H10661

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC SURVEY

Field No. AHP-10-9-95

Registry No. H-10661

LOCALITY

State TEXAS

General Locality GALVESTON BAY

Sublocality RED BLUFF TO HOUSTON POINT

19 95

CHIEF OF PARTY

LT K. N. HARBISON, NOAA

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DATE FEB - 5 1998

*U.S. GOV. PRINTING OFFICE: 1967---756-980

NOAA FORM 77-28	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.
	HYDROGRAPHIC TITLE SHEET	H-10661
INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.		FIELD NO. AHP 10-09-95

State Texas

General Locality Galveston Bay

Locality Red Bluff to Houston Pt

Scale 1:10,000 Date of Survey November 7, 1995 - April 4, 1996

Instructions Dated September 16, 1994 Project No. OPR-K224

Vessel NOAA Launch Nos. 0517, 1292

Chief of Party Kevin N. Harbison, Lieutenant, NOAA

Surveyed By Atlantic Hydrographic Party

Soundings taken by echo sounder, sounding pole

Graphic record scaled by MJM, JLB, JBG **

Graphic record checked by MJM, JLB, JBG **

Protracted by HDAPS Automated plot by Bruning ZETA 824A ENCAD NovaJet III (AHB), (Field)

Verification by Atlantic ~~Marine Center~~ Hydrographic Branch Personnel

Soundings in ~~meters~~ Feet at MLLW

REMARKS: ** MJM - Mark J. McMann

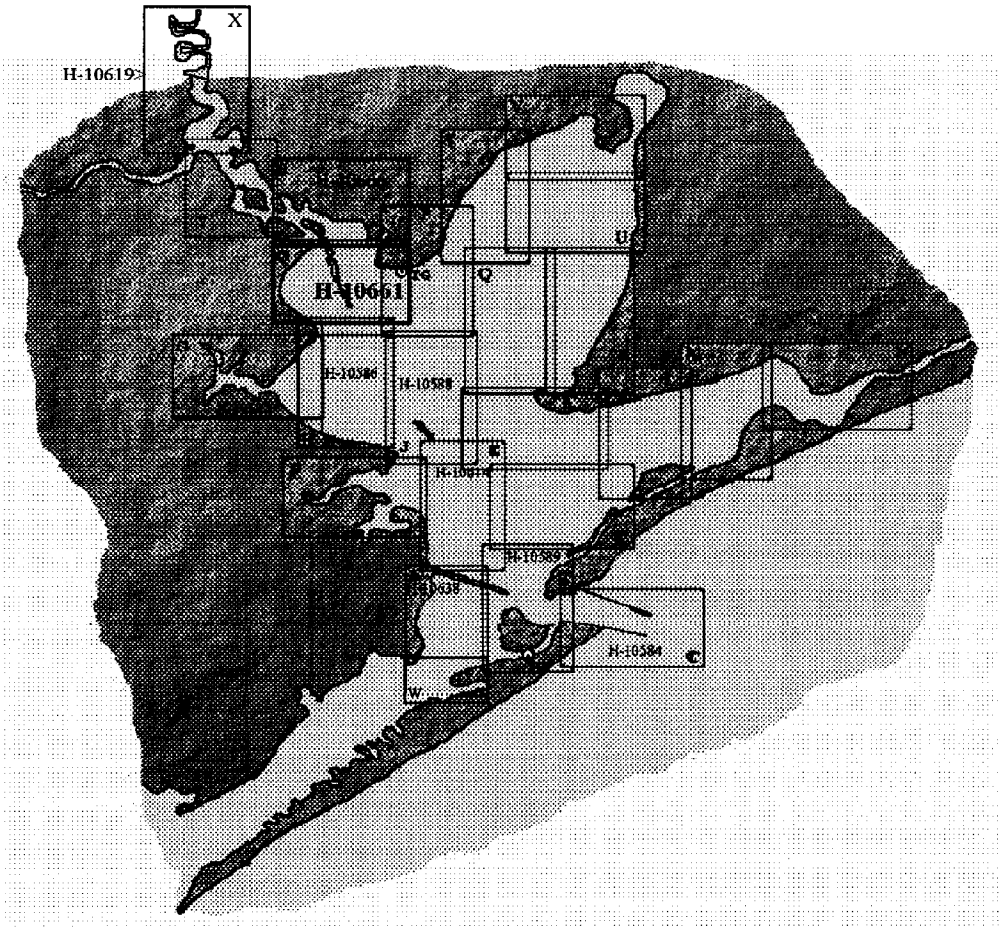
JLB - Jan L. Budlong

JBG - John B. Gaskin

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

AWOIS/SURF 1/9/98 mcR

Atlantic Hydrographic Party
Galveston Bay
OPR-K204-AHP
Index of Sheets



DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10661
FIELD NO. AHP-10-9-95
SCALE: 1:10,000
1995-1996
ATLANTIC HYDROGRAPHIC PARTY
CHIEF OF PARTY: LT James A. Illg

A. PROJECT

This survey was conducted according to Hydrographic Project Instructions OPR-K204-AHP, Galveston Bay, Texas, dated September 16, 1994, change No. 1, dated June 6, 1995, change No. 2, dated October 26, 1995, and change No. 3, dated April 3, 1996. This survey is designated as Sheet "O" on the sheet layout dated September 6, 1994.

Project OPR-K204-AHP is in response to requests from the Houston Pilots Association, Houston/Galveston Navigation Safety Advisory Committee, West Gulf Maritime Association, Houston Safe Boating Council, Inc., and the U. S. Coast Guard, for updated hydrographic and bathymetric data of this area for use in proposed studies and in the creation of new charts. Prior surveys in this area were conducted in the years between 1962-1965.

B. AREA SURVEYED

The area surveyed for H-10661 covers the Northwest section of Galveston Bay from Red Bluff to Houston Point. The approximate survey limits are:

North - 29°40'30"N
South - 29°36'~~15~~ 08"N
East - 094°55'00"W
West - 095°~~01'30~~ 02'00"W

This survey was conducted from November 7, 1995 (DN 311) to April 4, 1996 (DN 095).

C. SURVEY VESSELS

Vessel 0517, a 21-foot MonArk, was the sounding vessel used to collect all single beam hydrographic data. Vessel 1292, a 21-foot MonArk, was the vessel used to perform all side scan sonar investigations. Side scan sonar data were erroneously stored as vessel 0517 data. Since no single beam soundings were collected by 1292, this did not create any problems with corrector tables.

D. AUTOMATED DATA ACQUISITION AND PROCESSING See also Evaluation Report

Coastal Oceanographics, Inc. Hypack for Windows version 5.9 was used to collect all hydrographic data for this survey. The Hydrographic Data Acquisition and Processing System (HDAPS) was used to process all hydrographic data for this survey. *A listing of HDAPS programs used for data processing and their corresponding version numbers is appended to this report.

The following non-HDAPS computer programs were used:

VELOCITY (IBM PC)	Ver. 2.0 (12/18/92)
NADCON (IBM PC)	Ver. 1.01
WordPerfect (IBM PC)	Ver. 6.1

E. SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-T dual-channel, single frequency towfish. The towfish was operated on the 100-kHz frequency and was configured with a 20° beam depression. The side scan was used for AWOIS items and charted feature investigations only. Serial numbers (S/N) for the side scan sonar equipment used throughout the survey are listed below:

Vessel	SSS Towfish S/N	260 Recorder S/N	Dates
1292	016696	011443	3/21/96-3/28/96

On launch 1292 the towfish was deployed using a solid pipe to mount the towfish off the starboard side of the launch. The towfish cable was threaded through the end of the pipe and secured to the launch cleat with a line. The towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

Side scan sonar data were collected utilizing the 25-meter range scale. In order to acquire the required 200% SSS coverage, AWOIS investigation lines were run at a spacing of 40 meters. Adequate coverage was determined by producing two separate swath plots and ensuring 100% coverage on each plot.

The towfish was maintained at a constant depth by the way it was mounted. Confidence checks were performed on a routine basis, primarily by noting changes in bottom texture on the outer edges of the sonargram, and on the aids to navigation in the survey area.

*Data filed with original field records.

All significant contacts were measured off the sonargrams and entered into an HDAPS contact table. Field party personnel determined contact heights, positions, and cross-reference correlations using the HDAPS Contact Utility Program. Contacts were investigated using echo sounder investigation as needed. Contact table number 1 was the only table used. The only contacts identified were AWOIS items.

F. SOUNDING EQUIPMENT

An Innerspace model 448 depth sounder, serial number 241, was used to collect all soundings.

A standard lead line calibrated in meters, serial number 0517, was used during this survey for comparison readings with the echo sounder. A 5-meter wooden sounding pole, marked according to Hydrographic Survey Guideline (HSG) No. 69, was used to obtain pole soundings.

G. CORRECTIONS TO SOUNDINGS

Soundings were recorded using the Innerspace model 448 depth sounder. It was adjusted for an assumed speed of sound through water of 1500 meters/second. Changes to the gain and/or chart speed were noted on the echogram. Digitized soundings agreed with the analog trace within 0.1 meter. Necessary corrections were made while scanning the echogram.

Corrections for the speed of sound through water were computed from data obtained with Sea-Bird Electronics, Inc., SEACAT electronic profiler, serial number 192276-287. Data quality assurance tests were performed in accordance with Field Procedures Manual (FPM) 2.1.3.2. Program VELOCITY, version 2.0, was used to compute speed of sound through water corrections. *Copies of the velocity tables and cast data are in the "Survey Separates."

Correctors for the velocity of sound through water were determined from the casts listed below:

*Data Filed with original field records

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Position	Cast Day
1	1	12.1/15.8	315	29°34'00"N 094°55'25"W	313
2	2	13.3/17.2	316-325	29°31'58"N 094°53'47"W	317
3	3	12.7/16.5	326-337	29°32'16"N 094°56'22"W	334
4	4	13.2/13.1	338-353	29°31'10"N 094°53'08"W	340
5	5	14.0/18.2	354-017	29°33'00"N 094°54'30"W	011
6	6	14.0/18.2	018-027	29°39'11"N 094°58'16"W	023
7	7	16.1/15.6	028-035	29°42'10"N 095°00'56"W	032
8	8	14.2/18.4	036-040	29°42'03"N 095°00'25"W	038
9	9	14.3/18.6	041-047	29°42'09"N 095°00'47"W	043
10	10	13.5/17.6	048-054	29°42'02"N 095°00'15"W	051
11	11	13.6/17.7	055-061	29°42'19"N 095°01'06"W	058
12	12	14.2/18.5	062-088	29°41'35"N 094°59'25"W	064
13	13	10.9/11.7	090-095	29°37'00"N 094°57'30"W	090

Correctors were applied to the sounding data using the HDAPS program REAPPLY prior to plotting.

Weather permitting, lead line comparisons were conducted each day in accordance with FPM 2.1.3.1. No instrument error was detected from these comparisons. The lead line comparison form is in the "Survey Separates."

A static draft of 0.3 meter was applied to the on-line data. The draft was measured by subtracting the difference from a punch mark on the side of Launch 0517, 0.6 meter above the transducer, to the water surface.

Settlement and squat measurements were performed on December 12, 1994 (DN 346), at Clear Lake, Texas, using Zeiss level S/N 08754. Settlement and squat correctors and the static draft corrector were applied on-line through the offset table. *Copies of the field data, the graphs of the settlement and squat correctors vs. speed in m/sec., and the offset table are included in the "Survey Separates."

The Galveston Pier 21, Texas, tide station number 877-1450, served as control for datum determination. This station is also the reference station for the predicted tides which were applied to the final sounding plot. This survey required one tide zone. A +3-hour 30-minute high water and +5-hour 00-minute low water time correction was applied to the predicted tides. Height corrections from the Galveston gauge were x0.71.

Approved tides were requested from the Sea and Lake Levels Branch, N/OES231, in a letter dated October 18, 1996. A copy of the letter is appended to this report. Approved tides and zoning were applied during office processing.

H. CONTROL STATIONS See Evaluation Report

The horizontal control datum for this project is the North American Datum of 1983. One station, the USCG Differential GPS (DGPS) Beacon at Galveston, Texas (029°19'45.092"N, 094°44'10.484"W) was used to control this survey.

I. HYDROGRAPHIC POSITION CONTROL

DGPS was used as the method of positioning for all hydrographic data on this survey. The USCG Differential GPS beacon at Galveston, Texas was used as the reference station in conjunction with a Communications Systems International, Inc., MBX-1 Beacon Data Receiver, model 1/02 and an Ashtech sensor as the remote station on both vessel 0517 and 1292. This equipment met the accuracy standards for this 1:10,000 scale survey.

*Data filed with original field records.

Performance checks were conducted daily by resting the launch alongside station CAL 1 1995. *The raw record and the abstract of these checks are included in the "Survey Separates." The calibration point was established by measuring a single GPS baseline, between a third-order, class I station and the calibration point. *The computations for CAL 1 1995, are included in the "Survey Separates."

Occasionally, a good position misplotted on the raw track plot. This problem was attributed to good DGPS data following a period of questionable DGPS data. These positions were reviewed, then edited or rejected as necessary.

J. SHORELINE See also Evaluation Report

Shoreline shown on the final sounding plot was plotted by the Bruning Zeta using the HDAPS plotting program. The digital shoreline was supplied by the Hydrographic Surveys Division, Operations Section (N/CS31). The source document was CM-9210. This manuscript was compiled using NAD 1983 at 1:20,000 scale and enlarged to 1:10,000. There were no shoreline changes noted on the shoreline manuscripts.

Shoreline verification was conducted using main scheme hydrography that junctioned at shore, by detached positions, or by visual inspection. Existing piers which agreed with the shoreline manuscript were given reference numbers, while piers not shown were located by detached positions. *A complete list of all detached positions by day, is included in the accordion file. It lists the position of each feature and the AWOIS item number when applicable. The hydrographer recommends that details seaward of the HWL from this survey be used to supersede CM-9210 - DM10228.
The hydrographer recommends that shoreline changes from this survey be used to supersede prior shoreline information.

K. CROSSLINES

A total of 26.2 nautical miles of crosslines were run, representing 7.9% of the main scheme hydrography. Crossline soundings agree to within 0.5 meter of the main scheme soundings.

* Data filed with original field records.

L. JUNCTIONS See also Evaluation Report

This survey junctions to the south with sheet "H" (H-10586) and to the north with sheet "S" (H-10666). No junction is scheduled for this project to the east. Both sheets "H" and "S" are 1:10,000 scale surveys completed in 1996. Sounding agreements with sheet "H" and sheet "S" are within 0.3 meter. These differences are likely caused by the application of predicted rather than actual tides.

M. COMPARISON WITH PRIOR SURVEYS See also Evaluation Report

The prior survey comparison will be performed by AHB. The prior survey covering this area is H-8742, 1:10,000 scale from 1962. AWOIS item numbers ~~9616 and~~ 9619 originated from the prior survey.

The hydrographer recommends that data from the present survey be used to supersede that of H-~~8694~~ 8742 within their common areas.

N. ITEM INVESTIGATION REPORTS See also Evaluation Report

Nineteen AWOIS items, numbers 9315-9316, 9318, 9325, 9605-9615, ~~9614-9616~~, 9620, ~~9621~~, ~~9624 and 9626~~, were assigned to this survey. Item investigation reports are appended to this report.

O. COMPARISON WITH THE CHART See also Evaluation Report

Comparisons were made with chart 11328, 28th Edition, ~~January 1, 1994~~ March 15, 1997 and with chart 11327, 25th Edition, ~~October 16, 1993~~. March 15, 1997 Survey soundings are significantly deeper than those charted, with current soundings from 0.6 to 1.2 meters deeper than the charted soundings. The greatest difference in the depths appears to be along shore in the shallower areas. This difference is likely explained by subsidence in the area, which has effected elevations of property on shore in addition to the water depths.

There were no dangers to navigation identified on this survey.

Discrepancies with the chart are as follows:

Charted Depth	Location	Survey Least Depth	Charting Recommendation
6 ft	29°37'20"N 094°56'24"W	3.6 ft 1.1 m	Chart current soundings concur

6 ft	29°38'48"N 094°55'43"W	~~6.6~~ 7.2 ft 2.~~0~~ 2 m	Chart current soundings Concur
6 ft	29°36'42"N 094°57'29"W	7.5 ft 2.3 m	Chart current soundings Concur
6 ft	29°37'27"N 094°57'45"W	8.5 ft 2.6 m	Chart current soundings Concur
6 ft	29°37'38"N 094°57'54"W	7.9 ft 2.4 m	Chart current soundings Concur
6 ft	29°37'51"N 094°~~58'00~~ 57'58"W	6.~~2~~ 9 ft ~~1.9~~ 2.1 m	Chart current soundings Concur
6 ft	29°37'24"N 094°59'24"W	8.~~8~~ 5 ft 2.~~7~~ 6 m	Chart current soundings Concur

A large "uncovers" shoal charted adjacent to an island labeled "Bulkhead Reef" in the area of 29°36'30"N, 094°56'45"W, is deeper than charted. The island no longer exists, and least depths in the area are 0.9 meters (2.9 ft) using ~~predicted~~ actual tides. Concur - Already corrected on chart.

The two major portions of Atkinson Island are not attached as charted, but are separated by an unmarked channel with water depths up to 2.~~8~~ 7 meters (~~9.2~~ 8.6 ft). Local fishing boats and small oil company work boats frequently use this passage between the Houston Ship Channel and Trinity Bay. Concur - already corrected on chart

A charted dredged channel south of Atkinson Island labeled "Five Mile Cut" is no longer marked by buoys. Mainscheme hydrography was split to 50 meters crossing the channel and a least depth of 2.~~5~~ 9 meters (19.5 ft) was found. The echograms of the area indicate a dredged channel. The hydrographer recommends removal of the navigation aids and "closed to navigation" note from the charts and instead charting this channel as "8 feet 1996 - subject to shoaling." * See also Evaluation Rept Section G.1. (Do not concur - Return as charted)

A survey platform charted in ruins at 29°36'46"N, 094°57'51"W, was investigated with a 50-meter radius 200% coverage SSS search on DN 081, position numbers 14047-14062. Nothing was found in that location. The hydrographer recommends removal of the platform ruins from the chart. Concur

A survey platform charted in ruins at 29°36'46"N, 094°58'46"W, was investigated with a 50-meter radius 200% coverage SSS search

on DN 088, position numbers 14712-14727. Nothing was found. The hydrographer recommends removal of the platform ruins from the chart. concur

A submerged stake charted at 29°37'52"N, 094°58'45"W was investigated by making 2 passes with the SSS on DN 088, position number 14665-14670. No contacts were identified. The hydrographer recommends removal of the stake from the chart. concur

A ~~pile~~ pipe charted at 29°38'36", 094°59'19" was searched for with 2 passes of the SSS on DN 088, position numbers 14652-14656. Nothing was found. The hydrographer recommends removal of the ~~pile~~ pipe from the chart. Concur

A submerged snag charted in the vicinity of 29°39'57"N, 094°58'59", was investigated with two passes of the SSS on DN 088, position numbers 14659-14664. Nothing was found. The hydrographer recommends removal of the submerged snag from the chart. concur

Thirty-~~two~~ one oil and gas platforms, the majority of them lighted, were located by detached positions 12787-12820, on DN 58. The hydrographer recommends charting the platforms as located concur

Fourteen 3-meter diameter white mooring buoys were located on the east side of the Atkinson Island Cut by detached positions 12743-12756 on DN 052. The hydrographer recommends charting the mooring buoys. concur - already charted correctly

No spoil areas charted in the survey area were developed. Discussions with Denise Sloan (409-766-6311) from the U.S. Army Corps of Engineers, Galveston office, indicated the areas are still active.

The hydrographer recommends sounding data from this survey be used to update the chart. concur

P. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede all prior surveys within the common area.

Q. AIDS TO NAVIGATION

There are forty-one aids to navigation in the survey area. Eight are USCG maintained buoys, twenty-two are USCG maintained lights, three are privately maintained lights, and eight are privately maintained buoys. Only six of the aids have a published position in the USCG Light List, Volume IV, Gulf of Mexico, 1996.

Detached positions were taken on all of the aids to navigation. The comparison of the surveyed position with the charted location was:

Houston Ship Channel Light 85 (Light List #23330)
Light List Published Position - None
Surveyed Position (No. 12735) - 29°39'10.35"N, 094°58'18.08"W
Surveyed position is 130 meters NW of charted position

Houston Ship Channel Light 87 (Light List #23340)
Light List Published Position - None
Surveyed Position (No. 12736) - 29°39'45.65"N, 094°58'32.30"W
Charted and shown in Light List as buoy

Houston Ship Channel Light 89 (Light List #23345)
Light List Published Position - 29°40.3', 094°58.7'
Surveyed Position (No. 12737) - 29°40'22.60"N, 094°58'46.42"W
Surveyed position is 115 meters NW of charted position

Houston Ship Channel Light 88 (Not in Light List)
Surveyed Position (No. 12738) - 29°39'47.73"N, 094°58'23.30"W
Not charted

Houston Ship Channel Light 86 (Light List #23335)
Light List Published Position - None
Surveyed Position (No. 12739) - 29°39'13.37"N, 094°58'09.66"W
~~Not charted~~

Atkinson Island Cut Buoy 4 (Light List #23337.6)
Light List Published Position - None
Surveyed Position (No. 12742) - 29°39'28.19"N, 094°58'08.55"W
Not charted

Atkinson Island Cut Buoy 9 (Light List #23338.2)
Light List Published Position - None
Surveyed Position (No. 12757) - 29°40'15.39"N, 094°58'21.07"W
Not charted

Atkinson Island Cut Buoy 7 (Light List #23338)
Light List Published Position - None
Surveyed Position (No. 12758) - 29°40'00.35"W, 094°58'14.37"W
Not charted

Atkinson Island Cut Buoy 5 (Light List #23337.8)
Light List Published Position - None
Surveyed Position (No. 12759) - 29°39'39.49N, 094°58'09.76"W
Not charted

Atkinson Island Cut Buoy 3 (Light List #23337.4)
Light List Published Position - None
Surveyed Position (No. 12760) - 29°39'28.70"N, 094°58'10.91"W
Not charted

Atkinson Island Cut Buoy 2 (Light List #23337.2)
Light List Published Position - None
Surveyed Position (No. 15429) - 29°39'18.76"N, 094°58'10.015"W
Not charted

Atkinson Island Cut Buoy 1 (Light List #23337)
Surveyed Position (No. 12761) - 29°39'20.43"N, 094°58'11.77"W
Light List Position - 29°39.3'N, 094°58.2'W
Not charted

Upper Galveston Bay Inner Range Rear Light (Light List #23055)
Light List Published Position - None
Surveyed Position (No. 12763) - 29°37'47.34"N, 094°58'12.80"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 8 (Light List #23290)
Light List Published Position - None
Surveyed Position (No. 12729) - 29°36'51.88"N, 094°59'31.83"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 9 (Light List #23295)
Light List Published Position - None
Surveyed Position (No. 12730) - 29°36'46.65"N, 094°59'31.41"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 7 (Light List #23285)
Light List Published Position - None
Surveyed Position (No. 12731) - 29°36'47.48"N, 094°58'40.51"W
Surveyed position agrees with charted position

Houston Ship Channel Light 83 (Light List #23320)
Light List Published Position - None
Surveyed Position (No. 12734) - 29°38'30.32"N, 094°58'02.52"W
Surveyed position is 115 meters NW of charted buoy 83

Houston Ship Channel Light 75 (Light List #23205)
Light List Published Position - None
Surveyed Position (No. 12776) - 29°36'22.38"N, 094°57'12.80"W
Surveyed position agrees with charted position

Bayport Ship Channel Buoy 1 (Light List #23240)
Light List Published Position - 29°36.6'N, 094°57.3'W
Surveyed Position (No. 12777) - 29°36'34.77"N, 094°57'19.52"W
Surveyed position agrees with charted position

Bayport Ship Channel Junction Light B (Light List #23245)
Light List Published Position - None
Surveyed Position (No. 12778) - 29°37'13.50"N, 094°57'33.28"W
Not charted

Houston Ship Channel Buoy 84 (Lt 84 in LL)(Light List #23325)
Light List Published Position - 29°38.5'N, 094°57.9'W
Surveyed Position (No. 12781) - 29°38'32.90"N, 094°57'54.02"W
Surveyed position is 100 meters NW of charted position

Houston Ship Channel Light 82 (Light List #23315)
Light List Published Position - 29°37.9'N, 094°57.7'W
Surveyed Position (No. 12782) - 29°37'57.45"W, 094°57'40.13"W
Not charted

Houston Ship Channel Light 78 (Light List #23305)
Light List Published Position - 29°37.3'N, 094°57.4'W
Surveyed Position (No. 12783) - 29°37'17.65N, 094°57'24.96"W
Surveyed position is 325 meters NW of charted buoy 78

Bayport Ship Channel Buoy 76A (Light List #23300)
Light List Published Position - None
Surveyed Position (No. 12784) - 29°36'50.21"N, 094°57'15.17"W
Surveyed position agrees with charted position

Houston Ship Channel Light 76 (Light List #23210)
Light List Published Position - None
Surveyed Position (No. 12785) - 29°36'26.08"N, 094°57'04.55"W
Surveyed position agrees with charted position

Batport Ship Channel Outer Range Rear Light (Light List #23235)
Light List Published Position - None
Surveyed Position (No. 12823) - 29°36'52.89"N, 094°56'19.82"W
Surveyed position agrees with charted position

Bayport Ship Channel Outer Range Front Lt (Light List #23230)
Light List Published Position - None
Surveyed Position (No. 12824) - 29°36'51.56"N, 094°57'07.23"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 3 (Light List #23265)
Light List Published Position - None
Surveyed Position (No. 12825) - 29°36'45.98"N, 094°57'32.59"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 5 (Light List #23275)
Light List Published Position - None
Surveyed Position (No. 12826) - 29°36'48.17"N, 094°57'49.74"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 4 (Light List #23270)
Light List Published Position - None
Surveyed Position (No. 12827) - 29°36'54.04"N, 094°57'50.08"W
Surveyed position agrees with charted position

Bayport Ship Channel Light 2 (Light List #23250)
Light List Published Position - None
Surveyed Position (No. 12828) - 29°36'59.04"N, 094°57'38.39"W
Surveyed position agrees with charted position

Upper Galveston Bay Inner Range Front Light (Light List #23050)
Light List Published Position - 29°37.1'N, 094°57.7'W
Surveyed Position (No. 12829) - 29°37'07.69"N, 094°57'42.12"W
Surveyed position agrees with charted position

All of the aids serve their intended purpose, but should be re-charted using current survey positions. concur

The privately maintained aids to navigation were located by detached position and are recommended for charting as follows:

Pos. No.	Latitude (N)	Longitude (W)	Description
12764	29°38'04.19"	094°58'26.13"	W spar w/R stripe
12765	29°38'26.81"	094°58'35.43"	W spar "B"
12766	29°38'36.96"	094°58'59.38"	W spar "C"
12767	29°38'08.31"	094°59'02.50"	W spar "M"
12768	29°37'38.44"	094°59'05.70"	W spar "G"
12769	29°37'48.58"	094°59'31.18"	W spar "F"
12770	29°38'11.69"	094°59'38.87"	W spar "E"
12771	29°38'31.91"	094°59'26.23"	W spar "D"
12772	29°37'21.58"	094°59'45.35"	HYC Entrance Lt
12773	29°37'16.79"	094°59'51.62"	G breakwater Lt
12774	29°37'15.86"	094°59'52.05"	R breakwater Lt

Chart as PrIV

already charted

The front and rear range lights for the Houston Yacht Club shown on chart 11327 no longer exist and should be removed from the chart. Concur - No charting change necessary

Two wood piles with "DANGER GAS PIPELINE" signs were located by position number 12821 at 29°39'14.82N, 094°55'44.11"W and are recommended for charting. Concur

No bridges, overhead cables, or ferry routes exist within the survey area.

R. STATISTICS

Description	Quantity
Total Number of Positions	15438
Total Lineal Nautical Miles of Hydrography	342.2
Square Nautical Miles of Hydrography	11.0
Days of Production	32
Detached Positions	101
Bottom Samples	19
Tide Stations	1
Velocity Casts	13

S. MISCELLANEOUS See also Evaluation Report

No anomalous currents or tides were observed during this survey.

Nineteen bottom samples were taken and compared to the charted bottom characteristics. All surveyed characteristics agreed with those charted. Bottom sample positions are plotted on the overlay and are listed on the Oceanographic Log Sheet-M, NOAA Form 75-44, included in the "Survey Separates."

The "assign fix" function of the program QUICK EDIT, was used to assign position numbers to the beginning or ending of a line as needed.

T. RECOMMENDATIONS See also Evaluation Report

No additional field work was identified after field office processing was completed. Specific recommendations are made on the Item Investigation Reports appended, and in sections J., O., and Q. of this report.

U. REFERRAL TO REPORTS

Title	Transmittal Information
Descriptive Report to Accompany Survey H-10586	Atlantic Hydrographic Branch N/CS331, Norfolk, Va 23510 November 1996
Descriptive Report to Accompany Survey H-10666	Atlantic Hydrographic Branch N/CS331, Norfolk, VA 23510 November 1996
Coast Pilot for OPR-K204-AHP	Atlantic Hydrographic Branch N/CS331, Norfolk, Va 23510 August 1996

Submitted by:

Mark J. McMann
Launch Hydrographer In Charge

AWOIS NO: 9315 & 9316

Item Description: WRECK

Source: LNM39/92--9/22/92; 8th CGD

AWOIS Position: 9315- 29°36'35.00"N, 94°56'56.00"W -not charted
9316- 29°36'34.70"N, 94°56'52.80"W

Required Investigation: BD,ES,SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-21-96 / 081 (OPR-K204-AHP2, H-10661)

Position Number: 14063-14106 **Launch Number**: 1292

Investigation Used: 200% Side Scan Sonar Coverage

Position Determined By: DGPS

Investigation Summary: A SSS investigation in the area of the charted wrecks did not reveal any contacts. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removing the submerged wreck PA symbols from the chart. concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Delete charted subm wk symbol w/danger curve and letters PA from the chart.	⊗ (H) PA

AWOIS NO: 9318

Item Description: 3 PILES

Source: CL1057/81--USPS REPORT

AWOIS Position: 29°36'37.00"N, 94°56'45.00"W

Required Investigation: BD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3/22/96 - 082 (OPR-K204-AHP2, H-10661)

Position Numbers: 14149-14172 **Launch Number**: 1292

Investigation Used: Side Scan Sonar

Position Determined By: DGPS

Investigation Summary: The area of the charted piles was searched using the SSS and no contacts were identified. The SSS fish was towed into as shallow water as possible (approx. 1.6m). Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removing the piles from the chart. Concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Remove charted pile symbols and words subm prelim PA from Chart	

OOO

AWOIS NO: 9325

Item Description: OBSTRUCTION (SUBMERGED OBJECT)

Source: LNM28/92--8th CGD, 7/7/92

AWOIS Position: 29°36'47.80"N, 94°58'23.70"W

Required Investigation: BD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-27-96 / 087 (OPR-K204-AHP2, H-10661)

Position Numbers: 14593-14607 **Launch Number**: 1292

Investigation Used: 200% Side Scan Sonar Coverage

Position Determined By: DGPS

Investigation Summary: A 200% SSS investigation of the area revealed no contacts. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removal of the obstruction from the chart. Concur w/ condition

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Remove charted obstn ( )	
Add (4) Obstn in Lat 29/36/47.095N, Lon. 94/58/24.048W	

AWOIS NO: 9605

Item Description: UNKNOWN (WRECK)

Source: LNM7/79--8th CGD, 2/14/79

AWOIS Position: 29°37'00.82"N, 94°58'00.73"W

Required Investigation: S2, BD, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-21-96 / 081 (OPR-K204-AHP2, H-10661)

Position Numbers: 13843-14046 **Launch Number**: 1292

Investigation Used: 200% Side Scan Sonar Coverage

Position Determined By: DGPS

Investigation Summary: A SSS investigation of the AWOIS item did not find any contacts. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removing the wreck from the chart. concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Delete charted (+) PA	

AWOIS NO: 9606

Item Description: SOUNDING

Source: BP141768-816; Port of Houston

AWOIS Position: 29°36'50.00"N, 94°59'00.00"W

Required Investigation: ES

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 2-13-96 / 044 (OPR-K204-AHP2, H-10661)

Position Numbers: 11820-12145,15274-15329

Launch Number: 0517

Investigation Used: Echo Sounder

Position Determined By: DGPS

Investigation Summary: Sounding lines run in the Bayport Ship Channel indicate least depths of 12.5 meters (41.0 ft) in the center of the channel using ~~predicted~~ smooth tides.

CHARTING RECOMMENDATION

The channel legend note should remain charted at 41 feet with a February 1996 date, pending any change caused by the application of actual tidal heights. Concur w/ conditions.

Recommended Position: AWOIS position above

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Note has already been updated with information acquired subsequent to the present survey. No changes in charting are recommended	

AWOIS NO: 9607

Item Description: Wreck (KATY B)

Source: NM44/64

AWOIS Position: 29°37'00.82"N, 94°59'00.73"W

Required Investigation: BD, S2, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-27-96 / 087 (OPR-K204-AHP2, H-10661)
4-04-96 / 095

Position Numbers: 14297-14517 **Launch Number**: 1292
15330-15364 0517

Investigation Used: 200% SSS, Echosounder

Position Determined By: DGPS

Investigation Summary: A 200% bottom coverage SSS investigation was performed and a small contact was identified. A subsequent echosounder development of the area did not reveal any obstructions. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removing the wreck symbol from the chart. concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Delete	(+H)

AWOIS NO: 9608

Item Description: SOUNDING

Source: CL1246/82--NOS

AWOIS Position: 29° 36' 50.00"N, 95° 01' 00.00"W

Required Investigation: ES

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-12-96 / 072 (OPR-K204-AHP2, H-10661)

Position Numbers: 13796-13848 **Launch Number**: 0517

Investigation Used: Echosounder

Position Determined By: DGPS

Investigation Summary: Sounding lines were run into the areas addressed by the AWOIS item to attempt to determine least depths. These areas are the prime ship mooring facilities in Bayport harbor and usually have large ships tied alongside. The areas were all found to have at least the minimum charted depths using ~~predicted~~ actual tides.

CHARTING RECOMMENDATION

The hydrographer recommends revising the charted depth notations as necessary based on data from this survey after the application of actual tidal heights. Concur

Recommended Position:

Recommended Least Depth:

****

See also E+A Report Section O.

COMPILATION NOTES

Chart		Applied As
Revise chart to read	30 ft 1996	in Lat 29/36/50N Lon 95/01/00 W
Revise chart to read	30 ft 1996	in Lat 29/36/30N Lon 95/01/05 W
Revise chart to read	38 ft 1996	in Lat 29/36/32N Lon 95/01/22 W
Revise chart to read	12 ft 1996	in Lat 29/36/30N Lon 95/01/28 W

AWOIS NO: 9609

Item Description: Barge Wreck

Source: LNM22/84--8TH CGD

AWOIS Position: 29°37'00.82"N 094°59'52.73"W

Required Investigation: BD, ES, DI, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-29-96 / 089 (OPR-K204-AHP2, H-10661)

Position Numbers: None **Launch Number**: 0517

Investigation Used: Visual Search

Position Determined By: DGPS

Investigation Summary: An interview with a member of the Houston Yacht Club (Ellen Roof 713/474-2358) indicated this wreck is not known to local boaters. The area was observed at all tide stages during hydrographic operations, including an extreme low water, and no evidence of any wrecks was observed. The proximity of the wreck to shore and a nearby pier made anything other than a visual search impossible.

CHARTING RECOMMENDATION

The hydrographer recommends removal of the wreck from the chart. concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Delete charted	(+/-) PA

AWOIS NO: 9610

Item Description: Wreck (RINGO)

Source: LNM6/74--8TH CGD 2/6/74

AWOIS Position: 29°37'18.82"N 095°00'06.74"W

Required Investigation: BD, SD, DI

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-29-96 / 089 (OPR-K204-AHP2, H-10661)

Position Numbers: None **Launch Number**: 0517

Investigation Used: Visual Search

Position Determined By: DGPS

Investigation Summary: A discussion with Ellen Roof of the Houston Yacht Club (713/474-2358) and other club members indicated that the area of the charted wreck has been seen at historic low water periods and no wreck was visible. Shallow water depths made other investigations impossible.

CHARTING RECOMMENDATION

The hydrographer recommends removing the wreck symbol from the chart. Concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Delete charted	(+++) PA

AWOIS NO: 9611

Item Description: OBSTRUCTION (PIPE)

Source: LNM51/89--8TH CGD, 12-19-89

AWOIS Position: 29°38'06.82"N 095°00'36.74"W

Required Investigation: VS, BD, DI

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-28-96 / 088 (OPR-K204-AHP2, H-10661)

Position Numbers: 14608-14651 **Launch Number**: 1292

Investigation Used: 200% SSS

Position Determined By: DGPS

Investigation Summary: A SSS investigation in the area of the charted pipe revealed no contacts. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removing the Pipe symbol from the chart. concur with condition

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Chart (5); Obstn in Lat 29/38/08.78 N Lon 95/00/39.70 W Remove o Pipe PA	

AWOIS NO: 9612

Item Description: OBSTRUCTION (ALMOST SUBMERGED PILE)

Source: CL1645/78--USPS REPORT

AWOIS Position: 29°38'41.50"N 095°00'36.00"W

Required Investigation: VS, BD, DI

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): None (OPR-K204-AHP2, H-10661)

Position Numbers: None **Launch Number**: 0517

Investigation Used: None

Position Determined By: DGPS

Investigation Summary: The location of this item made investigation impossible. The field party was instructed by Hydrographic Surveys Division, Operations Branch (N/CS31) to disregard items in less than 2 meters of water.

CHARTING RECOMMENDATION

The hydrographer recommends leaving the pile as charted. Concur w/condition

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart Applied As

Revise pile rep note to subm pile rep

AWOIS NO: 9613

Item Description: OBSTRUCTION (PIPE)

Source: CL1645/78

AWOIS Position: 29°39'00.00"N 095°00'37.50"W

Required Investigation: VS, BD, DI

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3/13/96 - 073 (OPR-K204-AHP2, H-10661)

Position Numbers: 13852 **Launch Number**: 0517

Investigation Used: Visual Search

Position Determined By: DGPS

Investigation Summary: A visual search in the area of the reported pipe was conducted at low water. Nothing was found. Approximately 15 minutes was spent searching. No other methods of disproval were practical in the shallow waters surrounding this item.

CHARTING RECOMMENDATION

The hydrographer recommends retaining the ~~pipe~~ pile as charted.
Concur w/ conditions

Recommended Position: AWOIS position

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Revise pile rep note to subm pile rep.	

AWOIS NO: 9614

Item Description: OBSTRUCTION (FISHING REEF)

Source: CL1552/77--COE

AWOIS Position: 29°39'12.82"N 095°00'23.74"W

Required Investigation: DI, BD, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 4-04-96 / 095 (OPR-K204-AHP2, H-10661)

Position Numbers: 15405-15417 **Launch Number**: 0517

Investigation Used: Echo sounder

Position Determined By: DGPS

Investigation Summary: Main-scheme hydrography was split to 25 meters over the area of the charted fish haven. No evidence of any obstructions was found. The proximity to shore made other investigation techniques impractical or impossible. Subsidence is most likely the reason no evidence of this fish haven exists.

CHARTING RECOMMENDATION

The hydrographer recommends removing the fish haven from the chart. Do Not Concur. Development run in wrong place. Investigation run to NW of charted Fish Haven.

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Retain Fish Haven as charted.	

AWOIS NO: 9615

Item Description: OBSTRUCTION (SHRIMP BOAT)

Source: CL1645/78--USPS REPORT

AWOIS Position: 29°39'43.12"N 094°59'51.74"W

Required Investigation: BD, DI, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-13-96 / 073 (OPR-K204-AHP2, H-10661)

Position Numbers: 13851 **Launch Number**: 0517

Investigation Used: Visual Search

Position Determined By: DGPS

Investigation Summary: A visual search conducted in the area of the reported wreck revealed exposed rigging and substantial wreckage just below the surface of the water. A detached position was taken at the center point of the wreckage, position 13851. The rigging was exposed 1.0 meter.

CHARTING RECOMMENDATION

The hydrographer recommends revising the charted submerged wreck PA to an exposed wreck at the geographic position below. concur

Recommended Position: 29°39'39.41"N, 094°59'54.76"W

Recommended Least Depth: 1.1 meters above MLLW (~~predicted~~ actual tides)
(-3.61 ft)

****

COMPILATION NOTES

Chart	Applied As
Delete charted (PA)	
Chart in present survey location	

AWOIS NO: 9619

Item Description: OBSTRUCTION

Source: H8742/62-63

AWOIS Position: 29°37'00.82"N, 94°59'00.73"W

Required Investigation: SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): None (OPR-K204-AHP2, H-10661)

Position Numbers: None **Launch Number**:

Investigation Used: Salvage Documentation

Position Determined By: None

Investigation Summary: A discussion with the Mr.Lewis Petite (409/766-6308) from the Galveston office of the U.S. Army Corps of Engineers, revealed that the stakes charted no longer exist. Telephone conversation with Mr. Mike Riddle, N/CS31, indicated no further investigations are necessary.

CHARTING RECOMMENDATION

The hydrographer recommends removing the stakes from the charts. Concur

Recommended Position:

Recommended Least Depth:

****

Remove 21 charted submerged stakes from the charts in

COMPILATION NOTES

	Chart Lat(N)	Chart Lon (W)	Lat (N)	Lon (W)	Applied As Lat(N)	Applied As Lon (W)
1.	29/36/56.0	94/57/14	7. 29/37/52.8	94/57/37.6	17 29/39/35.7	94/58/18
2.	29/37/05.6	94/57/19.2	8 29/38/11.5	94/57/45	18 29/39/45	94/58/21.8
3.	29/37/15	94/57/22.8	9. 29/38/02	94/57/41.4	19 29/39/54.6	94/58/25.3
4	29/37/24.3	94/57/26.7	10 29/38/[illegible].1	94/57/48.5	20 29/40/03.7	94/58/29
5.	29/37/33.8	94/57/30.2	11 29/38/30.2	94/57/52.4	21 29/40/12.7	94/58/32.7
6.	29/37/43.5	94/57/38.9	12 29/38/39.[illegible]	94/57/56		
			13 29/38/49	94/58/00		
			14 29/38/58.4	94/58/03.4		
			15 29/39/07.[illegible]	94/58/07		
			16. 29 39/ 26.5	94/58/14.6		

AWOIS NO: 9620

Item Description: OBSTRUCTION (STAKES)

Source: BP68549/65, COE

AWOIS Position: 29°36'57"N ✓ 094°57'12"W ✓
29°37'07"N ✓ 094°57'16"W ✓
29°37'16"N ✓ 094°57'19"W ✓
29°37'26"N ✓ 094°57'23"W ✓
29°37'35"N ✓ 094°57'26"W ✓
29°37'44"N ✓ 094°57'30"W ✓
29°37'54"N ✓ 094°57'33"W ✓

Required Investigation: VS, BD, DI,##

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-22-96 / 082 (OPR-K204-AHP2, H-10661)
3-28-96 / 088

Position Numbers: 14173-14187 **Launch Number**: 1292
14672-14695

Investigation Used: Side Scan Sonar

Position Determined By: DGPS

Investigation Summary: A SSS search was conducted in the area of the charted piles and signs by making one pass with the SSS fish outside of the Houston Ship Channel and as close to the shoal adjacent to Atkinson Island as possible. No contacts were identified on the SSS records. See section E. of the Descriptive Report for H-10661 for more details on the side scan procedures.

CHARTING RECOMMENDATION

The hydrographer recommends removal of the piles and signs from the chart. Concur.

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart Applied As

Remove the 7 charted o submpiles in the positions listed above. (in AWOIS listing)

AWOIS NO: 9621

Item Description: OBSTRUCTION (~~13~~ 11 STAKES)

Source: BP69322--COE 1966

AWOIS Position: 29°39'13.50"N 094°58'09.50"W

Required Investigation: VS, BD, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-22-96 / 082 (OPR-K204-AHP2, H-10661)

Position Numbers: 14188-14207 **Launch Number**: 1292

Investigation Used: Side Scan Sonar

Position Determined By: DGPS

Investigation Summary: Two passes were made towing the Side Scan fish between the dredged Atkinson Island Channel and the shoal adjacent to the island. No contacts were identified on the SSS records. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removal of the stakes from the chart. concur

Recommended Position:

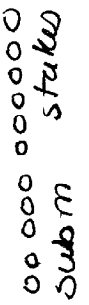
Recommended Least Depth:

****

COMPILATION NOTES

Chart Applied As

Remove the charted row of 11 subm stakes and note



AWOIS NO: 9622

Item Description: OBSTRUCTION (MOORING BUOYS)

Source: BP69322--COE, 2/66

AWOIS Position: 29°39'48.00"N 094°58'07.00"W

Required Investigation: S2, BD, DI, SD, ##

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 2-21-96 / 052 (OPR-K204-AHP2, H-10661)

Position Numbers: 12743-12756 **Launch Number**: 0517

Investigation Used: Visual Search

Position Determined By: DGPS

Investigation Summary: Fourteen, 3-meter diameter white mooring buoys were located by detached positions on the east side of the Atkinson Island Channel.

CHARTING RECOMMENDATION

The hydrographer recommends charting the bouys as located by the positions listed above. Do not concur. The chart shows a note indicating mooring anchors only; no anchors are charted. No change in charting is recommended.

Recommended Position: Refer to the Detached Position Listing included with survey H-10661.

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
No charting changes recommended	

AWOIS NO: 9623

Item Description: SOUNDING

Source: CL305/95--COE REPORT, MARCH 1995

AWOIS Position: 29°40'00.00"N 094°58'13.00"W

Required Investigation: ##

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 2-13-96 / 044 (OPR-K204-AHP2, H-10661)

Position Numbers: 12146-12278 **Launch Number**: 0517

Investigation Used: Echosounder

Position Determined By: DGPS

Investigation Summary: Three sounding lines were run in the Atkinson Island Channel, a left side, right side, and centerline. Soundings in the channel show a least depth in the center of 3.64 meters (11.8 ft) using predicted tides.

CHARTING RECOMMENDATION

The hydrographer recommends updating the charted depth notation based on soundings from this survey after correction for actual tidal heights. Do not concur - This note is in all capital letters and is not under our jurisdiction to change. No change in charting is recommended
Recommended Position: AWOIS position

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As

No charting changes are recommended

AWOIS NO: 9624

Item Description: UNKNOWN (SUNKEN WRECK)

Source: LNM32/76--8TH CGD

AWOIS Position: 29°38'46.81"N 094°56'20.73"W

Required Investigation: S2, BD, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-22-96 / 082 (OPR-K204-AHP2, H-10661)

Position Numbers: 14107-14149 **Launch Number**: 1292

Investigation Used: Visual Search

Position Determined By: DGPS

Investigation Summary: A 50-meter radius side scan sonar investigation was conducted in the area of the AWOIS position. No contacts were identified on the side scan records. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

Recommended Position: The hydrographer recommends removing the wreck from the chart. Do not concur. Awois Requirements for 200 m radius search. Field did a 150m search. Nothing was Found. The wreck is not in the charted position but it may be in the area that wasn't investigated.

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Revise chart to (+H+) ED	

AWOIS NO: 9625

Item Description: OBSTRUCTION (BREAKWATER)

Source: Air Photo Revision--C&GS

AWOIS Position: 29°39'55.50"N 094°59'30.00"W

Required Investigation: VS, BD, DI

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-13-96 / 073 (OPR-K204-AHP2, H-10661)

Position Numbers: 13849-13850 **Launch Number**: 0517

Investigation Used: Echo sounder

Position Determined By: DGPS

Investigation Summary: An echosounder investigation in the area of the charted breakwater found the breakwater submerged approximately 1.5 to 2.0 meters. A detached position was taken on each end of the breakwater, with the echosounder search over the breakwater showing no depths shoaler than the two end positions.

CHARTING RECOMMENDATION

The hydrographer recommends charting the submerged breakwater as located by the two positions shown below. Concur w/ condition; Subm bkwtr in same area as charted. No changes in charting are recommended.

Recommended Position:

Pos. No. 13849	29°39'56.06"N	094°59'28.75"W
Pos. No. 13850	29°39'54.29"N	094°59'30.92"W

Recommended Least Depth: 1.~~2~~ 4 meters (~~predicted~~ smooth tides)
(4 Ft)

****

COMPILATION NOTES

Chart — Applied As

No change in charting is recommended

AWOIS NO: 9626

Item Description: OBSTRUCTION (SUBMERGED)

Source: LNM 45/92--8TH CGD, 12/18/92

AWOIS Position: 29°39'10.00"N 094°58'21.00"W

Required Investigation: S2, BD, DI, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 3-22-96 / 082 (OPR-K204-AHP2, H-10661)

Position Numbers: 14208-14296 **Launch Number**: 1292

Investigation Used: Side scan sonar

Position Determined By: DGPS

Investigation Summary: A 200% bottom coverage SSS investigation was conducted in the area of the charted obstruction and one contact was seen. An echosounder search of the area of the contact on DN 095 (pos. 15380-15400) did not reveal any bottom irregularities. Refer to section E. of the Descriptive Report for H-10661 for methods used in conducting the SSS investigation.

CHARTING RECOMMENDATION

The hydrographer recommends removing the obstruction from the chart. Concur

Recommended Position:

Recommended Least Depth:

****

COMPILATION NOTES

Chart	Applied As
Remove (); Obstn PA	

APPROVAL SHEET
Basic Hydrographic Survey
OPR-K204-AHP
AHP-10-9-95
H-10661
1995-96

This basic hydrographic survey was conducted in accordance with the Project Instructions for OPR-K204-AHP, the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual. All reports, records, and survey sheets were reviewed by Mr. Brian A. Link, Assistant Chief of Party. The descriptive report was reviewed and approved by the Chief of Party. Mr. Mark McMann was the Hydrographer-in-charge of daily operations. The Chief of Party did not directly supervise any part of this survey. LT Kevin N. Harbison was Chief of Party at the time this survey was conducted, but transferred before the survey was submitted.

This survey is a complete basic hydrographic survey for the area described in Section B of this report.

James A. Illg, LT, NOAA
Chief, Atlantic Hydrographic Party

Mark J. McMann
Hydrographer-in-charge of daily operations

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 28, 1997

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-K204-AHP

HYDROGRAPHIC SHEET: H-10661

LOCALITY: Galveston Bay, Texas, Red Bluff to Houston Point

TIME PERIOD: November 9, 1995 - April 4, 1996

TIDE STATION USED: 877-0613 Morgans Point, Tx.
Lat. 29° 40.9'N Lon. 94° 59.1'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.00 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.2 feet

TIDE STATION USED: 877-1013 Eagle Point, Tx.
Lat. 29° 28.8'N Lon. 94° 55.1'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.00 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.1 feet

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: GB112, GB113, GB120 & GB127

Refer to attachment(s) for zoning information.

Note: Provided time series data are tabulated in English units (Feet) and on Greenwich Mean Time.

Note: Tidal phase progressions are inconsistent in this tidal regime. The best available time corrections are provided for both high and low water times. An average of the high and low water time corrections are provided for each zone for survey applications.

Note: Relative sea level trends show that the Galveston Bay, Texas area is undergoing substantial land subsidence. The relative sea level trend observed at the site for the control station, Galveston, Pier 21, for the time period 1950 through 1993 is +0.025 ft./yr. with a standard error of 0.002 ft./yr. As a result of high rate of sea level change, the 1960 to 1978 Tidal Epoch value of Mean Lower Low Water (MLLW) used as chart datum and reference datum for NOS tidal predictions does not reflect present conditions. The data are under review to determine an updated value of MLLW. Even though the 1960-78 Epoch value of MLLW is not the most current, the change is in the direction that is safe for navigation purposes.

CHIEF, TIDAL ANALYSIS BRANCH

Final tide zone correctors and node point locations for OPR K204-AHP. Sheet H-10661.

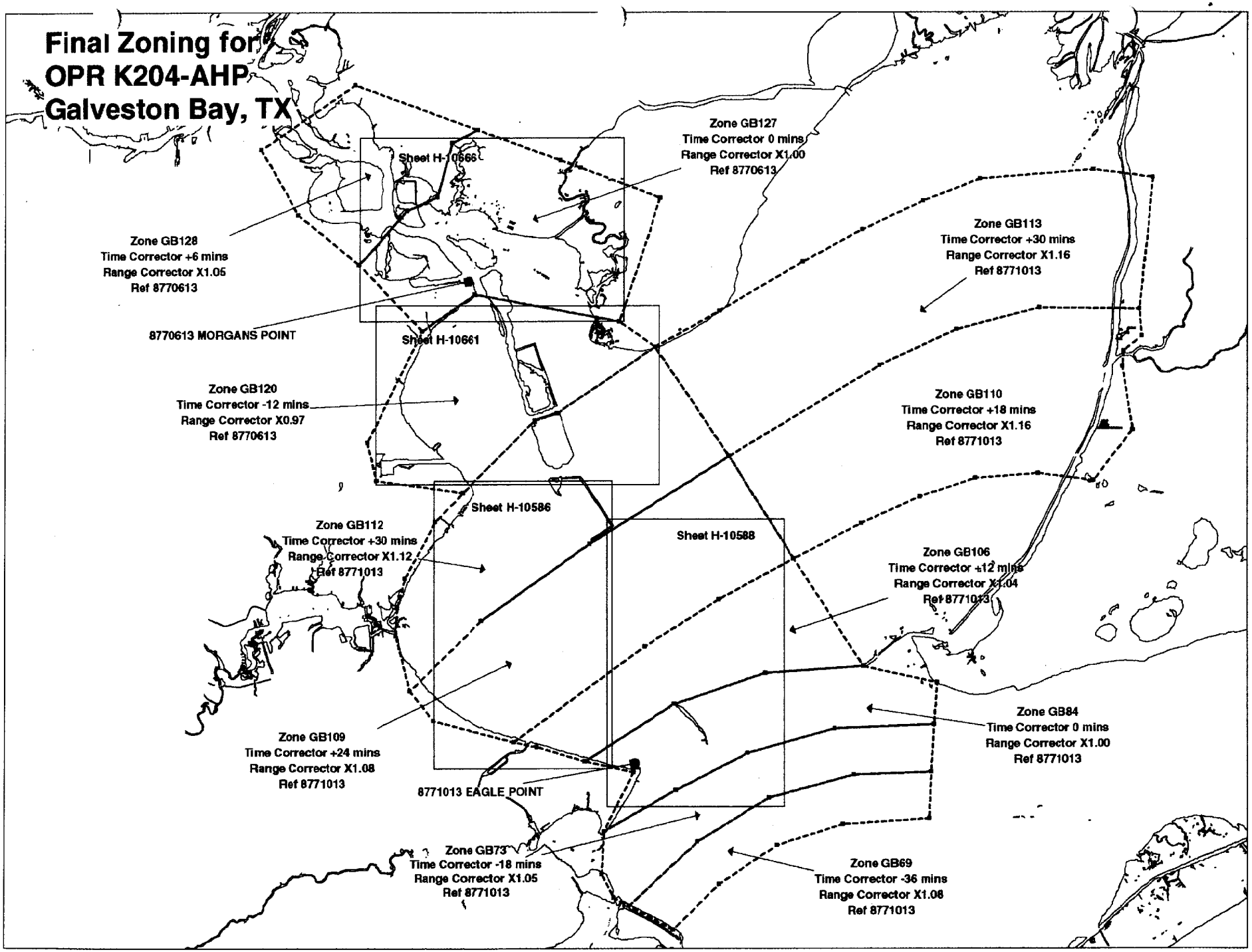
Format: Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone GB112			
-94.97929 29.552671	877-1013	30	1.12
-95.011273 29.525865	877-0613	-24	0.94
-95.017311 29.546834			
-95.016733 29.557514			
-95.013385 29.568704			
-94.999816 29.590316			
-94.987435 29.60139			
-94.955797 29.629003			
-94.946074 29.631713			
-94.902708 29.656925			
-94.869904 29.615248			
-94.931651 29.581928			
-94.97929 29.552671			
Zone GB113			
-94.902708 29.656925	877-1013	30	1.16
-94.874064 29.670729			
-94.837099 29.689389			
-94.810854 29.701673			
-94.784105 29.71264			
-94.758871 29.720976			
-94.708906 29.724485			
-94.682163 29.721414			
-94.688248 29.671402			
-94.732652 29.671841			
-94.769487 29.663506			
-94.803295 29.649906			
-94.869904 29.615248			
-94.902708 29.656925			
Zone GB120			
-94.987435 29.60139	877-0613	-12	0.97
-95.02613 29.606029	877-1013	42	1.15
-95.030133 29.620524			
-95.005764 29.66289			
-94.982082 29.677124			
-94.918321 29.666686			
-94.902708 29.656925			
-94.946074 29.631713			

-94.955797 29.629003
-94.987435 29.60139

Zone GB127

-95.005764 29.66289	877-0613	0	1.00
-95.033819 29.688195	877-1013	54	1.19
-95.012401 29.708916			
-94.998965 29.714083			
-94.992438 29.734754			
-94.980989 29.739753			
-94.944645 29.728253			
-94.935471 29.725308			
-94.900324 29.71379			
-94.918321 29.666686			
-94.982082 29.677124			
-95.005764 29.66289			


Final Zoning for
OPR K204-AHP
Galveston Bay, TX
Sheet H-10566
Sheet H-10661
Sheet H-10586
Sheet H-10588
Zone GB127
Time Corrector 0 mins
Range Corrector X1.00
Ref 8770613
Zone GB128
Time Corrector +6 mins
Range Corrector X1.05
Ref 8770613
8770613 MORGANS POINT
Zone GB113
Time Corrector +30 mins
Range Corrector X1.16
Ref 8771013
Zone GB120
Time Corrector -12 mins
Range Corrector X0.97
Ref 8770613
Zone GB110
Time Corrector +18 mins
Range Corrector X1.16
Ref 8771013
Zone GB112
Time Corrector +30 mins
Range Corrector X1.12
Ref 8771013
Zone GB106
Time Corrector +12 mins
Range Corrector X1.04
Ref 8771013
Zone GB84
Time Corrector 0 mins
Range Corrector X1.00
Ref 8771013
Zone GB109
Time Corrector +24 mins
Range Corrector X1.08
Ref 8771013
8771013 EAGLE POINT
Zone GB73
Time Corrector -18 mins
Range Corrector X1.05
Ref 8771013
Zone GB69
Time Corrector -36 mins
Range Corrector X1.08
Ref 8771013

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10661

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 11324, 11328, 11326	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H	K U.S. LIGHT LIST	
ATKINSON ISLAND	X		X							1
BAYPORT SHIP CHANNEL	X		X							2
BAYRIDGE PARK	X		X							3
BAY SHORE PARK	X		X							4
BAYSIDE TERRACE	X		X							5
BULKHEAD REEF	X		X							6
FIVEMILE CUT	X		X							7
GALVESTON BAY	X		X							8
HOUSTON POINT	X		X			-				9
HOUSTON SHIP CHANNEL	X		X							10
LA PORTE	X		X							11
LITTLE CEDAR BAYOU	X		X							12
MESQUITE KNOLL	X		X							13
RED BLUFF (cliff)	X		X							14
RED BLUFF (ppl)	X		X							15
SHELL POINT	X		X							16
SHOREACRES	X		X							17
SYLVAN BEACH	X		X							18
TAYLOR BAYOU	X		X							19
TEXAS (title)	X		X							20
					Approved:					21
										22
										23
					Chief Geographer					24
					MAY 20 1997					25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

LETTER TRANSMITTING DATA

REFERENCE NO.

N/CS33-72-97

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

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☒ EXPRESS

☐ GBL *(Give number)* _____

DATE FORWARDED

DEC 09, 1997

NUMBER OF PACKAGES

ONE TUBE AND ONE BOX

TO:

CHIEF, DATA CONTROL GROUP, N/CS3x1
NOAA/NATIONAL OCEAN SERVICE
STATION 6815, SSMC3
1315 EAST-WEST HIGHWAY
SILVER SPRING, MARYLAND 20910-3282

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

H-10661

TEXAS, GALVESTON BAY, RED BLUFF TO HOUSTON POINT

1 (ONE) TUBE CONTAINING THE FOLLOWING:
1 SMOOTH SHEET (H-10661)
1 COMPOSITE DRAWING FOR NOS CHART 11327
1 COMPOSITE DRAWING FOR NOS CHART 11328
1 H-DRAWING FOR NOS CHART 11328
1 H-DRAWING FOR NOS CHART 11327

1 (ONE) BOX CONTAINING THE FOLLOWING:
1 ORIGINAL DESCRIPTIVE REPORT
1 DRAWING HISTORY FORM #76-71 FOR NOS CHART 11327
1 DRAWING HISTORY FORM #76-71 FOR NOS CHART 11328

FROM: *(Signature)*

Deborah A. Bland Deborah A Bland

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

ATLANTIC HYDROGRAPHIC BRANCH
N/CS33
439 WEST YORK STREET
NORFOLK, VA 23510-1114

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

*U.S.GPO:1983-0-664-006/1192

12/08/97

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10661

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	15438
NUMBER OF SOUNDINGS	15438

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	61	05/05/97
VERIFICATION OF FIELD DATA	155	10/17/97
QUALITY CONTROL CHECKS	33	
EVALUATION AND ANALYSIS	173	
FINAL INSPECTION	59	11/24/97
COMPILATION	130.50	12/05/97
TOTAL TIME	612	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 11/21/97

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10661 (1995-1996)

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Hydrographic Processing System (HPS)
NADCON, version 2.10
SiteWorks version 2.01
MicroStation 95, version 5.05
I/RAS B, version 5.01

The smooth sheet was plotted using a CalComp TechJET Color GT plotter.

H. CONTROL STATIONS

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

To place this survey on the NAD 27 datum move the projection lines 0.821 seconds (25.290 meters or 2.53 mm at the scale of the survey) north in latitude, and 0.736 seconds (19.805 meters or 1.98 mm at the scale of the survey) west in longitude.

J. SHORELINE

The shoreline originates with unreviewed digital shoreline manuscript DM-10228 of 1993.

1. The following charted features originate with the shoreline manuscript and were not investigated by the field:

ITEM	LATITUDE (N)	LONGITUDE (W)
piers	29°39'37.6"	95°00'15.0"
pier	29°39'41.4"	95°00'12.2"
pier	29°39'52.0"	94°59'55.8"

No change in charting status is recommended.

2. The following uncharted features originate with the shoreline manuscript and were not investigated by the field:

ITEM	LATITUDE (N)	LONGITUDE (W)
pier	29°39'14.7"	94°55'04"
pier	29°39'14.1"	95°00'28.4"

It is recommended that the above features be charted as shown on the smooth sheet.

3. Two shoreline revisions, in the vicinity of Latitude 29°37'33.5"N, Longitude 94°57'16"W and Latitude 29°38'09"N, Longitude 94°57'33"W were delineated by the hydrographer and are shown in red on the present survey. It is recommended that these revisions be charted as shown on the present survey.

4. Charted pier ruins, in Latitude 29°39'10.7"N, Longitude 95°00'22.8"W, were found by the hydrographer to have been rebuilt. It is recommended that the pier be charted as shown on the present survey.

L. JUNCTIONS

H-10666(1996)	1:10,000	to the north
H-10586(1996)	1:10,000	to the south

A standard junction was effected between the present survey and surveys H-10666 (1995) and H-10589 (1996).

M. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-8740	(1963-1965)	1:20,000
H-8741	(1963-1965)	1:10,000
H-8742	(1962-1963)	1:10,000
H-8743	(1962-1965)	1:20,000

1. H-8740 (1963-1965) covers the northeastern part of the present survey. Present survey depths are generally 0 to 3 feet (0^1 to 0^9 m) deeper than the prior survey depths. The following should be noted:

a. A charted row of piles, in the vicinity of Latitude 29°39'18.7"N, Longitude 94°56'00.6"W, originates with the prior survey. This row of piles is not considered disproved. It is recommended that the piles remain as charted and that the label be revised to Submerged piles.

b. A charted pile, in the vicinity of Latitude 29°39'21.1"N, Longitude 94°55'56.0"W, originates with the prior survey. This pile is not considered disproved. It is recommended that the pile remains as charted and that the label be revised to Submerged pile.

2. H-8741 (1963-1965) covers the northwestern part of the present survey. Present survey depths are generally 3 to 10 feet (0^{9} to 3 m) deeper than the prior survey depths. The following should be noted:

a. The following charted features originate with the prior survey:

FEATURE	LATITUDE (N)	LONGITUDE (W)
snag	29°40'14.7"	94°58'34.3"
pile	29°40'16.8"	94°58'31.1"
pipe	29°40'21.6"	94°58'36.3"
pile	29°40'21.9"	94°58'57.7"

These features were neither verified nor disproved by the field unit. It is recommended that the features remain as charted and that the labels be revised to Submerged.

b. A charted snag, in the vicinity of Latitude 29°40'12.7"N, Longitude 94°58'34"W, originates with the prior survey. This snag is not considered disproved. It is recommended that the snag remain as charted and a notation submerged snag be added to the chart.

c. Two charted piles, in the vicinity of Latitude 29°40'20.5"N, Longitude 94°58'33.3"W, originate with the prior survey. These piles are not considered disproved survey. It is recommended that the piles remain as charted and that the label be revised to Submerged piles.

3. H-8742 (1963) covers most of the survey area. Present survey depths are generally 0 to 5 feet (0 to 2^{1} m) deeper than the prior survey depths. Attention is directed to the following:

a. The following charted features originate with the prior survey:

FEATURES	LATITUDE (N)	LONGITUDE (W)
piles	29°37'22.0"	95°00'12.0"
pipe	29°37'26.7"	95°00'09.5"
snag	29°37'22.7"	94°57'24.5"
snags (2)	29°37'28.5"	94°57'25.5"

b. A charted pile, in the vicinity of Latitude 29°39'21.1"N, Longitude 94°55'56.0"W, originates with the prior survey. This pile is not considered disproved. It is recommended that the pile remains as charted and that the label be revised to Submerged pile.

c. Two charted shell reefs, in the vicinity of Latitude 29°39'15"N, Longitude 94°56'00"W, originate with the prior survey. These shell reefs are considered disproved. It is recommended that the present survey depths be used to update the chart in this area.

2. H-8741 (1963-1965) covers the northwestern part of the present survey. Present survey depths are generally 3 to 10 feet (0^9 to 3 m) deeper than the prior survey depths. The following should be noted:

a. The following charted features originate with the prior survey:

FEATURE	LATITUDE (N)	LONGITUDE (W)
snag	29°40'14.7"	94°58'34.3"
pile	29°40'16.8"	94°58'31.1"
pipe	29°40'21.6"	94°58'36.3"
pile	29°40'21.9"	94°58'57.7"

These features were neither verified nor disproved by the field unit. It is recommended that the features remain as charted and that the labels be revised to Submerged.

b. A charted snag, in the vicinity of Latitude 29°40'12.7"N, Longitude 94°58'34"W, originates with the prior survey. This snag is not considered disproved. It is recommended that the snag remain as charted and a notation submerged snag be added to the chart.

c. Two charted piles, in the vicinity of Latitude 29°40'20.5"N, Longitude 94°58'33.3"W, originate with the prior survey. These piles are not considered disproved survey. It is recommended that the piles remain as charted and that the label be revised to Submerged piles.

3. H-8742 (1963) covers most of the survey area. Present survey depths are generally 0 to 5 feet (0 to 2^1 m) deeper than the prior survey depths. Attention is directed to the following:

a. The following charted features originate with the prior survey:

FEATURES	LATITUDE (N)	LONGITUDE (W)
piles	29°37'22.0"	95°00'12.0"
pipe	29°37'26.7"	95°00'09.5"
snag	29°37'22.7"	94°57'24.5"
snags (2)	29°37'28.5"	94°57'25.5"
snag	29°37'32.6"	94°57'31.2"
stake	29°37'38.9"	94°57'20.1"
piles	29°38'15.3"	95°00'51.3"
pile	29°38'35.4"	95°00'46.0"
pile	29°38'39.5"	95°00'42.4"
subm pipe	29°39'06.3"	95°00'32.3"
subm pipe	29°39'08.1"	95°00'21.6"
piles	29°39'14.8"	94°56'14.5"
stakes	29°39"18.4"	95°00'16.3"
piling	29°39'22.2"	94°58'06.2"
pile	29°40'12.7	94°59'18.6"

These features are not considered disproved. It is recommended that features charted as visible be revised to submerged, otherwise, no change in charting status is recommended.

b. A charted pipe, in Latitude 29°37'24.5 Longitude 95°00'28.8"W, originates with the prior survey. The shoreline manuscript shows the pipe in Latitude 29°37'27.0"N Longitude 95°00'31.5"W. The pipe was not located by the filed unit. It is recommended that this pipe be revised to a submerged pipe.

c. Four charted piles, in the vicinity of Latitude 29°38'09.1"N, Longitude 95°00'52.4"W, originate with the prior survey. These piles are not considered disproved. It is recommended that the piles be revised to submerged piles.

d. Charted pipes, in the vicinity of Latitude 29°39'09.8"N, Longitude 94°58'08.2"W, originate with the prior survey. These pipes were neither verified nor disproved by the present survey. It is recommended that the chart be updated to show the pipes as submerged.

The above features were brought forward from the prior surveys to supplement the present survey.

4. H-8743 (1962-1965) covers the southeastern part of the present survey. Present survey depths are generally 0 to 3 feet (0 to 0^9 m) deeper than the prior survey depths.

Except as noted above the present survey is considered adequate to supersede the above prior surveys within the common areas.

N. ITEM INVESTIGATIONS

1. AWOIS Item #9312, originating with Chart Letter 64 of 1965 (CL64/65), consists of thirteen charted submerged stakes, three of which are inside the limits of this survey. The three submerged stakes are located in Latitude 29°36'27.5"N, Longitude 94°57'05.5"W, Latitude 29°36'37.0"N, Longitude 94°57'09.0"W, and Latitude 29°36'46.5"N, Longitude 94°57'12.5"W. The hydrographer did not investigate nor include this item in the Descriptive Report discussion of the AWOIS Items. These stakes are the same type as the ones described in AWOIS Item #9619. It is reported that these stakes were used as temporary surveying reference markers for Corps of Engineers dredging operations. It is recommended that the above three submerged stakes be deleted from the chart per correspondence from Mr. Johnny Rozsypal of the Galveston office of the U.S. Army Corps of Engineers.

2. AWOIS Item #9313, originating with Blue Print 68549 of 1965 (BP68549/65), consists of thirteen charted submerged piles and submerged signs, five of which fall inside the limits of this survey. The piles are located in Latitude 29°36'29.0"N, Longitude 94°57'01.0"W, Latitude 29°36'38.5"N, Longitude 94°57'05.0"W, and Latitude 29°36'48.0"N, Longitude 94°57'08.0"W. The submerged sign are located in Latitude 29°36'25.7"N, Longitude 94°57'04.0"W and Latitude 29°36'18"N, Longitude 94°56'58.5"W The hydrographer did not investigate nor include this item in the Descriptive Report discussion of the AWOIS Items. It is recommended that the three submerged piles be retained as charted and that the submerged signs be revised to submerged obstructions.

O. COMPARISON WITH CHART 11326 (26th Edition, Jan 01/94)
11327 (27th Edition, Mar 15/97)
11328 (20th Edition, Mar 15/97)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in Section O. of the Descriptive Report. The following should be noted:

1. The charted notation 34 FT NOV 1996, in the vicinity of Latitude 29°36'40"N, Longitude 95°01'25"W, has a date subsequent to the completion date of the present survey. It is recommended that the note be retained as charted.

2. The charted notation 10½ FT FOR WIDTH OF 125 FT AUG

1996, in the vicinity of Latitude 29°36'39"N, Longitude 94°55'30"W, has a date subsequent to the completion date of the present survey. It is recommended that the note be retained as charted.

3. A charted pile, in the vicinity of Latitude 29°37'49.8"N, Longitude 94°57'19.9"W, was identified by the field as an oil platform. It is recommended that the charted pile be removed, and a platform be charted as shown on the present survey.

4. A charted visible pipe, in Latitude 29°39'57.6"N Longitude 94°59'41"W, on NOS chart 11327 is charted a pile awash on NOS chart 11328. The item was not investigated by the hydrographer. It is recommended that the item be revised to a submerged pile on both charts.

5. A charted pipe, in Latitude 29°39'38.6"N Longitude 95°00'01.3"W, on NOS chart 11327 is charted as a pile awash on NOS chart 11328. The item was not investigated by the hydrographer. It is recommended that the item remain on both charts, and the label revised to submerged pile.

6. An uncharted pile, in Latitude 29°36'27.95"W, Longitude 94°56'03.36"W was located by the field unit. It is recommended that this pile be charted as shown on the present survey.

7. A charted platform, in the vicinity of Latitude 29°36'28.7"N, Longitude 94°57'00.2"W, is not considered disproved. It is recommended that the platform be retained as charted.

8. Two charted piles, in the vicinity of Latitude 29°36'31"N, Longitude 95°01'27"W, are not considered disproved. It is recommended that the piles be revised to submerged piles.

9. An uncharted pipe, in Latitude 29°36'44.26"N Longitude 94°55'49.80"W was located by the field unit. It is recommended that this pipe be charted as shown on the present survey.

10. An uncharted pile was found in Latitude 29°37'02.77"N, Longitude 94°56'20.37"W. It is recommended that this pile be charted as shown on the present survey.

11. A charted subm pile in the vicinity of Latitude 29°37'11.1"N, Longitude 94°57'33.7"W was neither verified nor disproved by the field unit. It is recommended that the subm

pile remain as charted.

12. A charted visible pile in the vicinity of Latitude 29°39'13.8"N, Longitude 95°00'16.0"W was neither verified nor disproved by the field unit. It is recommended that this visible pile be changed to a submerged pile and retained in the charted position.

13. Two uncharted piles were found in the vicinity of Latitude 29°39'17.78"N, Longitude 94°55'14.92. These piles were found in an area charted as groin ruins. It is recommended that the area remain as charted.

14. The following charted features originating with unknown sources were neither verified nor disproved by the present survey.

Feature	Latitude (N)	Longitude (W)
pile (PA)	29°39'11.2"	94°55'14.3"
piles (5)	29°39'24.0"	95°00'15.0"
stakes	29°40'01.5"	95°57'35.3"
stakes	29°40'20.6"	95°57'32.9"

It is recommended that these features be revised to submerged features.

15. The following charted piers in ruin were verified by the field:

Feature	Latitude (N)	Longitude (W)
Pier ruins	29°37'34.04"	95°00'31.02"
Pier ruins	29°37'39.60"	95°00'32.78"
Pier ruins	29°39'13.97"	95°00'16.10"
Pier ruins	29°39'33.53"	95°00'03.41"
Pier ruins	29°39'39.00"	94°59'56.80"
Pier ruins	29°39'43.16"	95°00'02.57"
Pier ruins	29°39'56.20"	94°59'44.83"
Pier ruins	29°39'56.40"	94°59'36.77"
Pier ruins	29°40'00.10"	94°59'29.26"
Pier ruins	29°40'02.96"	94°59'24.75"
Pier ruins	29°40'13.03"	94°59'19.39"
Pier ruins	29°40'13.01"	94°59'21.30"
Pier ruins	29°40'13.02"	94°59'23.11"
Pier ruins	29°40'13.01"	94°59'25.03"

It is recommended that these items be retained as charted.

16. The discontinued spoil areas charted in the vicinity of Latitude 29°40'09.0"N, Longitude 94°56'27.0"N and Latitude

29°40'27.0"N, Longitude 94°56'07.0"W were neither verified nor disproved by the present survey. No changes in charting are recommended.

17 A spoil area charted in the vicinity of Latitude 29°40'09.0"N, Longitude 94°56'16.5"W was neither verified nor disproved by the present survey. No changes in charting are recommended.

18. The cooling system intake canal charted in the vicinity of Latitude 29°39'45.0"N, Longitude 94°56'41.0"W was neither verified nor disproved by the present survey. No changes in charting are recommended.

19. The pier ruins charted in the vicinity of Latitude 29°38'17.0"N, Longitude 95°00'55.0"W originate from an unknown source and were neither verified nor disproved by the present survey. No changes in charting are recommended.

20. Two subm pipes charted in Latitude 29°39'42"N, Longitude 95°00'00.4"W originate from an unknown source and was neither verified nor disproved by the present survey. These pipes are not charted on the latest edition of NOS Chart 11327. It is recommended that the subm pipes be charted on all charts as shown on NOS Chart 11328.

21. Three pipes charted on NOS Chart 11327 in Latitude 29°39'43.1"N, Longitude 95°00'02.1"W originate from an unknown source and were neither verified nor disproved by the present survey. These three pipes are charted as two piles on NOS Chart 11328. It is recommended that the three pipes be charted on all charts as shown on NOS chart 11327 and that they be labeled submerged pipes on all charts.

22. A pile charted on NOS Chart 11328 in Latitude 29°39'49.2"N, Longitude 94°59'59.0"W originates from an unknown source and was neither verified nor disproved by the present survey. It is recommended that the pile be charted on all charts as shown on NOS Chart 11328 and that the pile be labeled submerged pile on all charts.

23. The dolphins charted on NOS Chart 11328 in Latitude 29°39'51.0"N, Longitude 94°59'57.1"W originate from an unknown source and were neither verified nor disproved by the present survey. It is recommended that the dolphins be charted on all charts as shown on NOS Chart 11328 and that the dolphins be labeled submerged dolphins on all charts.

24. Two stakes charted in Latitude 29°40'21.6"N, Longitude 94°56'17.3"W originate from an unknown source and

was neither verified nor disproved by the present survey. No charting changes are recommended.

25. A solid line charted in Latitude 29°37'32"N, Longitude 94°59'41.9"W was originally charted as a range line. The range no longer exists and the solid line was charted in error. It is recommended that the solid line be removed from the chart.

26. A charted 3 foot (0^9m) shoal depth, in Latitude 29°36'28"N, Longitude 94°58'41"W originates with an unknown source and was not adequately investigated by the present survey. It is recommended that the 3 foot depth remain as charted.

27. A charted 1 foot (0^3m) depth, in Latitude 29°39'52"N, Longitude 94°59'56.3"W originates with an unknown source and was not adequately investigated by the present survey. It is recommended that the 1 foot depth remain as charted.

28. A charted 2 foot (0^6m) depth, in Latitude 29°39'58.5"N, Longitude 94°59'41.3"W originates with an unknown source and was not adequately investigated by the present survey. It is recommended that the 2 foot depth remain as charted.

29. A charted visible rock pile, in Latitude 29°40'18"N, Longitude 94°58'35"W originates with an unknown source and was not investigated by the present survey. It is recommended that the rock pile be revised to a submerged rock pile.

30. The charted notation Platform, in Latitude 29°40'22.7"N, Longitude 94°58'35"W originates with an unknown source. There is no platform symbol in that area, only the word platform. The field did a thorough job of positioning the platforms in the survey area, and did not find one in this position. It is recommended that the notation Platform be deleted from the chart.

31. The platform in ruins charted in Latitude 29°40'11.5"N, Longitude 94°59'17.4"W originates from an unknown source and was neither verified nor disproved by the present survey. No charting changes are recommended.

32. The following charted unlabeled obstructions originating with unknown sources were neither verified nor disproved by the present survey.

* Feature	Latitude (N)	Longitude (W)
obstructions (3)	29°36'54.5"	94°59'49.5"
obstruction	29°36'57"	94°59'46.5"
obstructions (2)	29°37'55.7"	95°00'53"
obstruction	29°38'45.2"	95°00'45.8"
obstruction	29°36'24.3"	94°56'35.5"
obstruction	29°36'41"	95°01'30"
obstructions (2)	29°37'22"	95°00'12"
obstruction	29°37'43.2"	95°00'45.7"
obstruction (PA)	29°39'11.2"	94°55'14.3"

* Features appear on Chart 11327, 27th Ed. dated Mar 15, 1997 & subsequent to date of present survey. acR

It is recommended that these features be retained as charted.

33. An uncharted 1 foot (0^5m) obstruction, in Latitude 29°36'19.395"W, Longitude 94°56'38.419"W was located by the field unit. It is recommended that this obstruction be charted as shown on the present survey.

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

b. Dangers to Navigation

There were no dangers to navigation submitted by the field unit. No dangers were discovered during office processing.

The present survey is adequate to supersede the charted hydrography within the common area, except where noted in this report.

c. Controlling Depths

There are no conflicts in the tabulated controlling depths in the Houston Ship Channel and the depths found on the present survey. No changes in charting are recommended.

P. ADEQUACY OF SURVEY

This is an adequate hydrographic survey and should supersede all prior surveys within the common areas except as noted in the Descriptive Report or in this report.

Q. Aids to Navigation

The hydrographer located 34 fixed and 11 floating aids to navigation within the present survey area. These aids appear adequate to serve their intended purpose.

1. Fivemile Cut buoys 1 through 4 have been removed, and light number 5 has been changed to a daybeacon on a dolphin. It is recommended that this area remain as charted until these changes are received from the Coast Guard Aids to Navigation Section.

2. Houston Ship Channel Light 84, in Latitude 29°38'32.90"N, Longitude 94°57'54.02"W, and Houston Ship Channel Light 87, in Latitude 29°39'45.65"N, Longitude 94°58'32.30"W, were found by the field to be green can buoys 84 and 87. It is recommended that this area remain as charted until these changes are received from the Coast Guard Aids to Navigation Section.

3. Nine white and orange privately maintained nun buoys are charted in the vicinity of Latitude 29°38'00"N, Longitude 94°59'00"W. The hydrographer found eight privately maintained buoys in locations which differ from the charted locations. It is recommended that the nine charted privately maintained buoys be deleted and the eight privately maintained buoys found on the present survey be charted at the present survey positions.

4. The following aids to navigation are in the Light List and were not located by the hydrographer.

DESCRIPTION	LATITUDE (N)	LONGITUDE (W)	LL#
Houston Ship Channel Light 81	29°37'54"	94°57'48"	23310
Sylvan Beach Breakwater Lt 1	29°39,02"	95°00'37"	25575

No changes in charting are recommended.

S. MISCELLANEOUS

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

T. RECOMMENDATIONS

It is recommended that additional field work be done at an opportune time to verify or disprove those items that were not resolved by the present survey.

HECK Team

Douglas V. Mason
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H-10661

Initial Approvals:

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

Deborah A. Bland Date: 11-17-97

Deborah A. Bland
Cartographer,
Atlantic Hydrographic Branch

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.

Nicholas E. Perugini Date: 11-21-97

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

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Final Approval:

Approved: Andrew A. Armstrong III Date: Feb 4, 1998

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

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10661

INSTRUCTIONS

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

CHART	DATE	CARTOGRAPHER	REMARKS
11327	12/1/97	D.A. Bland	Full [redacted] After Marine Center Approval Signed Via
			Drawing No.
11328	11/28/97	D.A. Bland	Full [redacted] After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.