey area was broken down into eleven sub-areas to allow for more efficient data processing and data management. The sub-areas were based primarily on tidal zoning and secondly on data management concerns. Sub-area 1 was in tide zone WGM622, sub-areas 2 through 7 were in tide zone WGM637, and sub-areas 8 through 11 were in tide zone WGM649.

Descriptive Report to Accompany Hydrographic Survey H11087





## B. DATA ACQUISITION AND PROCESSING *See also the Evaluation Report (ER).*

### B.1 EQUIPMENT

System	Manufacturer	Model
Multibeam Sonar	Simrad	EM3000
Side Scan Sonar	Klein	5500
Single Beam Sonar	Echotrac	3200
Motion Sensor	Applanix	POS/MV
Primary Positioning System	Applanix	POS/MV
Secondary Positioning System	Satloc	SLXG
Tertiary Positioning System	Trimble	4000 Series
Quaternary Positioning System	C-Nav	C-Nav
Sound Speed at Transducer	Endeco	YSI
Sound Velocity Profile	Seabird	SBE19

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

The M/V *Moana Wave* was the vessel used as the platform for all hydrographic operations. The *Moana Wave* is a 210-foot research vessel. The vessel is 33 feet wide and the draft averages between 6 and 10 feet. A detailed vessel diagram can be found in the Data Acquisition and Processing Report.\*

No deviations from the vessel or equipment configurations as described in the Data Acquisition and Processing Report\* were made.

***\*Data filed with original field records.***



## B.2 QUALITY CONTROL

### B.2.1 ERROR BUDGET ANALYSIS

Depth must meet the accuracy requirements indicated in section 5.2 of “Specifications and Deliverables”. In addition some of the individual errors that contribute to depth measurement error are further limited as per section 5.4.5 of “Specifications and Deliverables”.

Error budget analysis of the system shows that the system is capable of meeting the accuracy requirements even when spatial and temporal variations in the sound velocity are quite large. This is due to both the high accuracy of the various components and the relative immunity to upper water column velocity errors of the unit.

This error budget assumes a near flat seafloor of constant backscatter.

Vertical errors are composed of the vertical component of range measurement errors, vertical error resulting from pointing errors and errors in vessel altitude due to tide, draft, squat, or heave error.

Range errors give a vertical component of:

$$\Delta z = \text{Range Error} \times \cos(\text{Swath Angle}/2)$$

Pointing errors give a vertical component of:

$$\Delta z = \text{Xtrack distance} \times \sin(\text{Pointing Error})$$

System ranging errors are normally determined by the pulse length and sample rate, however in practice the value is limited by bottom roughness so that it is never less than about 0.001(depth).



$$\text{Range Error} = \text{Max}[\{( \text{Sample Range}/2)^2 + (\text{Pulse length}/4)^2\}^{0.5}, 0.001 \times \text{Depth}]$$

System pointing errors are determined by the beam open angles and the bottom detect algorithm. When amplitude detect is used a moderate gain can be expected due to the sinh function of beam gain. When phase detect is used, pointing errors are decreased by an increase in the number of samples. Phase detect can be assumed when the echogram is long enough to assure 12 samples.

For Amplitude Detect:

$$\text{Pointing Error} = \text{Beam Open Angle}/12$$

For Phase Detect:

$$\text{Pointing Error} = 0.2 \times \text{Beam Open Angle}/\# \text{ Samples}^2$$

Surface velocity pointing errors are a result of the surface velocity monitor accuracy limitations:

$$\text{Pointing Error} = \text{asin}[\sin(\text{swath half angle})/(1500 + \text{Monitor Accuracy})/1500] - \text{swath half angle}$$

The EM 3000 uses the surface velocity for both beam steering and refraction correction. When the transducer is horizontal these two errors are equal in magnitude and opposite in sign and so cancel out. When the transducer becomes tilted from horizontal due to roll, the error increases due to the magnitudes of the errors becoming different in magnitude. The error used in the error budget for surface pointing error is the net error assuming a roll of +/- 10°.

Velocity Profile range errors are:

$$\text{Range Error} = (1500 + \text{Sound Speed Error})/1500 \times \text{Range}$$

Velocity Profile pointing errors are due to limitation of the profiler to gather perfect information for the ray bending corrections:

$$\text{Pointing Error} = \text{Arcsin}(2 \times \text{delta } c/c \times \text{Tan}(\text{Swath Angle}/2)).$$





Transducer roll misalignment and roll measurement errors are direct pointing errors and can be converted to depth errors with the equation for pointing errors.

Tidal errors, draft error, heave error, and settlement/squat errors are direct altitude errors.

The Total Sounding Error is the root-sum-squared of the six classes of errors. All error estimates are required to be at the 95% confidence level. To comply with these requirements fundamental error sources are adjusted to the 95% confidence level and grouped together as follows:

- (1) Transducer alignment errors, sonar pointing errors, sonar ranging errors, roll error, and surface velocity pointing errors are combined together as Measurement error.
- (2) Draft error is used directly.
- (3) Settlement and squat error is used directly.
- (4) Velocity profile ranging errors, velocity profile pointing errors, and velocity profile variations are combined together as sound velocity error.
- (5) Heave error is used directly.
- (6) Tide and water level errors are used directly.

The combination of these six classes of error into a Total Sounding Error is further restrained in that each of the six classes of errors cannot be assumed to be less than a specified value when calculating the Total Sounding Error.

The following three tables show the six classes of errors and the Total Sounding Error at the 95% confidence level at various water depths. These tables indicate that the echosounder system complies with all accuracy requirements in the water depths of the survey area.

Descriptive Report to Accompany Hydrographic Survey H11087



EM 3000D Error Budget, NOAA Format, 95% Confidence Interval  
Water Depth = 10 meters

Cross Track Distance, meters	0.00	5.00	10.00	15.00	20.00	30.00	40.00
Predicted Measurement Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Allowable Measurement Error	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Transducer Draft Error	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Allowable Transducer Draft Error	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Settlement & Squat Error	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Allowable Settlement & Squat Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Sound Speed Error	0.30	0.30	0.30	0.30	0.31	0.33	0.39
Allowable Sound Speed Error	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Heave Error	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Allowable Heave Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Tide/Water Level Error	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Allowable Tide/Water Level Error	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Total Sounding Error	0.46	0.46	0.46	0.46	0.46	0.48	0.52
Allowable Total Sounding Error	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Test	OK	OK	OK	OK	OK	OK	Exceeds Limit

Descriptive Report to Accompany Hydrographic Survey H11087



EM 3000D Error Budget, NOAA Format, 95% Confidence Interval  
Water Depth = 20 meters

Cross Track Distance, meters	0.00	5.00	10.00	15.00	20.00	30.00	40.00
Predicted Measurement Error	0.20	0.20	0.22	0.20	0.20	0.20	0.20
Allowable Measurement Error	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Transducer Draft Error	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Allowable Transducer Draft Error	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Settlement & Squat Error	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Allowable Settlement & Squat Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Sound Speed Error	0.30	0.30	0.30	0.30	0.30	0.31	0.32
Allowable Sound Speed Error	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Heave Error	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Allowable Heave Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Tide/Water Level Error	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Allowable Tide/Water Level Error	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Total Sounding Error	0.46	0.46	0.47	0.46	0.46	0.46	0.47
Allowable Total Sounding Error	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Test	OK	OK	OK	OK	OK	OK	OK

Descriptive Report to Accompany Hydrographic Survey H11087



EM 3000D Error Budget, NOAA Format, 95% Confidence Interval  
Water Depth = 30 meters

Cross Track Distance, meters	0.00	5.00	10.00	15.00	20.00	30.00	40.00
Predicted Measurement Error	0.20	0.20	0.22	0.20	0.20	0.20	0.20
Allowable Measurement Error	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Transducer Draft Error	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Allowable Transducer Draft Error	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Settlement & Squat Error	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Allowable Settlement & Squat Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Sound Speed Error	0.30	0.30	0.30	0.30	0.30	0.30	0.31
Allowable Sound Speed Error	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Heave Error	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Allowable Heave Error	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Tide/Water Level Error	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Allowable Tide/Water Level Error	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Test	OK	OK	OK	OK	OK	OK	OK
Predicted Total Sounding Error	0.46	0.46	0.47	0.46	0.46	0.46	0.47
Allowable Total Sounding Error	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Test	OK	OK	OK	OK	OK	OK	OK



## B.2.2 SURVEY SPECIFICS

Main lines were oriented roughly northeast-southwest. The lines were laid out to parallel the sheet boundary, which parallels approximately the safety fairway. The line spacing was set at 90 meters. This was based on the side scan criteria of 200 percent coverage using Technique 1 as set forth in Section 6.1 of the “Specifications and Deliverables” document. The side scan sonar was operated at a 100 meter per channel range. The multibeam swath coverage amounted to a little over 50 % coverage. Swath widths varied between approximately 40 meters and 55 meters, depending on water depth. The angular sector 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 and 5.3 of the “Specifications and Deliverables” document were met.

The internal consistency 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 scheme line data so that quality control statistics could be performed on the data after each line. The total cross line miles was 266.09 nm, while the total main scheme lines consisted of 5691.99 nm of data. The cross lines comprised about 4.67% as compared to the main scheme lines. As can be seen in the sample statistics found in Separates V\*, the tie lines and cross lines 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 which were produced for each line. 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 8 to 15 centimeters across the entire swath.

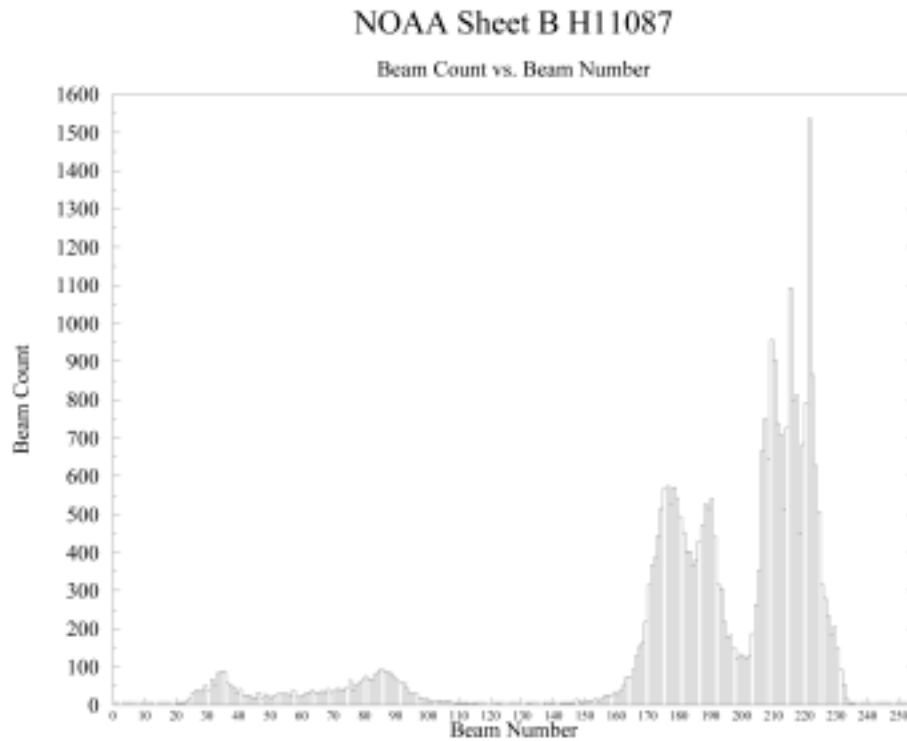
Below is a histogram of the selected soundings for the smooth sheet. The chart shows the number of soundings that were selected per beam number. The

***\*Data filed with original field records.***



sounding distribution on the port head is dominated by the spatial distribution of soundings on the seafloor. The probability of a sounding from a particular beam making its way to the smooth sheet is inversely proportional to its corresponding density on the seafloor. The sparser soundings near the inner and outer edges of the swath are more likely to be selected because there are fewer to choose from.

The sounding distribution on the starboard head is more complex. An outstanding peak appears near beam 221, caused by a consistent 2 - 3 cm shoal bias in that portion of the swath in conjunction with extremely flat seafloor topography. Because only the shoalest of the shoals are selected for the smooth sheet, very minor biases in areas of swath data can lead to uneven beam distributions.





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

No unusual conditions that would downgrade or otherwise affect the operational effectiveness of the survey equipment were encountered. No deficiencies that would affect the accuracy or quality of the sounding data occurred.

Sea state during the survey was such that data quality was more than adequate. No unusual currents, turbidity, salinity, or thermal layering in the water column were encountered.

### B.3 CORRECTIONS TO ECHO SOUNDINGS

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

## 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 the Galveston Pleasure Pier tide station (8771510) was used. The following table lists the tidal zones and their corresponding correctors that were used for this sheet.

Tide Zone	Time Corrector (min)	Range Corrector
WGM622	+6	0.82
WGM637	+6	0.82
WGM649	0	0.89

The sheet was broken down into sub-areas based on tide zone boundaries. The data from each tide zone was processed separately so that a single tide file could be applied. After tidal corrections had been applied the data was cropped at the tide zone boundaries and then

***\*Data filed with original field records.***



merged together.

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).

The Galveston and English Turn stations were used for Coast Guard beacon signals.

## 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
11300	1:460,732	37	June 24, 2000
11321	1:80,000	29	December 15, 2001
11322	1:40,000	27	September 1, 2001
11330	1:250,000	13	April 21, 2001

The Local Notices to Mariners were reviewed through Notice Number 30/02 dated July 23, 2002. No changes that would affect the chart comparison were listed.

#### D.1.2 CHARTED SOUNDINGS

Generally the survey depths agreed with the charted depths to within one foot. There are several places in the central chart region for which the depths vary by two feet. **Concur.**





The biggest differences between charted depths and survey depths are seen in the northwestern corner of the Sheet in the area surrounding the channel on the approach to Freeport. In this area survey depths were found to be significantly deeper than the previously charted depths. Differences of between 4 and 15 feet are not uncommon in this area. **Concur.**

#### D.1.3 SHOALS AND HAZARDOUS FEATURES

All charted shoals and hazardous features are addressed in Sections D.1.4 through D.1.7.

#### D.1.4 AWOIS ITEMS

##### FULL INVESTIGATIONS

##### Item 269

Description: Wreck (Islander)

Charted Position: 28°43'00.91"N, 95°06'00.75"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the wreck was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**

##### Item 274

Description: Wreck (Sunrise)

Charted Location: 28°47'30.90"N, 95°14'00.77"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS



Investigation Summary: No evidence of the wreck was found during the survey.

The charted location lies in the middle of an area of intense drag scars.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**

### Item 283

Description: Wreck (Athena 2)

Charted Location: 28°50'00.90"N, 95°15'30.77"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the wreck was found during the survey.

However, part of the required search radius for this item falls within a charted COE dump area and the remains of the wreck may possibly be buried under the dredge deposits.

Charting Recommendation: Since the dump area is a charted feature, it is recommended that this item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**

### Item 288

Description: Wreck (Wilma)

Charted Location: 28°52'00.90"N, 95°18'00.77"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: One significant contact (Investigation Item B6) lay within the search radius of this item. The target did not resemble a wreck and not other evidence of the wreck was seen.



---

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA. See also Item B.6, pages 26.**

Item 294

Description: Wreck (Unknown)

Charted Location: 28°54'00.89"N, 95°11'20.76"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the wreck was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Wreck Rep, PD, swept to 48-ft.**

Item 3242

Description: Wreck (Unknown)

Charted Location: 28°50'42.90"N, 95°13'42.76"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the wreck was found. However, part of the required search radius for the wreck overlaps a charted COE dump area and the remains of the wreck may have gone undetected due to the presence of the dredge deposits.

Charting Recommendation: Since the dump area is a charted feature, it is recommended that this item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**



Item 3244

Description: Obstruction (Pipe)

Charted Position: 28°54'38.89"N, 95°08'54.75"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the item was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Submerged pipes, ED.**

Item 3353

Description: Obstruction

Charted Position: 28°50'38.26"N, 95°12'45.70"W

Search Radius: 500 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the item was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous 48 Obstn.**

Item 10907

Description: Wreck (TX-1752-BP)

Charted Position: 28°52'30.90"N, 95°18'30.78"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Within the search radius of this wreck, two possible wrecks were seen (Investigation Items B5 and B8). Both of the possible



wrecks appear to be much larger than the one described in this AWOIS listing. No evidence of the reported wreck was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA. See also Item B.5, page 26 and Item B8, page 27-28.**

#### Item 10908

Description: Wreck (Ross B)

Charted Position: 28°51'22.90"N, 95°16'04.77"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the wreck was found. However, part of the required search radius for the wreck overlaps a charted COE dump area. The remains of the wreck may have gone undetected due to the presence of the dredge deposits.

Charting Recommendation: Since the dump area is a charted feature, it is recommended that this item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**

#### Item 10910

Description: Wreck (Alley Cat)

Charted Position: 28°45'48.00"N, 95°15'54.00"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Sonar contacts 336/072226P, 336/094326S, 338/060248S and 338/082450P represent a 20 by 50 meter patch of what appears to be



scattered debris. These contacts fall 750 meters to the southwest of the charted wreck location. It is likely that the contacts represent the wreck. There are shrimp nets caught up on the remains of the wreck, which may account for the details of the wreck not being visible. The wreck may also be broken into pieces. A least depth of 17.13 meters (56.20 feet) was determined from the multibeam data.

Charting Recommendation: It is recommended that the item be charted as a 56 foot wreck at 28°45'36.76"N, 95°16'18.87"W and that the AWOIS listing be updated to reflect this new position and depth. **Concur.**

#### Item 10911

Description: Obstruction (Pipe)

Charted Position: 28°46'36.91"N, 95°11'42.77"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the obstruction was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Obstrn depth unknown, PA.**

#### Item 10912

Description: Obstruction

Charted Position: 28°41'30.92"N, 95°13'00.77"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the item was found during the survey.



Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Obstrn rep depth unknown.**

Item 10920

Description: Wreck (Hi Class Gal)

Charted Position: 28°41'30.92"N, 95°00'00.74"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Several areas of scattered debris were seen within the search radius of this wreck. None were classified as significant contacts and none are believed to represent the wreck described in this AWOIS listing.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**

Item 10921

Description: Obstruction

Charted Position: 28°40'00.92"N, 95°00'00.74"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the item was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Obstrn depth unknown, PA.**



Item 10923

Description: Wreck (Gulf Star)

Charted Position: 28°44'00.00"N, 95°02'00.00"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: No evidence of the wreck was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA.**

Item 10924

Description: Wreck (Unknown Vessel)

Charted Position: 28°50'00.00"N, 95°10'00.00"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Two significant contacts (S5 and S9) were seen within the search radius of this item. One is interpreted to be a natural seafloor feature (S9) and the other is a small circular target (S5). No evidence of the reported item was found during the survey.

Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA. See also Item S5, page 31 and Item S9, page 32.**

Item 10926

Description: Dump Site

Charted Position: 28°50'3'00.00"N, 95°10'6'00.25"W





Search Radius: Charted Boundary

Investigation Method: 200% Side Scan Sonar, 100% Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Several significant contacts were seen within the charted bounds of this dump site.

Charting Recommendation: It is recommended that the item be retained as charted. **Concur.**

Item 10927

Description: Dump Site

Charted Position: 28°50'30.00"N, 95°15'20.00"W

Search Radius: Charted Boundary

Investigation Method: 200% Side Scan Sonar, 100 % Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Most of the dredge spoil deposits were seen in the northeastern portion of the charted dump site and in some cases extend past the northern and eastern boundary.

Charting Recommendation: It is recommended that the item be retained as charted. **Concur.**

Item 11026

Description: Wreck (Bayliner)

Charted Position: 28°47'30.00"N, 95°16'42.00"W

Search Radius: 2000 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: Numerous significant contacts were seen within the search radius of this wreck. All of the contacts appear to represent natural seafloor features and no evidence of the wreck was seen.



Charting Recommendation: It is recommended that the item be removed from the chart and that the AWOIS listing be updated to reflect the results of this survey. **Concur. Delete Dangerous Wreck depth unknown, PA. See also Item B3, page 25; Item S4 pages 30 and ER D.1, page 1; Item S2, page 30.**

#### ASSIGNED OR UNDETERMINED

Nineteen items were listed as Assigned or Undetermined (255, 259,289, 302, 306, 3240, 3243, 10909, 10913, 10914, 10917, 10918, 10919, 10922, 10929, 10930, 10931, 11023, and 11113). Of these, eight had portions of their search radii falling within the survey area (259, 306, 10909, 10913, 10914, 10929, 10930, 10931). The portions of the search radii falling within the survey area were very small in every case. It is recommended that all nineteen of these AWOIS items be retained as charted. **Concur.**

#### COMPLETED

AWOIS Items 10925 (364/011324S, 364/030048P, 007/053447S) and 10928 (364/011404S, 364/030130P, 007/053353S) were resolved on previous surveys and no investigation for these items was required. A least depth of 52 feet was determined from the survey. The charted depths are shoaler and since no special investigation work was done for these items, it is recommended that the items be retained as charted. **Concur.**

#### D.1.5 OTHER CHARTED FEATURES

Only one charted item not included in the above AWOIS Items exists. It is a charted Wreck PA located at 28°55'32"N, 95°13'29"W. No evidence of this item was found during the survey and it is recommended that the item be removed from the chart. **Concur. Delete Dangerous Wreck depth unknown, PA.**



D.1.6 ITEMS OF INVESTIGATION

Item B1

Description		A piece of debris with up to 1.4 m of relief located at 28°34'13"N, 94°56'54"W. The target lay outside of the original multibeam swath coverage.
Investigation Method		Multibeam Echosounder (lines 2000-2006)
Sonar Contacts	Original Survey	319/154320S (ss386) and 319/170331P (ss389)
	Investigation	N/A
Results of Investigation		The presence of the target was confirmed with the multibeam and a least depth was determined.
Least Depth		30.47 meters (99.97 feet)
Charting Recommendation		It is recommended that the item be charted as a 100 foot obstruction at 28°34'13.45"N, 94°56'54.16"W. <b>Concur. Chart 100 Obstr.</b>

Item B2

Description		A circular/cylindrical piece of debris at 28°45'20"N, 95°10'57"W. Additional investigation was necessary to determine least depth.
Investigation Method		400% Side Scan Sonar, Multibeam Echosounder (lines 2119-2123, 2208-2212)
Sonar Contacts	Original Survey	330/222208S (ss573) and 331/003130P(ss575)
	Investigation	N/A
Results of Investigation		The item was not detected during the investigations survey. There were drag scars in the area which may suggest that the item has been swept away or become buried due to the disturbance of the seafloor.
Least Depth		N/A
Charting Recommendation		No charting recommendation is made for this target although the original significant contacts are shown on the sonar contact plot. <b>Concur.</b>

Descriptive Report to Accompany Hydrographic Survey H11087



Item B3

Description		An elongated seafloor feature located at 28°47'31"N, 95°17'24"W which was not completely ensonified by the multibeam sonar system.
Investigation Method		Multibeam Echosounder (lines 2132-2137)
Sonar Contacts	Original Survey	337/193828P (ss683) and 337/182841P (ss682)
	Investigation	N/A
Results of Investigation		The presence of the seafloor feature was confirmed and an accurate least depth was determined.
Least Depth		<del>17.91</del> <b>18.781</b> meters ( <del>58.76</del> <b>61</b> feet)
Charting Recommendation		It is recommended that the item be charted as a <b>59 61</b> foot obstruction at 28°47'30.99"N, 95°17'24.72"W. <b>Concur with clarification . Chart Dang 61 Obstns 28°47'30.95"N 095°17'24.65"W. See also ER D.1.</b>

Item B4

Description		A possible wreck located at 28°52'32"N, 95°16'22"W. The target lay outside of the original multibeam swath coverage.
Investigation Method		Multibeam Echosounder (lines 2218-2225)
Sonar Contacts	Original Survey	346/005746S (ss883) and 346/030248P (ss886)
	Investigation	N/A
Results of Investigation		The presence of the wreck was confirmed and an accurate least depth was determined.
Least Depth		10.42 meters (34.19 feet)
Charting Recommendation		It is recommended that the item be charted as a 34 foot wreck at 28°52'32.20"N, 95°16'21.41"W. <b>Concur. Chart Dang. 34 Wk.</b>

Descriptive Report to Accompany Hydrographic Survey H11087



Item B5

Description		A long narrow target that lay outside of the original multibeam swath coverage at 28°52'25"N, 95°19'23"W.
Investigation Method		Multibeam Echosounder (lines 2232-2237)
Sonar Contacts	Original Survey	348/115532S (ss925) and 348/124706P (ss928)
	Investigation	N/A
Results of Investigation		The presence of the target was confirmed and an accurate least depth was determined.
Least Depth		<del>10.29</del> <b>10.173</b> meters ( <del>33.76</del> <b>33.37</b> feet)
Charting Recommendation		It is recommended that the item be charted as a <del>34</del> <b>33</b> foot obstruction at 28°52'24.80"N, 95°19'23.25"W. <b>Concur. Chart Dang 33 Obstn. See also ER, D.2.</b>

Item B6

Description		A piece of circular debris located at 28°52'57"N, 95°17'40"W. The target was not covered by the original multibeam swath.
Investigation Method		400% Side Scan Sonar, Multibeam Echosounder (lines 2245-2248)
Sonar Contacts	Original Survey	348/150939P (ss931) and 348/055346P (ss909)
	Investigation	200/063449P (2246)
Results of Investigation		The object was detected with the multibeam system and a least depth was determined.
Least Depth		12.35 meters (40.52 feet)
Charting Recommendation		It is recommended that the item be charted as a 40 foot obstruction at 28°52'57.42"N, 95°17'40.68"W. <b>Concur. Chart Dang 40 Obstn.</b>

Descriptive Report to Accompany Hydrographic Survey H11087



Item B7

Description		A suspicious target with dimensions of 5 meters by 5 meters with a calculated relief of 3 meters located at 28°54'00"N, 95°15'50"W. The target lay outside of the multibeam coverage.
Investigation Method		400 % Side Scan Sonar, Multibeam Echosounder (lines 2249-2253, 2255-2256)
Sonar Contacts	Original Survey	348/152551P (ss931)
	Investigation	200/084351S (2249)
Results of Investigation		The presence of the target was confirmed and the presence of another was determined (See Item S11 in Section D.1.7). Fresh dredge deposits were being dumped in the area at the time of the investigation survey.
Least Depth		12.64 meters (41.47 feet)
Charting Recommendation		This object is so close to Item S11 that at the scale of the smooth sheet and the chart, both will not be able to be plotted. The least depth for S11 is 38 feet and therefore the charting of that item will take precedence over this one. <b>Concur. Do not chart. See page 33 of this report.</b>

Item B8

Description		A possible wreck located at 28°53'21"N, 95°18'59"W. The target was not covered by the multibeam sonar swath coverage.
Investigation Method		400% Side Scan Sonar, Multibeam Echosounder (lines 2238-2243)
Sonar Contacts	Original Survey	348/103829P (ss922) and 348/095258S (ss920)
	Investigation	200/040729S (2238), 200/042109S (2239), 200/043433P (2240) and 200/051143S (2242)
Results of Investigation		The presence of the target was confirmed and an accurate least depth was determined. Additional side scan coverage was achieved.
Least Depth		9.01 meters (29.56 feet)

Descriptive Report to Accompany Hydrographic Survey H11087



Charting Recommendation	It is recommended that the item be charted as a 29 foot <del>wreck</del> <b>obstruction</b> at 28°53'20.58"N, 95°18'59.62"W. <b>Concur. Chart Dang. 29 Obstn. See also ER, D.3</b>
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Item B9

Description	A zone of irregular seafloor which was not entirely covered by multibeam sonar.	
Investigation Method	400% Side Scan Sonar, 100% Multibeam Echosounder (lines 2144-2145, 2191-2207)	
Sonar Contacts	Original Survey	340/065124P (ss730) and 340/183052P (ss741)
	Investigation	199/131420S through 199/155422P (2192-2206)
Results of Investigation	The extents of the patch of the irregular seafloor were mapped with the side scan and multibeam.	
Least Depth	<del>62</del> <b>61</b> feet	
Charting Recommendation	It is recommended that the item be charted as individual soundings as shown on the smooth sheet. <b>Concur. Chart present survey depth. See also ER, D.4.</b>	

Item B10

Description	Another zone of irregular seafloor which was not entirely covered by multibeam sonar.	
Investigation Method	400% Side Scan Sonar, 100% Multibeam Echosounder (lines 2146-2190, 2257-2265)	
Sonar Contacts	Original Survey	329/115811P (ss522) and 329/141920S (ss527)
	Investigation	198/232656S through 199/113520S (2147-2188)
Results of Investigation	The extents of the seafloor feature were mapped with the side scan and multibeam systems.	
Least Depth	<del>43</del> <b>42</b> feet	



Charting Recommendation	It is recommended that the item be charted as individual soundings as depicted on the smooth sheet. <b>Do not concur. See ER D.5, Item B10.</b>
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Item B11

Description	An elongated target located at 28°53'01"N, 95°18'22"W which was not entirely covered by multibeam sonar.	
Investigation Method	Multibeam Echosounder (lines 2226-2231)	
Sonar Contacts	Original Survey	348/123756P (ss928) and 348/114620S (ss925)
	Investigation	N/A
Results of Investigation	The presence of the target was confirmed and an accurate least depth was determined.	
Least Depth	10.96 meters (35.96 feet)	
Charting Recommendation	It is recommended that the item be charted as a 36 foot obstruction at 28°53'00.83"N, 95°18'21.78"W. <b>Concur. Chart Dang. 36 Obstrn.</b>	

D.1.7 SIGNIFICANT CONTACTS

This section addresses only significant contacts that have not been addressed previously in the AWOIS Item section or the Items of Investigation section.

Item S1

Sonar contacts 311/150828P (ss123) and 311/165239S (ss125) represent an outcrop or debris. A height of 3 meters was calculated from the side scan sonar shadow on one of the lines. Upon viewing the multibeam data it is apparent that there is a depression surrounding the target. The least depth of the target is no shallower than the surrounding seafloor (78 feet).

No special charting recommendation is necessary for this target. **Concur.**





Item S2

Sonar contacts 329/114815P (ss521) and 329/123436S (ss523) represent a ridge-like feature similar to that described in item investigation B3. A least depth of 18.30 meters (60.04 feet) was determined from the multibeam data.

It is recommended that the item be charted as a 60 foot obstruction at 28°48'03.86"N, 95°17'32.73"W. **Concur. Chart Dang. 60 Obstn.**

Item S3

Sonar contacts 337/220940S (ss686) and 337/201842S (ss864) represent a piece of man-made debris with dimensions of 5 by 15 meters. The debris is fairly close to an oil/gas platform. A least depth of 19.07 meters (62.57 feet) was determined from the multibeam data.

It is recommended that the item be charted as a 62 foot obstruction at 28°48'29.61"N, 95°15'02.92"W. **Concur. Chart Dang. 62 Obstn.**

Item S4

Sonar contacts 337/193825S (ss683) and 337/180758P (ss681) represent a seafloor feature similar to that described for significant contact S2 and investigation item B3. A least depth of 18.65 meters (61.19 feet) was determined from the multibeam data. **Concur.**

Due to its proximity to item B3, a ~~59~~ **61** foot obstruction, this item will not show up at the scale of the smooth sheet or the nautical charts. **Concur with clarification. See ER D.1.**



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Item S5

Sonar contacts 340/183716P (ss741) and 340/064447P (ss730) represent an irregularly shaped seafloor feature. A least depth of 18.91 meters (62.04 feet) was determined from the multibeam data.

It is recommended that the item be charted as a 62 foot obstruction at 28°50'00.38"N, 95°11'10.10"W. **Concur. Chart Dang. 62 Obstn.**

Item S6

Sonar contacts 343/203708S (ss835) and 343/223531P (ss837) represent a target with a calculated height of up to 2.4 meters. It is unclear as to whether the feature is natural or man-made. A least depth of 15.52 meters (50.92 feet) was determined from the multibeam data. This object lies in the middle of the charted COE dump area (AWOIS Item 10927).

Although the target lies within a charted dump site, due to its relief above the surrounding seafloor, it is recommended that the item be charted as a 51 foot obstruction at 28°50'57.62"N, 95°14'51.09"W. **Concur. Chart Dang. 51 Obstn.**

Item S7

Sonar contacts 345/070106P (ss870) and 345/084928S (ss872) represent a target which looks like a buoy block. It is unclear as to whether it is an old block or one for an existing buoy. Part of the chain is visible but appears to be resting on the seafloor. A least depth of 14.01 meters (45.96 feet) was determined from the multibeam data.

It is recommended that the item be charted as a 46 foot obstruction at 28°53'11.18"N, 95°14'15.19"W. **Concur. Chart Dang. 46 Obstn. This item was submitted as DtoN.**



Item S8

Sonar contacts 354/200750S (ss1039) and 354/181208P (ss1037) represent a target similar in characteristics as that described as Item S7. A least depth of 15.59~~3~~ meters (~~51.15~~ **50.95** feet) was determined from the multibeam data.

It is recommended that the item be charted as a 51 foot obstruction at 28°53'32.64 **48.59**"N, 95°13'27.70 **04.21**"W. **Do not concur. Chart Dang. 51 Obstn.**

Item S9

Sonar contacts 363/003458S (ss1128) and 363/021609P (ss1130) represent a circular piece of debris. A least depth of 18.52 meters (60.76 feet) was determined from the multibeam data.

It is recommended that the item be charted as a 61 foot obstruction 28°50'58.91"N, 95°09'34.75"W. **Concur. Chart Dang. 61 Obstn.**

Item S10

Sonar contact 198/200430P (ss2143) represents an elongated target. A least depth of 17.75 meters (58.23 feet) was determined from the multibeam data.

It is recommended that the item be charted as a 58 foot obstruction at 28°46'26.85"N, 95°16'00.41"W. **Concur. Chart Dang. 58 Obstn.**

Item S11

During the investigation of Item B7 a second significant contact was detected and a least depth was determined. Sonar contact 200/073145P (2249) represents a target with a calculated height of over 1 meter. A least depth of 11.62 meters (38.12 feet) was determined from the multibeam data.



It is recommended that the item be charted as a 38 foot obstruction at 28°54'00.46"N, 95°15'51.58"W. **Concur. Chart Dang. 38 Obstrn.**

#### D.1.8 DANGER TO NAVIGATION REPORTS

The following item was found during hydrographic survey operations:

Object Discovered: An Obstruction with a least depth of 46 feet.

Chart Number	Edition		Reported Depth	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11321			N/A	NAD 83	28-53-11.18	95-14-15.19

**See Item S7, page 31 of this report for charting recommendation.**

#### 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.

##### D.2.2 AIDS TO NAVIGATION

Four aids to navigation are charted in the northern portion of the chart. The existence and position of each of these were confirmed during the survey. The aids to navigation were serving the purpose for which they were intended. The first chart on the following page shows the charted location versus the survey position of each of the aids and indicates the difference in meters between the positions. Each was close enough that the charted positions may be retained. \*

**\*Defer to MCD Update Services Branch for charting recommendations of aids to navigational.**

##### D.2.3 EXISTING INFRASTRUCTURE

The second chart on the following page compares the position of charted drilling structures and productions platforms with the survey positions. It is



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recommended that all platforms/structures be charted as shown on the smooth sheet and as listed in the following table. \*

***\*Defer to MCD Update Services Branch for charting recommendations of platforms.***

Descriptive Report to Accompany Hydrographic Survey H11087



**Aids To Navigation**

Description	Charted Location		Survey Position		Difference (m)
	Latitude	Longitude	Latitude	Longitude	
RW "FP" Mo(A) Whis	28°52'40"N	95°14'01"W	28°52'35"N	95°14'11"W	307
G "1" F1 G 4s	28°53'08"N	95°14'36"W	28°53'01"N	95°14'44"W	290
R "2" F1 R 4s	28°53'43"N	95°14'58"W	28°53'37"N	95°15'02"W	251
G "3" F1 G 4s Gong	28°54'05"N	95°15'40"W	28°54'06"N	95°15'47"W	198

**Oil/Gas Platforms**

Charted Structure/Platform Name	Survey Structure/Platform Name	Charted Location		Survey Location		Difference (m)
		Latitude	Longitude	Latitude	Longitude	
**No Name	Not Present	28°37'56"N	94°57'16"W	-	-	-
**No Name	Not Present	28°36'04"N	94°58'40"W	-	-	-
*No Name	THEC GA-389-B	28°36'49"N	94°59'26"W	28°36'53"N	94°59'30"W	145
**No Name	Not Present	28°47'17"N	95°03'34"W	-	-	-
*No Name	OEI GA-362-A	28°41'25"N	95°13'49"W	28°41'26"N	95°13'53"W	98
*No Name	Anadarco GA-333-A	28°47'07"N	95°12'19"W	28°47'07"N	95°12'22"W	101
*No Name	ROC GA-310L-L	28°48'30"N	95°14'58"W	28°48'23"N	95°14'59"W	241
*No Name	ROC GA-334-L (Unlit)	28°47'49"N	95°16'06"W	28°47'50"N	95°16'11"W	125
*No Name	Platform	28°47'14"N	95°17'03"W	28°47'10"N	95°17'08"W	197
*No Name (2)	ROC BA-335-L#9 (Unlit)	28°46'50"N	95°17'05"W	28°46'52"N	95°17'17"W	333
		28°46'55"N	95°17'02"W			442
**No Name	Not Present	28°50'30"N	95°14'19"W	-	-	-
*No Name	Seneca GA-310-L	28°50'35"N	95°14'47"W	28°50'35"N	95°14'54"W	199
**No Name	Not Present	28°55'44"N	95°12'09"W	-	-	-
**No Name	Not Present	28°55'47"N	95°12'06"W	-	-	-

**\* Platform charted and located during H11087.**

**\*\* Platform currently charted, but not located during H11087.**



#### D.2.4 OTHER PERTINENT INFORMATION

A recurring heave artifact was seen in portions of the multibeam data. The artifact was a long period drift which caused faulty depth data over distances of 3 to 5 shot points (450 to 750 meters). The vertical errors were on the order of 60 centimeters. The data in these areas were rejected. They were cropped so it looked as though we had no coverage in those areas. This ensured that none of these soundings were available for selection during smooth sheet compilation. These areas were rerun in conjunction with the investigation work and were processed prior to sounding selection for the smooth sheets. **Concur.**



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**LETTER OF APPROVAL**

REGISTRY NUMBER H11087

This report and the accompanying smooth sheet are respectfully submitted.

Field operations contributing to the accomplishment of the survey H11087 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and smooth sheet have been closely reviewed and are considered complete and adequate as per the Statement of Work.

This report is meant to be accompanied by the Data Acquisition and Processing Report for project OPR-K379-KR submitted February, 2002.

A handwritten signature in black ink, appearing to read "Art Kleiner", written over a horizontal line.

Art Kleiner  
Chief of Party  
C&C Technologies  
September 2002





## DANGER TO NAVIGATION REPORT

Commander (OAN)  
Eighth Coast Guard District  
Hale Boggs Federal Building  
New Orleans, LA 70130-3396

ATTN: Marine Information  
Fax: 504-589-6654

Dear Sir:

While conducting hydrographic survey operations in the Approaches to Freeport, Texas Navigation Channel in the Gulf of Mexico, C & C Technologies, Inc. discovered an uncharted obstruction with a least depth of 46 feet. Attached is the Danger to Navigation Report.

Differential GPS, side scan sonar, and multibeam sonar were used to determine the position and depth. These data are preliminary and subject to office review.

Sincerely,  
**C & C Technologies, Inc.**

Frank Lipari, PE, PLS

Enclosures: report  
Copy: COTR

**REPORT OF DANGER TO NAVIGATION**  
**Hydrographic Survey Registry Number:H -11087**

State: Texas

General Locality: Gulf of Mexico

Sublocality: Approaches to Freeport, Texas

Project Number: OPR-K379-KR

The following item was found during hydrographic survey operations:

Object Discovered: An Obstruction with a least depth of 46 feet.

Chart Number	Edition		Reported Depth	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11321			N/A	NAD 83	28-53-11.18	95-14-15.19



ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H11087 (2001-2002)

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report and required revisions on the Contractor (KR) Preliminary Smooth sheet (PSS). Sections in this report refer to the corresponding sections of the Descriptive Report.

**B. DATA ACQUISITION AND PROCESSING**

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

Auto Cad version R14  
CARIS HIPS/SIPS version 5.2 and 5.3 SP3  
MapInfo, version 6.5  
Microstation J, version 7.1  
Microstation I/RAS B, Version 07.01.000.18

The Smooth Sheet was plotted by contractor, C&C Technologies. The smooth sheet reflects the data as portrayed by the contractor and must be used only in conjunction with this report. Atlantic Hydrographic Branch (AHB) has not modified the submitted Smooth Sheet, but the office processed SM-Drawing does reflect the noted revisions.

**D. COMPARISON WITH CHART**

11321 29 <sup>th</sup> Edition	December 15, 2001	1:80,000 scale
11330 15 <sup>th</sup> Edition	October, 2003	1:250,000 scale
11300 39 <sup>th</sup> Edition	April, 2003	1:460,732 scale

**Hydrography**

The charted hydrography originates with the prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in Section D of the Descriptive Report (DR). Attention is directed to the following DR items:

1) D.1.6.3. Item B3: An uncharted obstruction with a depth of 59 feet, in Latitude 28°47'30.95"N Longitude 095°17'24.65"W was located during survey operations. During office processing the 59 Obstruction was determined to be a 61 Obstruction. Also, a second obstruction was noted (Item S4). Recommend charting Dangerous 61-ft Obstructions (61 Obstns) in Latitude 28°47'30.95"N Longitude 095°17'24.65"W.



2) D.1.6.5. Item B5: An uncharted obstruction with a depth of 34 feet in Latitude 28°52'24.80"N, Longitude 095°19'23.25"W was located during survey operations. Office processing determined the obstruction to have a least depth of 33 feet. Recommend charting a Dangerous 33-ft Obstruction, least depth known, located in Latitude 28°52'24.80"N Longitude 095°19'23.25"W.

3) D.1.6.8. Item B8: An uncharted 29-ft Wreck in Latitude 28°53'20.58"N, Longitude 095°18'59.62"W was located during survey operations. Office review determined the 29 wreck to be a 29 obstruction. Recommend charting a Dangerous 29 Obstruction in Latitude 28°53'20.58"N Longitude 095°18'59.62"W.

4) D.1.6.9. Item B9: An uncharted sounding with a depth of 62 feet in Latitude 28°49'32.08"N, Longitude 095°11'59.33"W is shown on H11087 smooth sheet. During office review the 62 feet depth was determined to be 61 feet. Recommend revising the smooth sheet depth to a 61 located Latitude 28°49'32.08"N, Longitude 095°11'59.33"W.

5) D.1.6.10. Item B10: Survey H11087 located a charted benthic shoal with a least depth of 42 feet in the general area of Latitude 28°47'38"N, Longitude 095°18'00"W. Data verification determined that smooth sheet revisions are required in this area. The following list indicates the smooth sheet depths that require revision, the recommended depth, and the geographic location:

<u>DEPTH</u>	<u>LATITUDE N</u>	<u>LONGITUDE W</u>	<u>Add/Remove</u>
42	28°47'42.35"	095°17'54.62"	Add
43	28°47'42.42"	095°17'54.67"	Remove
46	28°47'24.91"	095°18'13.43"	Remove
45	28°47'25.10"	095°18'12.88"	Add
46	28°47'26.27"	095°18'05.68"	Add
58	28°47'24.12"	095°18'05.63"	Add
48	28°47'28.46"	095°18'05.91"	Remove
47	28°47'28.08"	095°18'05.68"	Add
48	28°47'32.48"	095°18'04.88"	Add
40	28°47'24.45"	095°18'06.04"	Remove

#### Items Not Discussed in the Descriptive Report

6) During office processing an uncharted 58-ft sounding in Latitude 28°46'48.56"N, Longitude 095°16'45.92"W was located on the original submitted smooth sheet. Office review determined that the data point associated with the 58-ft is invalid. Recommend revising the 58-ft smooth sheet sounding to 64-ft sounding located in Latitude 28°46'48.506"N, Longitude 095°16'46.072"W. The original smooth sheet has not been altered, while the office processed SM-Drawing has been revised.



7) An uncharted obstruction with a least depth of 57 feet in Latitude 28°50'01.29"N, Longitude 095°14'07.99"W was located during office processing. It is recommended that a dangerous obstruction with a least depth of 57 feet (57 Obstn) be charted in this location. AHB submitted this feature as a Danger to Navigation.

8) An uncharted obstruction with a least depth of 58 feet, in Latitude 28°50'03.37"N, Longitude 095°14'27.48"W was located during office processing. It is recommended that a dangerous obstruction with a least depth of 58 feet (58 Obstn) be charted in this location. AHB submitted this feature as a Danger to Navigation.

9) An uncharted obstruction with a least depth of 61 feet, in Latitude 28°50'58.16"N, Longitude 095°09'18.52"W was located during office processing. It is recommended that a dangerous obstruction with a least depth of 61 feet (61 (Obstn)) be charted in this location.

10) During office processing an uncharted 46-ft sounding, in Latitude 28°47'45.82"N, Longitude 095°17'41.9"W was located on the original submitted smooth sheet. Office review determined that the data point associated with the 46-ft sounding is invalid. Recommend revising the 46-ft smooth sheet sounding to 61-ft sounding in Latitude 28°47'45.915"N, Longitude 095°17'41.836"W. The original smooth sheet has not been altered, while the office processed SM-Drawing has been revised.

### Controlling Depths

No conflicts exist between the project depths of 45-47 feet in the Freeport Harbor Channel and present survey soundings throughout the common area.

### Danger To Navigation

One Danger to Navigation report was submitted to NOAA's Atlantic Hydrographic Branch, Norfolk, Virginia. A copy of this report is attached to the descriptive report.

One Danger to Navigation report containing five features was submitted by the Atlantic Hydrographic Branch to Marine Chart Division, N/CS3x1, Silver Spring, Maryland. A copy of this report is appended to the Evaluation Report.



### JUNCTIONS

A standard junction was made between the present survey and survey H11061 (2001) on the east side of H11087. Present survey depths are in harmony with junctional survey H11061. There are no junctional surveys to the north, south or west.

### COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not performed during office processing in accordance with Section 4 of the memorandum titled "Changes to Hydrographic Survey Processing," dated May 24, 1995.

### ADEQUACY OF SURVEY

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area. This is an adequate hydrographic/multibeam survey. No additional field work is recommended.

### MISCELLANEOUS

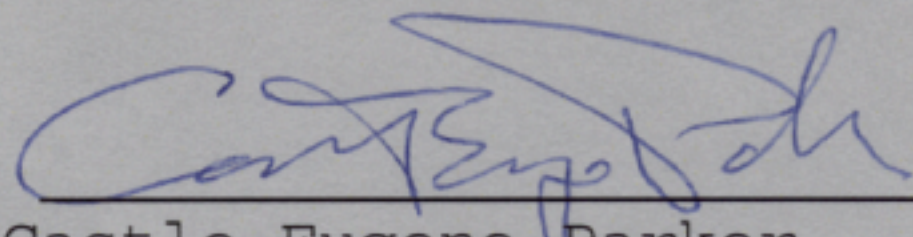
Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. The following NOS Charts were used for compilation of the present survey:

11321	29 <sup>th</sup> Edition	December, 2001	1:80,000 scale
11330	15 <sup>th</sup> Edition	October, 2003	1:250,000 scale



APPROVAL SHEET  
H11087

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disapproval of charted data. No revisions and additions were made to the contractor's smooth sheet during survey processing. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

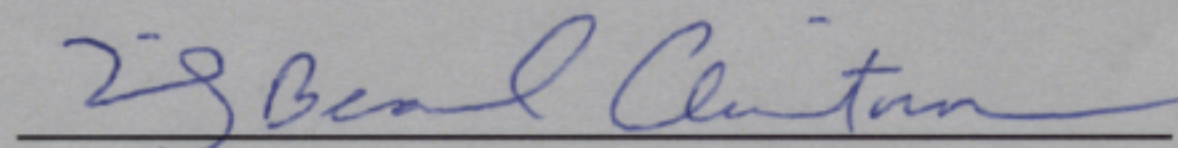


Castle Eugene Parker  
Physical Scientist,  
Atlantic Hydrographic Branch

Date: 04/22/04

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.

Approved:



Emily B. Christman  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch

Date: 5/17/2004

AWOIS ✓ & SURF ✓ by MBA 6/9/04



**REPORT OF DANGERS TO NAVIGATION**

Hydrographic Survey Registry Number: H11087

Survey Title: State: Texas  
 Locality: Gulf of Mexico  
 Sublocality: Approaches to Freeport

Project Number: OPR-K379-KR-01

Survey Date: October 30 , 2001 through July 17, 2002

Features are reduced to Mean Lower Low Water using verified observed tides and are positioned on NAD 83.

Charts affected: 11321 29<sup>th</sup> Edition December 15, 2001 1:80,000 scale  
 11330 13<sup>th</sup> Edition April 21, 2001 1:250,000 scale  
 11300 37<sup>th</sup> Edition June 24, 2000 1:460,732 scale

**DANGERS TO NAVIGATION**

<b>DtoN#</b>	<b>FEATURE</b>	<b>DEPTH (FT)</b>	<b>LATITUDE (N)</b>	<b>LONGITUDE (W)</b>
1	Wreck	34	28°52'32.20"	095°16'21.41"
2	Obstruction	46	28°53'11.18"	095°14'15.19"
3	Obstruction	57	28°50'01.29"	095°14'07.99"
4	Obstruction	58	28°50'03.37"	095°14'27.48"
5	Wreck	56	28°45'36.76"	095°16'18.87"

Questions concerning this report should be directed to the Chief, Atlantic Hydrographic Branch at (757) 441-6746





This chartlet may not be up to date with the latest Local Notice to Mariners information.  
**NOT FOR NAVIGATION.**

**37**  
 Dump Site  
 (dredged material)  
 (see note S)

**#1 34-ft WK**  
 28°52'32.20"N  
 095°16'21.41"W

**#2 46-ft Obstrn?**  
 28°53'11.18"N  
 095°14'15.19"W

**Chartlet 1 of 3** Charts Affected: #11321, 29th Edition, Dec 15, 2001, 1:80,000 Scale  
 #11330, 13th Edition, April 21, 2001, 1:250,000 Scale  
 #11300, 37th Edition, June 24, 2000, 1:460,732 Scale



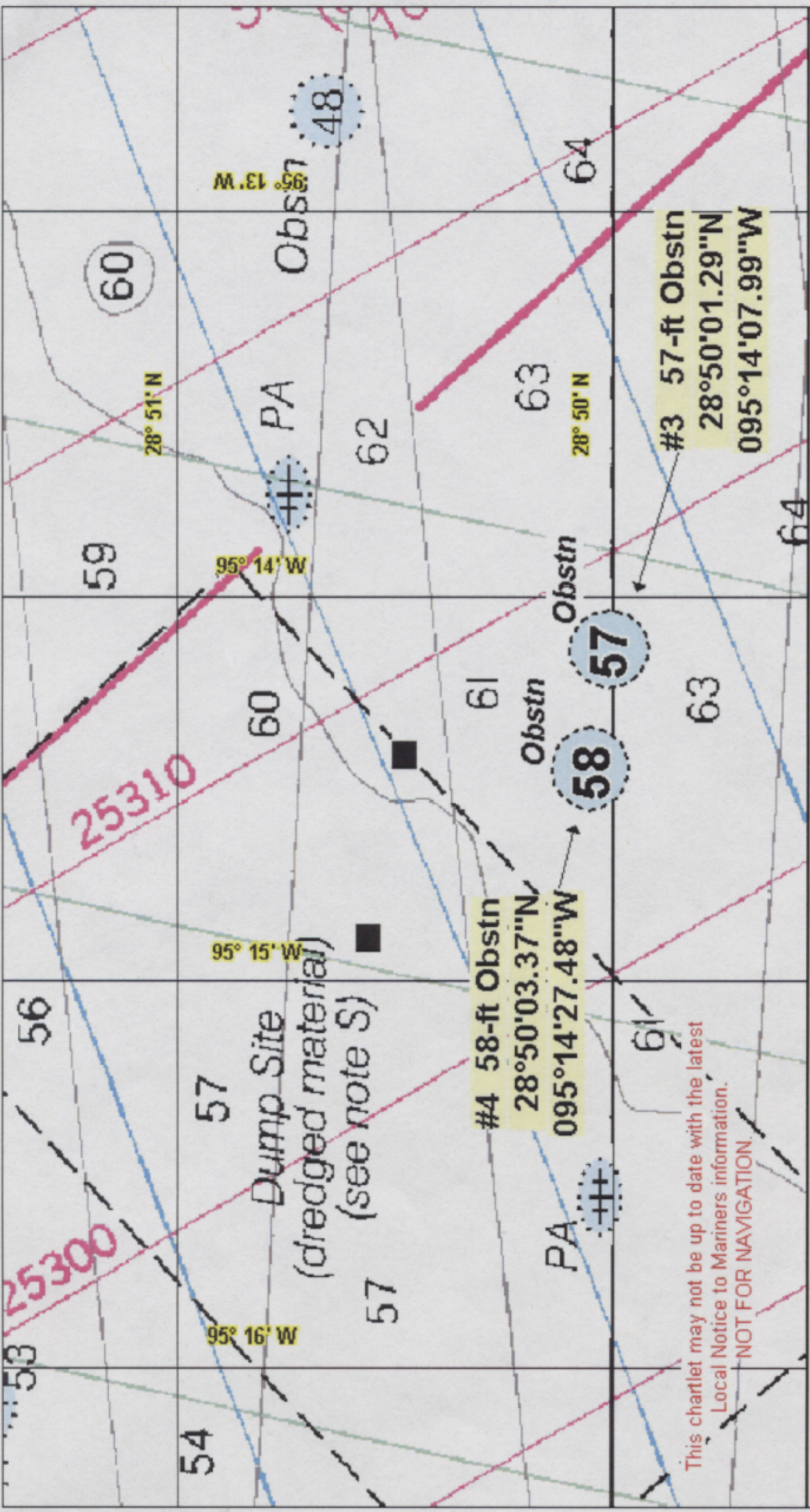
NATIONAL OCEANIC AND  
 ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE

Project: OPR-K379-KR  
 Survey: H11087  
 State: Texas  
 Locality: Gulf of Mexico  
 Sub-locality: Approaches to Freeport  
 Survey Scale: 1:40,000

Sounding Units: Feet  
 Sounding Datum: MLLW  
 Horizontal Datum: NAD 83  
 Projection: UTM 15  
 Central Meridian: 093° 00 00  
 Scale Factor: 0.9996

C&C Technologies  
 Art Kleiner  
 Chief of Party  
 October 30, 2001  
 July 18, 2002





This chartlet may not be up to date with the latest  
 Local Notice to Mariners information.  
**NOT FOR NAVIGATION.**

**Chartlet 2 of 3** Charts Affected: #11321, 29th Edition, Dec 15, 2001, 1:80,000 Scale  
 #11330, 13th Edition, April 21, 2001, 1:250,000 Scale  
 #11300, 37th Edition, June 24, 2000, 1:460,732 Scale



NATIONAL OCEANIC AND  
 ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE

Project: OPR-K379-KR  
 Survey: H11087  
 State: Texas  
 Locality: Gulf of Mexico  
 Sub-locality: Approaches to Freeport  
 Survey Scale: 1:40,000

Sounding Units: Feet  
 Sounding Datum: MLLW  
 Horizontal Datum: NAD 83  
 Projection: UTM 15  
 Central Meridian: 093° 00 00  
 Scale Factor: 0.9996

C&C Technologies  
 Art Kleiner  
 Chief of Party  
 October 30, 2001  
 July 18, 2002





This chartlet may not be up to date with the latest Local Notice to Mariners information. NOT FOR NAVIGATION.

**Chartlet 3 of 3** Charts Affected: #11321, 29th Edition, Dec 15, 2001, 1:80,000 Scale  
 #11330, 13th Edition, April 21, 2001, 1:250,000 Scale  
 #11300, 37th Edition, June 24, 2000, 1:460,732 Scale



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE

Project: OPR-K379-KR  
 Survey: H11087  
 State: Texas  
 Locality: Gulf of Mexico  
 Sub-locality: Approaches to Freeport  
 Survey Scale: 1:40,000

Sounding Units: Feet  
 Sounding Datum: MLLW  
 Horizontal Datum: NAD 83  
 Projection: UTM 15  
 Central Meridian: 093° 00 00  
 Scale Factor: 0.9996

C&C Technologies  
 Art Kleiner  
 Chief of Party  
 October 30, 2001  
 July 18, 2002



