9784

Diag. Cht. Nos. 1280, 1282-2 & 1117

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

(HYDROGRAPHIC)

Type of Survey Hydrographic

Field No. MI-40-2-78

Office No. H-9784

LOCALITY

State Texas

General Locality Gulf of Mexico

Locality Offshore, Southeast of Galveston

1978

CHIEF OF PARTY
James S. Midgley

LIBRARY & ARCHIVES

DATE July 9, 1979

☆U.S. GOV. PRINTING OFFICE: 1976—669-441

9784

Ocean 4

Chart

417 · NCorr

1300

1323

1321

1340

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-9784

HYDROGRAPHIC TITLE SHEET

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.

MI-40-2-78

State TEXAS

General locality ~~NORTH WESTERN~~ GULF OF MEXICO

Locality Offshore, ~~Galveston, Texas~~ Southeast of Galveston

Scale 1:40000 Date of survey 9 August to 13 October, 1978

Instructions dated 9 December, 1978 Project No. OPR-K104-MI-78

Vessel NOAA SHIP MT. MITCHELL (2220)

Chief of party Captain James S. Midgley, NOAA

Surveyed by See Remarks

Soundings taken by echo sounder, hand lead, pole ROSS MODEL 5000 FINELINE

Graphic record scaled by P.W.S., A.N.S., P.W., E.M., T.L.B.,

Graphic record checked by D.S., S.K., A.N.S, R.W., Verification Branch (AMC)

Protracted by N/A Automated plot by HYDROPLOT SYSTEM XYNETICS 1201 PLOTTER (AMC)

Verification by L.G. Cram

Soundings in fathoms feet at ~~MEW~~ ~~MLLW~~ GCLWD

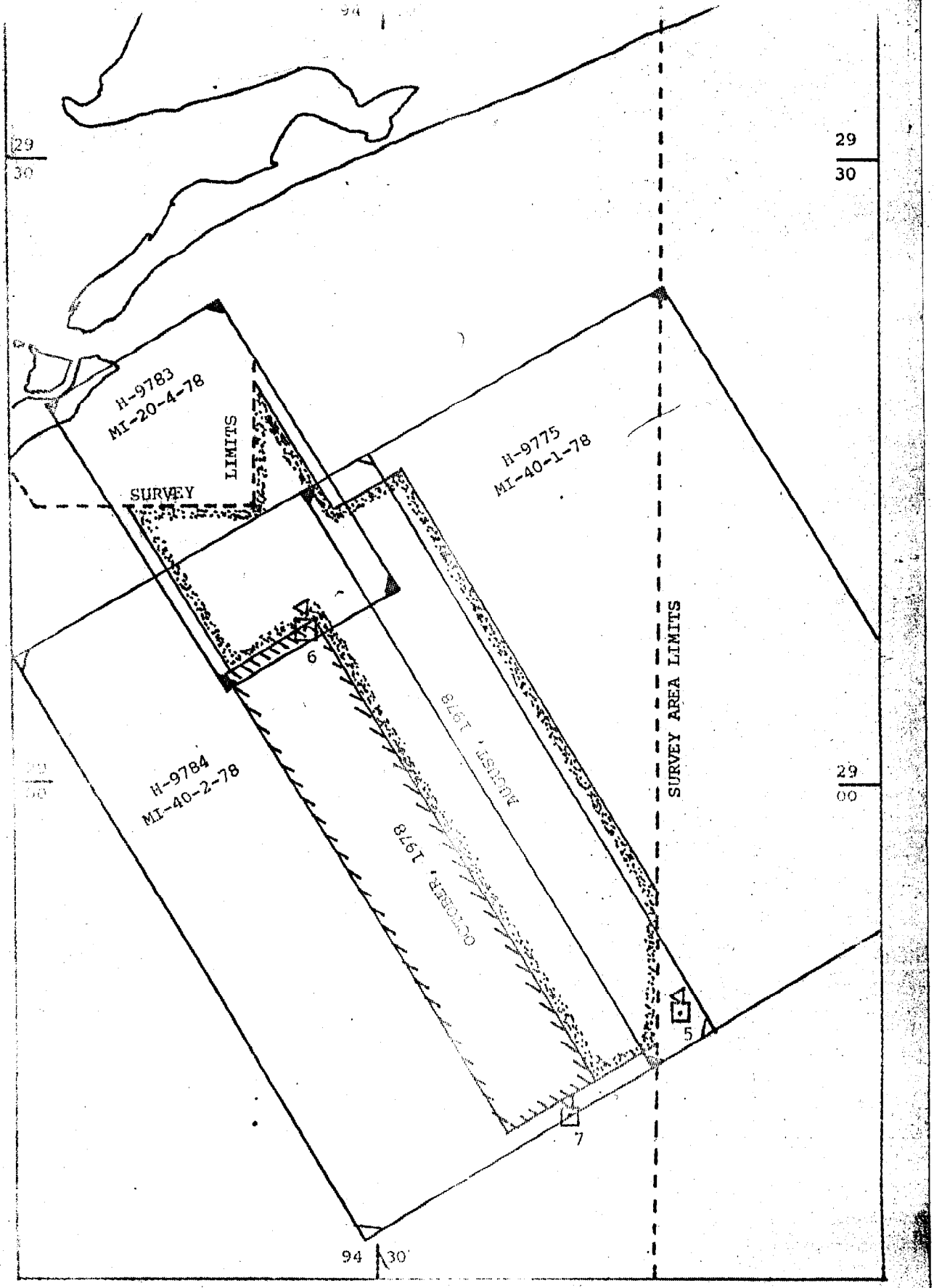
REMARKS: LCDR Gerald Mills, LCDR Lowell Goodman, LCDR Ludvik Pfeifer, LTJG John Wilder, LTJG Timothy Rulon, LTJG Paul Daugherty, ENS William Pringle, ENS Terri Bainbridge, ENS Andrew Shepard, ENS Paul Morton

Changes made in red ink done by the Verifier at the time of Verification.

Applied to stds 2/5/80 ADB

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

☆ U.S. G.P.O. 1972-769-565/519 REG. #6



OPR-K104-MI-78 PROGRESS SKETCH SCALE OF CHART 1:300

H-9784, MI-40-2-78

A. PROJECT

This survey was carried out in accordance with Project Instructions OPR-K104-MI-78 issued 9 December, 1977 and amended by changes 1 through 5 dated 24 February 1978, 3 April 1978, 6 April 1978, 15 June 1978, and 3 July 1978 respectively.

B. AREA SURVEYED

This survey was conducted in the Gulf of Mexico off Galveston Island between Flake and Pelican Island, Texas. The limits of the survey are roughly described by lines connecting the following points in a clockwise manner:

28°48.3' N	94°14.2' W
28°43.3' N	94°23.3' W
29°05.4' N	94°38.7' W
29°13.9' N	94°32.1' W

This survey was conducted between 9 August (JD 221) and 18 August 1978 (JD 230) and 3 October (JD 277) and 13 October 1978 (JD 286).

C. SOUNDING VESSEL

All soundings for the survey were obtained by the NOAA Ship MT. MITCHELL S-222 (vessel number 2220).

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following equipment was used to obtain soundings for the survey:

Equipment	Serial Number
Ross Model 5000 Fineline Depth Recorder	1050
Ross Model 4000 Transceiver	1050
Ross Digitizer	1050

D. (Continued)

Soundings for the MT. MITCHELL were taken with a skeg mounted transducer (antenna distance ±32.0 m). All survey records were scanned by trained survey department personnel and checked by the officer in charge. Peaks and deeps considered significant that occurred between soundings were inserted and digitizing errors were corrected on the electronic corrector tape.

Phase calibration checks were made at frequent intervals. Any necessary adjustments were made and noted in the sounding volume and on the fathogram. Any departures of the trace from the calibration due to phase differences were corrected during the scanning process.

Velocity corrections were obtained from 3 Nansen casts at the following locations and dates:

Cast Number	Table #	Latitude	Longitude	Date
5	1	28°49.0'N	94°13.6'W	3 August, 1978
6	2	29°07.0'N	94°33.8'W	16 August, 1978
7	3	28°44.0'N	94°20.0'W	5 October, 1978

However, all soundings were smooth plotted using cast #5 corrections as differences between the corrections derived from the three casts were negligible (less than 0.06 ft. for any depth). An explanation of how sound velocities were derived along with all tables and printouts of velocity tapes is included in Appendix 4.

A draft of 14.0 feet was applied to all soundings collected by the MT. MITCHELL during the on-line process. To determine actual drafts for this survey, a straight line plot was constructed using the after draft from the beginning and ending dates of each trip. A draft correction was determined every 0.1 feet. The draft varied from 14.4 to 13.7 feet for this survey. Settlement and squat corrections for the ship were determined on 12 June 1978 (JD 163) at Galveston (Inner Bar Channel), Texas. A copy of the data abstract for ship's speed versus settlement and squat is included in the survey support data.

The change in the ship's draft along with settlement and squat correctors is incorporated into the TC/TI tape which is included in the survey data. A printout of this tape is included in Appendix 4.

A vertical cast was conducted on 16 May 1978 (JD 136) at 29°31'.3 N and 94°17'.9 W to determine fathometer instrument error for the ship. The results are included in this report. The error was less than -0.08 feet and was considered to be zero due to the accuracy of the cast.

D. (Continued)

This survey was conducted using predicted tides based on daily predictions at Galveston, Texas, from the Tide Tables, 1978. Prezoned tide correctors were supplied by the Rockville Tides Branch in a letter dated 6 April 1978 (change #3). Tide correctors were applied to on-line data as follows: Thirty minutes were subtracted from high water times, and one hour and zero minutes were subtacted from low water times. The high and low water heights were multiplied by a factor of 1.36. A copy of the request for the actual tides in the survey area is included in Appendix 2. See Verifiers Report and appendix 4 of this Report.

E. HYDROGRAPHIC SHEETS

This survey was plotted on 2 mylar complot roll plotter sheets by the MT. MITCHELL Hydroplot System with a skew of 122,21,60. The survey was plotted off line using an electronic corrector tape and a velocity corrector tape. Soundings on the field sheets are corrected for draft, predicted tides, initial and digitizing errors, and sound velocity. They are not corrected for smooth tides, settlement and squat, and instrument error. The final smooth sheet will be plotted at the Atlantic Marine Center, Norfolk, Virginia.

All field records and the following tapes have been forwarded to the Atlantic Marine Center:

Master Range-Range Data Tapes
Electronic Corrector Tapes
Velocity Correction Tape
Parameter Tapes
ASC II Signal Tapes
Transducer Corrector/Table Indicating Tape

F. CONTROL STATIONS

Hydrotrac Electronic Control Stations used for this survey were:

Signal Number and Signal Name		Latitude	Longitude
Station 200	H-1-TX-77	29°14'33.046"N	94°52'08.369"W
Station 300	H-27-TX-78	29°35'12.670"N	94°17'18.380"W

The above stations were located by personnel from the Operations Division, Atlantic Marine Center, with assistance from MT. MITCHELL Officers. Stations were erected and maintained by ship's personnel.

G. HYDROGRAPHIC POSITIONS CONTROL

An Odum Offshore Hydrotrac System operating at a frequency of 1618.65 KHz in the range-range mode was used to provide positioning control for ship hydrography (vessel number 2220) on this survey, from 9 August 1978 (JD 221) to 18 August 1978 (JD 230) and 3 October 1978 (JD 277) to 13 October 1978 (JD 286). The equipment serial numbers used are as follows:

Vessel or Shore Station		Serial Number
VESNO #2220	Master Drive Unit Model 702	121
	Linear Amplifier 74-87	538
	Receiver Model 700	327
	Coupler	135
	Sawtooth Recorder Model 8085	8502
	Interface	102
STATION 200	Slave Drive Unit Model 701	214
	Linear Amplifier	537
	Coupler	133
	Sola Power Supply	753
STATION 300	Slave Drive Unit Model 701	215
	Linear Amplifier	536
	Coupler	131
	Sola Power Supply	752

Hydrotrac calibration was accomplished using three point sextant fixes and then comparing observed Hydrotrac range values with computed values obtained from the Hydroplot Calibration Program RK 561. A check fix was also used on each calibration. Only those fixes with an inverse distance of less than 5.0 meters were used on these calibrations.

Visual calibration was accomplished 2 times off High Island, Texas and one time off Galveston, Texas during the survey. The resultant correctors were used until a new calibration was obtained (partial correctors varied by less than 0.14 lanes for both P1 and P2).

In addition, the whole lane count was checked 6 times at wellhead "C-18" using the circling technique described on page 4-28 of the Hydrographic Manual. Wellhead "C-18" is described below:

	Latitude	Longitude
Charted at	(not on chart)	(not on chart)
Computed at	29°17'20.031"N	94°33'31.914"W

Identification--3 pipes, each 3 feet in diameter, approximately 40 feet above the water surface, quick flashing light, horn, sign--"OXY-GAL-144-B"

H-9774

The above wellhead was located by the MT. MITCHELL (VESNO 2220) on sheet MI-20-3-78 (OPR-K104-MI-78) using the circling technique as described in Section 4.4.3.3 of the NOS Hydrographic Manual (Fourth Edition).

While using Hydrotrac positioning the lane count was constantly monitored by the Survey Department by comparing the navigation interface with a running count on the sawtooth recorder. Lane jumps were thus detected and confirmed at calibrations. Any undetected lane jumps were determined by off line rescanning of the sawtooth record. Lane jumps occurred at one time only on JD 221. These did not affect hydrography as the soundings which would have been altered by the jumps were rejected, and the jumps were detected and corrected for (via calibration) before hydrography resumed. An abstract of the calibration data is included with the records accompanying this report.

H. SHORELINE

There was no shoreline on this sheet.

I. CROSSLINES

Crosslines were run at least 45 degrees to the main scheme sounding lines. Crossline mileage amounted to about 5.8 percent of the regular sounding lines. Crossline soundings generally agree within 1-2 feet of the regular lines. concur

J. JUNCTIONS

This survey junctions with the following surveys:

Area of Junction	Field No.	Reg. No.	Scale	Date	Ship
North	MI-20-4-78	H-9783	1:20,000	1978	MT. MITCHELL
East	MI-40-1-78	H-9775	1:40,000	1978	MT. MITCHELL
(North	MI-20-3-78	H-9774	1:20,000	1978	MT. MITCHELL)

~~Not junctional survey for H-9784~~ sket

GKM 7/24/80

Good junctions were made with MI-20-4-78, ~~MI-20-3-78~~, and MI-40-1-78, with most depths agreeing within 1-2 feet. MI-40-2-78 in its original form was comprised of an east and west smooth sheet. However, due to time constraints only the east sheet was finished, hence the lack of a junction on the western border of the smooth sheet as presented. See verifiers report

K. COMPARISON WITH PRIOR SURVEYS

There were no presurvey review items on this sheet.

Prior surveys numbered H-6252 and H-6291 were conducted in 1937 at scales of 1:40000 and 1:80000, respectively, within the area of this survey. Comparison between these prior surveys and the present survey is good with most selected soundings agreeing to within 1-2 feet. Tidal difference is the most probable cause for the disagreements. See Verifiers Report

L. COMPARISON WITH THE CHART

This area is covered by the following NOAA charts:

Chart Number	Edition	Date	Scale
11332	15th	31 December 77	1:80000
11323	40th	7 January 78	1:80000
11300	21st	6 May 78	1:460732

Charted depths generally agree with this survey to within 1-2 feet.

On JD 223 at sounding 688^{+3} a spike was noted on the fathogram yielding a corrected depth of 83 ft. on the smooth plot. It was assumed that an obstruction existed at that point or close by and a development consisting of splits was run over the area on JD 285. Just after position 2890 of the development the same spike, corrected depth of 83 feet*, was revealed and upon comparison of Hydrotrac rates between the two soundings it was determined that they were in the same location. Thus, the 83 ft. shoalest (obtained)* depth denoting the development site on the cross-line sheet was transferred directly from the main-scheme plot. Due to the close proximity of development soundings the entire development was not plotted. It is recommended that the shoalest sounding be charted as an obstruction with a least depth as specified above.

* in lat 28°47'54.29" long 94°17'12.23"

Pos. 2902 is a DP on a buoy (priv maintd.) apparently for ~~obstruction~~ stet
lat. 28°47'51.54" long. 94°17'12.00"

Recommend charting this ~~obstruction~~ stet and buoy as located ~~on~~ this survey.

* Leadline depth was not provided.

M. ADEQUACY OF THE SURVEY

This survey is considered complete and adequate to supercede prior surveys for charting.

N. AIDS TO NAVIGATION

There were no aids to navigation on this survey.
Buoy located at (Pos # 2902) Lat. 28° 47' 51.54"
Long. 94° 17' 12.00"

O. STATISTICS

	Ship
Linear nautical miles of main scheme	2296.0
Linear nautical miles of crosslines	132.5
Linear nautical miles of development	3.0
Total linear miles of hydrography	2431.5
Total miscellaneous miles	398.3
Total miles run	2829.8
Square miles of Hydrography	254.0
Total number of positions	3218
Nansen Casts	3
Bottom Samples	10

P. MISCELLANEOUS

On Julian Day 224 at 0154 GMT a sinking fishing boat, the STARRAKER, was first observed at latitude 29°03.3' N and longitude 94°27.4' W. Detached positions* 732 and 733 were devoted to the location of the sinking vessel. Later, on JD 230 at 1600 GMT a "large derrick-barge" was observed salvaging the STARRAKER and transporting it toward Galveston, Texas.* deleted

P. (continued)

The lines comprised of positions 3090-3120 and 2723-2735 appear to be run off-line on the smooth sheet. However, upon investigation with the aid of programs PM 300 and AM 407 it was determined that the lines are actually the prescribed distance apart, approximately 200 meters. Therefore, the apparent splits were created when the lines were smooth plotted i.e., due to pen-origin displacement, and were not due to horizontal control problems.

Q. RECOMMENDATIONS

None.

R. AUTOMATED DATA PROCESSING

The following Hydroplot Programs were used to acquire and process the survey data:

Program Name	
RK 111 Range-Range Real Time Plot	1/30/76
RK 201 Grid, Signal, and Lattice Plot	4/18/75
RK 211 Range-Range Non-Real Time Plot	1/15/76
RK 300 Utility Computations	2/05/76
RK 330 Data Reformat and Check	5/04/76
PM 360 Electronic Corrector Tape Abstract	2/02/76
AM 407 Geodetic Inverse	10/23/75
RK 530 Velocity Corrections Computations	5/10/76
RK 561 H/R Geodetic Calibration	5/19/75
RK 602 Extended Line Oriented Editor	5/20/75

S. REFERENCE TO REPORTS

Horizontal Control Report OPR-K104-MI-78

Respectfully submitted,

Andrew N. Shepard
Ensign, NOAA

APPROVAL SHEET

MI-40-2-78

H- 9784

The field work on this Hydrographic Survey was under my daily supervision. The boat sheet and records have been reviewed and approved by me.

James S. Midgley

Captain, NOAA

Commanding Officer

SIGNALS NAMES LIST
MI-40-2-78
OPR-K104-MI-78
H-9784

200	H-1-TX-77	AMC OPS
220	GALVESTON MUNICIPAL WATER TANK	290943#1083
225	SOUTH JETTY LIGHT	290943#1101
233	PELICAN ISLAND TALL RADIO MAST	MT.MITCHELL
235	COAST GUARD LORAN "A" TOWER	AMC OPS
280	HIGH MUNICIPAL WATER TANK	AMC OPS
282	HIGH ISLAND MICROWAVE TOWER	AMC OPS
288	H-21-TX-78	AMC OPS
295	H-23-TX-78	AMC OPS
300	H-27-TX-78	AMC OPS

○ only stations used to control this survey

SIGNAL TAPE PRINTOUT
OPR-K104-MI-78
MI-40-2-78
H-9784

200	4	29	14	33046	094	52	08369	250	0000	171859
220	4	29	18	43349	094	46	23522	139	0000	000000
225	4	29	19	39258	094	41	32887	139	0000	000000
233	4	29	19	27345	094	47	07603	139	0000	000000
235	4	29	19	44114	094	44	09632	139	0000	000000
280	4	29	33	32665	094	23	37269	139	0000	000000
282	4	29	33	23677	094	23	08196	139	0000	000000
288	4	29	33	52042	094	20	44013	139	0000	000000
295	4	29	35	00651	094	17	50856	139	0000	000000
300	4	29	35	12670	094	17	18380	250	0000	171859

DETERMINATION OF VELOCITY CORRECTIONS

Three Nansen casts were taken to compute the velocity corrections for MI-40-2-78. However only Nansen cast #5 taken on JD 215 is applied to data collected between JD 221 and JD 230 and between JD 277 to JD 286, as the differences between casts are negligible.

Cast	table #	Latitude	Longitude	Date	JD
#5	1	28°49.0' N	94°13.6' W	8/8/78	215
#6	2	29°07.0' N	94°33.8' W	8/16/78	228
#7	3	28°44.0' N	94°20.0' W	10/5/78	278

Salinities for Nansen casts were obtained with a Beckman Salinometer.

67.3
13.
-60

CAST #5

VELOCITY TAPE PRINTOUT
MI 40-2-78
H-
TABLE 5 VESNO 2220

000158 0 0000 0001 000 222000 040278
000193 0 0002
000225 0 0004
000263 0 0006
000295 0 0008
000326 0 0010
000366 0 0012
000400 0 0014
000435 0 0016
000472 0 0018
000505 0 0020
000538 0 0022
000577 0 0024
000610 0 0026
000645 0 0028
000668 0 0030
000715 0 0032
000750 0 0034
000783 0 0036
000820 0 0038
~~[illegible]~~
~~[illegible]~~
~~[illegible]~~
85.60 0 004.0
88.70 0 004.2
92.50 0 004.4
97.00 0 004.6

done by LGC
✓ by MBH

.4 .8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, ~~FATHOMS~~

NOAA FORM 75-21 (10-72) — U.S. DEPARTMENT OF COMMERCE — NOAA — NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship MT. MITCHELL

Capt. James Midgley Comdg.

These corrections are to be used

between 9 August 1978 and 13 Oct. 1978

in the locality Offshore Galveston, Tx.

for hydrographic surveys Nos. H-9784

DEPTHS IN ~~FATHOMS~~ FEET

(For deep water add a 0 to these figures)

5	10	
10	20	
15	30	
20	40	
25	50	
30	60	
35	70	
40	80	
45	90	
50	100	
55	110	
60	120	
65	130	
70	140	
75	150	
80	160	
85	170	
90	180	
95	190	

done by L&C

✓ by MSL

46 1240

20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

VELOCITY TAPE PRINTOUT

MI-20-4-78

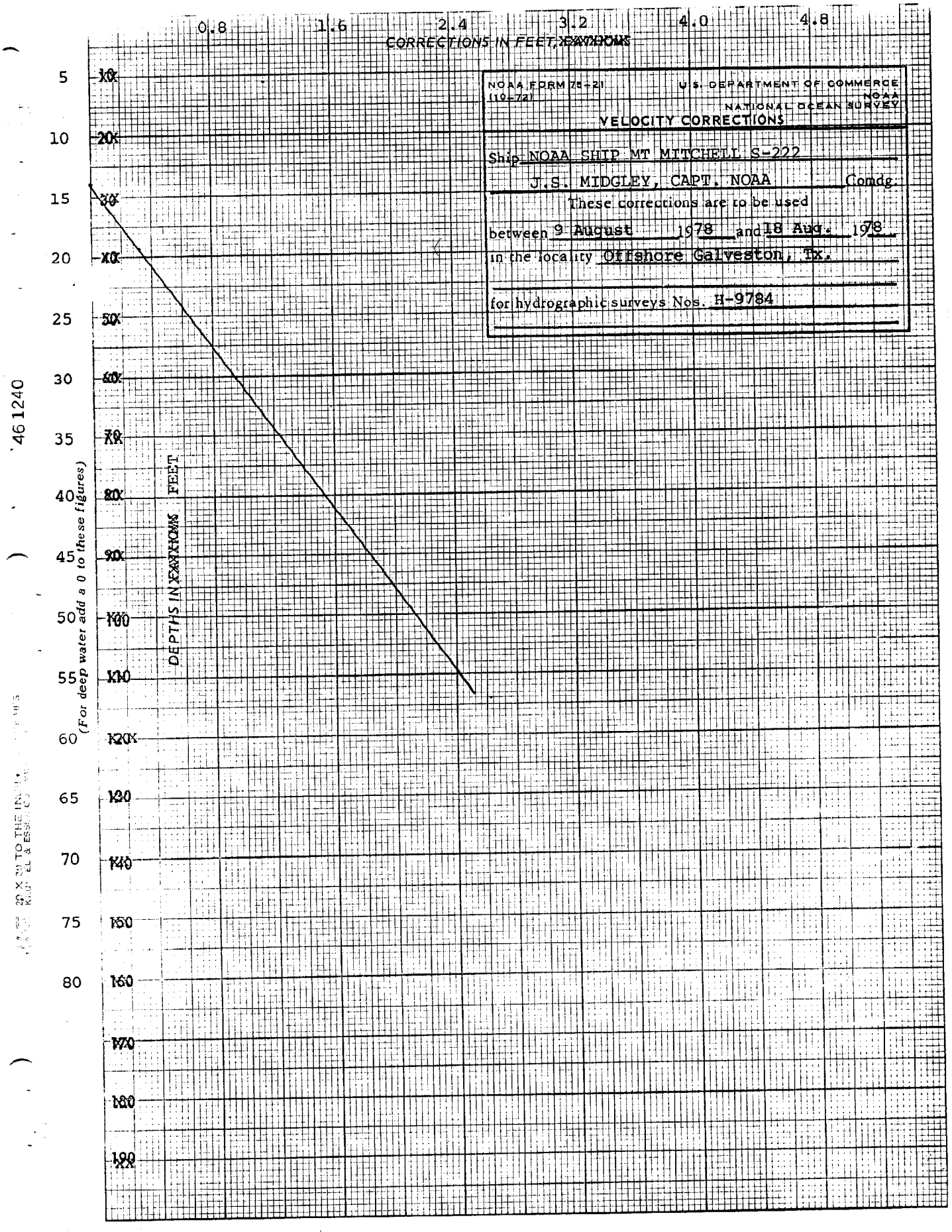
CAST # 6

TABLE # 2

VESNO 2220

#6

```
000153 0 0000 0001 000 222000 020478
000192 0 0002
000226 0 0004
000260 0 0006
000294 0 0008
000328 0 0010
000362 0 0012
000394 0 0014
000428 0 0016
000462 0 0018
000496 0 0020
000530 0 0022
000564 0 0024
999999 0 0000
```

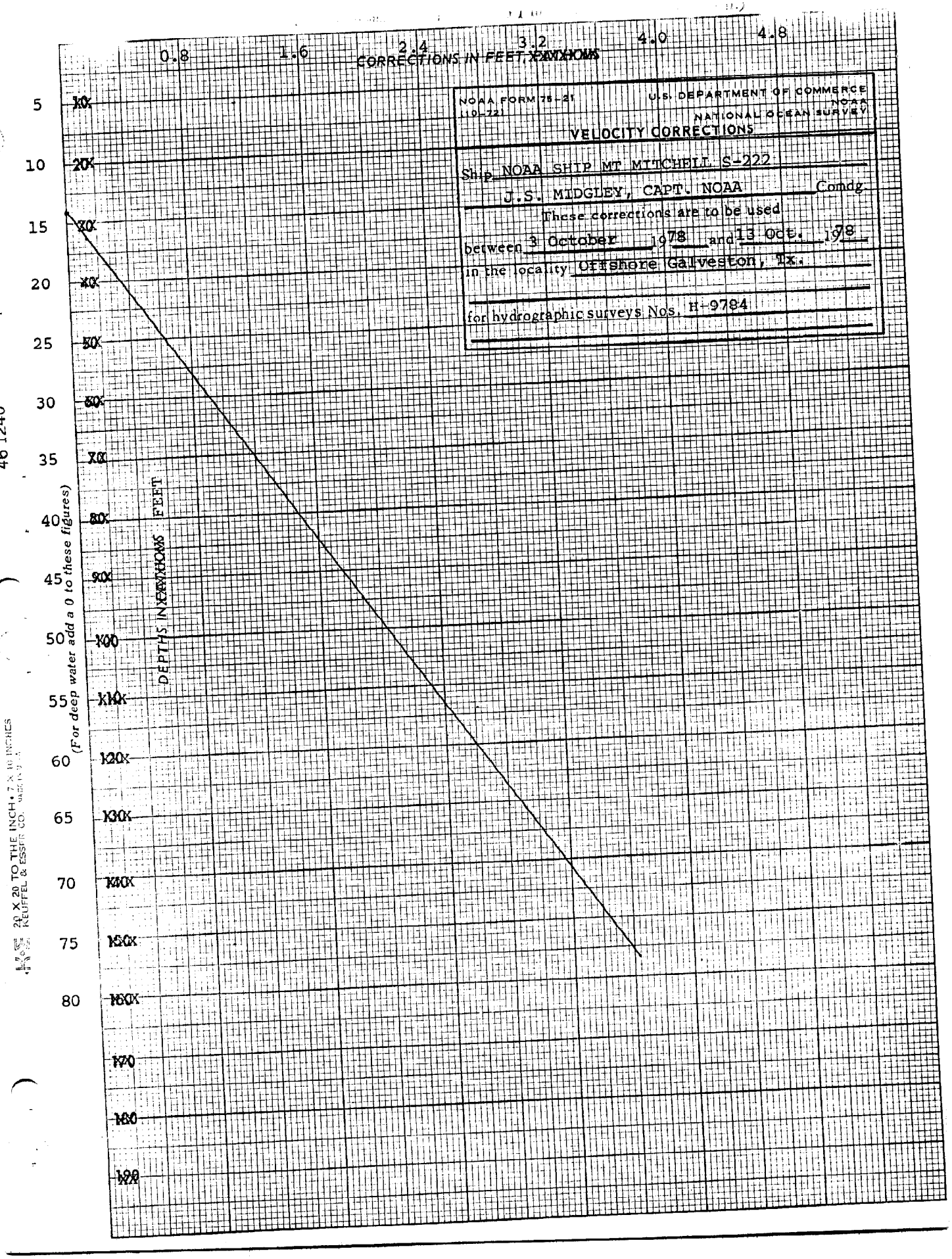

0.8
1.6
2.4
3.2
4.0
4.8
CORRECTIONS IN FEET, FATHOMS
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
DEPTHS IN FATHOMS FEET
(For deep water add a 0 to these figures)
NOAA FORM 76-21 (10-72)
U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY
VELOCITY CORRECTIONS
Ship NOAA SHIP MT MITCHELL S-222
J.S. MIDGLEY, CAPT. NOAA Comdg.
These corrections are to be used
between 9 August 1978 and 18 Aug. 1978
in the locality Offshore Galveston, Tx.
for hydrographic surveys Nos. H-9784

CAST # 7

VELOCITY TAPE PRINTOUT
NI-40-2-78 VESNO 2220
TABLE 3 CAST 7

```
000157 0 0000 0002 000 222000 040278
000192 0 0002
000227 0 0004
000263 0 0006
000299 0 0008
000334 0 0010
000370 0 0012
000405 0 0014
000441 0 0016
000476 0 0018
000512 0 0020
000547 0 0022
000582 0 0024
000627 0 0026
000652 0 0028
000688 0 0030
000723 0 0032
000760 0 0034
999999 0 0000
```

NOTE: THIS IS TABLE #23 OF FOR NI-40-2-78
IT IS TABLE #1 FOR THIS CAST (#7)


0.8
1.6
2.4
3.2
4.0
4.8
CORRECTIONS IN FEET, XXXXXXS
NOAA FORM 76-21 (10-72)
U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY
VELOCITY CORRECTIONS
Ship NOAA SHIP MT MITCHELL S-222
J.S. MIDGLEY, CAPT. NOAA Comdg.
These corrections are to be used
between 3 October 1978 and 13 Oct. 1978
in the locality Offshore Galveston, Tx.
for hydrographic surveys Nos. H-9784
DEPTHS IN XXXXXXS FEET
(For deep water add a 0 to these figures)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80
X0 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190
46 1240
20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO.

SETTLEMENT AND SQUAT

MT MITCHELL 1978 FIELD SEASON

The settlement and squat test for the MT MITCHELL (S-222) was conducted June 12, 1978 in the Galveston Inner Bar Channel, approximately one-half mile east of the Coast Guard Base at Galveston, Texas, using a Zeiss Ni-2 Level (s/n 142936) positioned on the southern breakwater. To determine possible water level changes during the test, the height of water was measured before, during and after the level sightings; no change was observed.

A tower on the northern side of the channel was used as a range, and the readings were taken as the ship aligned with the tower. Passes with the ship were made at idle, half, and standard speeds with a heading of 100 on each pass. An initial reading was taken with the ship dead in the water. A portable tide staff (graduated in tenths of feet), was positioned on the center of the fantail cargo hatch located amidships to allow a clear line of sight to the onshore observer. The displacement of the staff from the skeg transducer was approximately 3 feet aft. Since all hydrography for OPR-K104-MI-78 was to be recorded using this transducer, the settlement and squat correctors were only determined at one location.

A draft reading of 14.7 feet was taken before the test. The ship was carrying four launches--two Pacific Plastics launches in davits #3 and #4, and two Jensen launches in davits #5 and #6. Settlement and squat was run using both engines and various pitch combinations as determined from a speed curve established May 1977, offshore Cape Henry, Virginia. The ship carried a full load of fuel during the test.

Included is an abstract of the data obtained, suggested correctors versus ship speed, the graph of ship speed versus settlement and squat correctors, the "C" shot determination of instrument error, and the ship's speed curve.

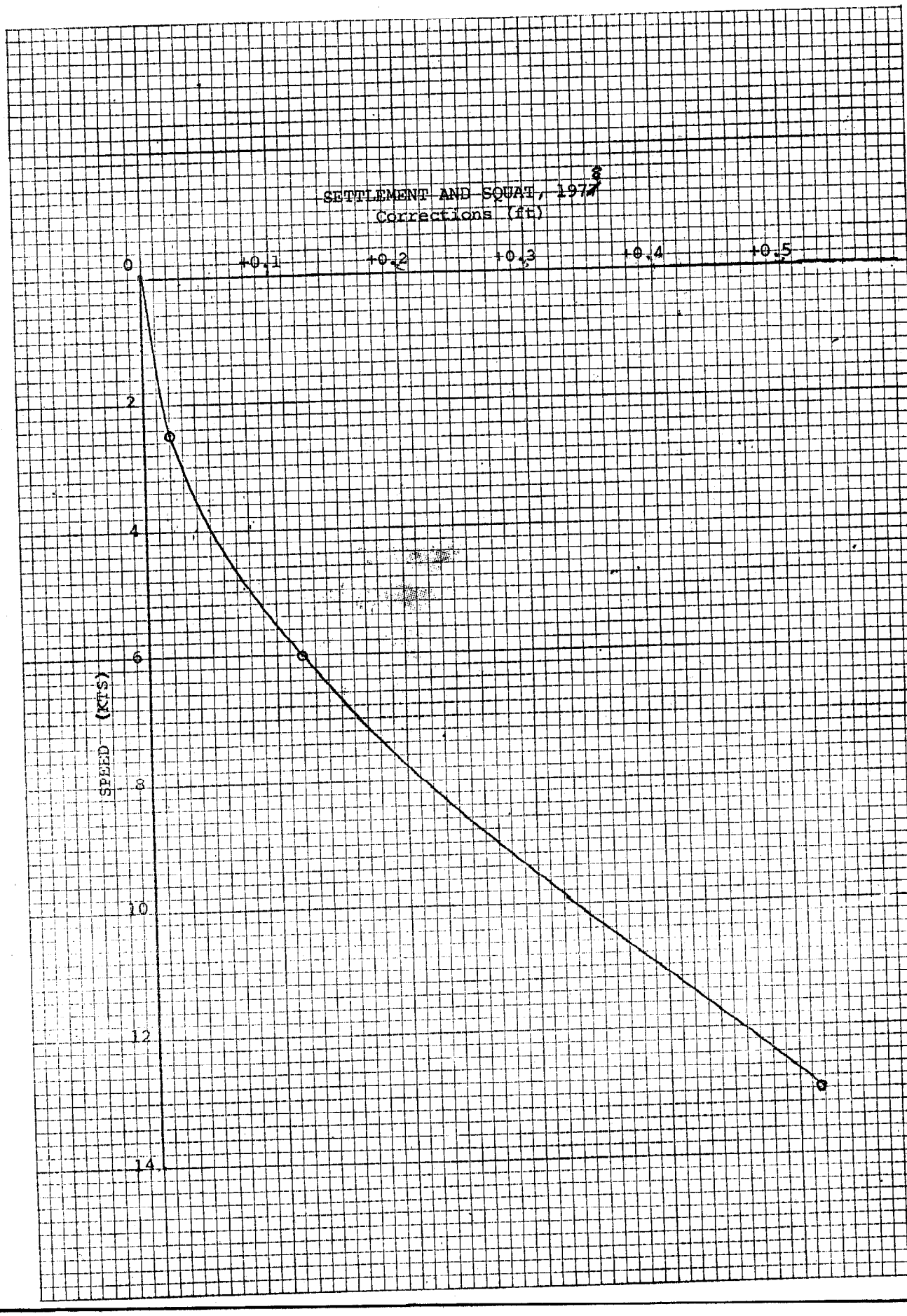
Respectively submitted,

John D. Wilder, LT(jg), NOAA

SETTLEMENT AND SQUAT CORRECTORS

June 12, 1978

SPEED (KTS)	CORRECTION (FT)
1	0
2	0
3	0
4	0
5	0.1
6	0.1
7	0.2
8	0.2
9	0.3
10	0.3
11	0.4
12	0.5
13	0.5


SETTLEMENT AND SQUAT, 1977
Corrections (ft)
0
+0.1
+0.2
+0.3
+0.4
+0.5
2
4
6
8
10
12
14
SPEED (KTS)

FIELD TIDE NOTE

Field tide reductions of soundings was based on predicted tides from Galveston (Pier 21), Texas and were interpolated by a PDP8/E computer utilizing program AM500. All times of both predicted and recorded tides are GMT. Tide gages were installed at four locations in the project area. The location of these gages and period of operation is as follows:

SITE	LOCATION	PERIOD
Galveston (Pier 21), TX (877-1450)	29°18.6' N 94°47.2' W	July 1977 to present
Galveston (Pleasure Pier), TX (877-1510)	29°17.2' N 94°47.4' W	July 1977 to present
Freeport, Texas (877-2440)	28°56.8' N 95°18.5' W	September 1977 to present
Sabine Pass, Texas (877-0590)	29°42.3' N 93°51.2' W	January 1970 to present

GALVESTON (PIER 21), Texas

An ADR gage was installed and began operation in JULY 1977. East coast Tides Party 753 serviced the gage and ran levels on March 8, 1978.

GALVESTON (PLEASURE PIER), Texas

An ADR gage was installed and began operation in July 1977. East coast Tides Party 753 serviced the gage and ran levels on March 8, 1978. A bubbler was installed in addition to the ADR by the East Coast Tides Party and ship's personnel on July 6, 1978 (JD 187).

FREEPORT, Texas

An ADR gage was installed and began operation in September 1977. East coast Tides Party 753 serviced the gage and ran levels on March 14, 1978.

SABINE PASS, Texas

A bubbler gage was installed and began operation in January 1970. East coast Tides Party 753 serviced the gage and ran levels on February 16, 1978.

MT. MITCHELL personnel visited all the gages and advised observers to contact us as soon as possible after a gage failure. Observers were contacted during inport periods and all gages reportedly worked very well throughout the survey.

February 5, 1979

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 877-1510 Galveston Pleasure Pier, Tx.

Period: August 9 - October 13, 1978

HYDROGRAPHIC SHEET: H-9784

OPR: K104

Locality: Offshore, southeast of Galveston, Texas

Plane of reference ~~(mean lower low water)~~ (Gulf Coast Low Water Datum): 2.86

Height of Mean High Water above Plane of Reference is 2.1 ft.

Remarks: Zone direct.

Chief, Datums and Information Branch

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-9784

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
GULF OF MEXICO										1
GALVESTON (TITLE)										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
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										15
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										21
										22
										23
										24
										25

Approved:

Chief Geographer - C3x5

6 Sept. 1979

NOAA FORM 76-155 SUPERSEDES C&GS 197

APPROVAL SHEET
FOR
SURVEY H-9784

A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: 6/21/79

Signed: [signature]

Title: Chief, Verification Branch

NOAA FORM 77-27 (5-77) | U. S. DEPARTMENT OF COMMERCE NOAA | HYDROGRAPHIC SURVEY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-9784

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	3
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	3

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						1-Tides & misc.
CAHIERS	2-with printouts					
VOLUMES	2					
BOXES			1- Smooth			1-Sawtooth rec.

T-SHEET PRINTS (List)

SPECIAL REPORTS (List) 3-marked Chts.

OFFICE PROCESSING ACTIVITIES
The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS: PRE-VERIFICATION	AMOUNTS: VERIFICATION	AMOUNTS: TOTALS
POSITIONS ON SHEET			3228
POSITIONS CHECKED		30	
POSITIONS REVISED		6	
SOUNDINGS REVISED		40	
SOUNDINGS ERRONEOUSLY SPACED		-	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		-	
	TIME – HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2		
VERIFICATION OF CONTROL		-	
VERIFICATION OF POSITIONS		28	
VERIFICATION OF SOUNDINGS		101	
COMPILATION OF SMOOTH SHEET		34	
APPLICATION OF TOPOGRAPHY		-	
APPLICATION OF PHOTOBATHYMETRY		-	
JUNCTIONS		2	
COMPARISON WITH PRIOR SURVEYS & CHARTS		8	
VERIFIER'S REPORT		4	
OTHER			
TOTALS	2	177	179

Pre-Verification by: R. Keene	Beginning Date: 11/15/78		Ending Date: 11/15/78	
Verification by: J. Wilson, P. Niland, L. Cram	Beginning Date: 11/15/79		Ending Date: 06/13/79	
Verification Check by: H.R. Smith	Time (Hours): 4		Date: 06/15/79	
Marine Center Inspection by: Hydrographic Inspection Team (AMC)	Time (Hours): 9		Date: 06/21/79	
Quality Control Inspection by: R.W. Derkazarian	Time (Hours): 12		Date: 8/23/79	
Requirements Evaluation by: D.J. Hill	Time (Hours): 2		Date: 9/26/79	

D.K. Myers 9/10/79 - 3hrs

Reg. No. 9784

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE_____ TIME REQ'D_____ INITIALS_____

REMARKS:

Reg. No. 9784

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE 9-23-82 TIME REQ'D._____ INITIALS JMC

REMARKS:

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9784 FIELD NO. MI-40-2-78

Texas, Gulf of Mexico, Southeast of Galveston

SURVEYED: August 9 through October 13, 1978

SCALE: 1:40,000 PROJECT NO.: OPR-K104

SOUNDINGS: Ross Digital Echo Sounder CONTROL: Hydrotrac (Range-Range)

Chief of Party	J. S. Midgley
Surveyed by	G. B. Mills
	J. D. Wilder
	P. Daugherty
	T. Rulon
	W. Pringle
	T. Bainbridge
	A. Shepard
	P. S. Morton
Automated Plot by	XYNETICS 1201 Plotter (AMC)
Verified and Inked by	L. G. Cram
	June 13, 1979

1. Introduction

a. One unusual problem was encountered; that was that the velocity table provided with this survey was not deep enough to cover the entire sounding range. The deepest depth on the survey was 93 and feet the deepest depth covered by the velocity table was 82.0. The velocity curve was extended to cover the depth range and values were applied from this extension.

b. Some notes and changes were made in the Descriptive Report by the verifier during verification.

2. Control and Shoreline

a. The source of control is adequately described in Sections F. and G. of the Descriptive Report.

b. This being an offshore survey no shoreline was necessary for this survey.

3. Hydrography

a. The agreement at crossings on this survey is adequate; they agree within the limits prescribed by the Hydrographic Manual.

a. The standard depth curves are drawn in their entirety. A 90 ft. brown curve was added to the survey to help delineate the basic bottom configuration. A few dashed curves were added to delineate features.

c. This survey is considered adequate to delineate the basic bottom configuration and least depths in the area prescribed by the Project Instructions.

4. Condition of Survey

The smooth sheet and accompanying overlays, hydrographic records and reports comply with the requirements of the Hydrographic Manual with the following exceptions:

a. The lack of adequate velocity correctors for the depth of the survey.

b. The lack of proper description of aids to navigation, buoy located by field at latitude 28°47'54", longitude 94°17'12.00".

c. The sounding volumes are incomplete in regards to indexing of detached positions and general notes.

5. Junctions

Adequate junctions were made with the following surveys:

H-9775	(1978)	to the east -	Joins H-9774 (1978) on southwest.
H-9783	(1978)	to the north -	Adequate junctions made during quality evaluation of this survey. GCH

There are no contemporary surveys to the south and west; however, present survey soundings are in agreement with the charted information.

6. Comparison with Prior Surveys See Q.C. Report

a.	H-6252	(1937)	1:40,000
	H-6253	(1937)	1:40,000
	H-6291	(1937)	1:80,000

These are the most recent prior surveys in this area that provide complete coverage.

In general the present survey is from 1 to 2 feet deeper than the prior survey, there are some sounding that are from 3 to 4 ft. deeper on the present survey (10%). The bottom configuration and general depths are in good agreement with the prior surveys. It is possible to attribute these changes to natural causes and to some degree to the less accurate methods of control and obtaining sounding used on the prior surveys.

b.	H-9289 (98) WD	(1971) (72)	1:40,000
	F.E. No 1 WD	(1965)	1:80,000

There are no conflicts between the wire drag survey and the present survey.

~~The present survey is adequate to supersede the prior surveys within the common area.~~

7. Comparison With Charts #11300 (21th Edition, May 6, 1978)
#11323 (40th Edition, January 7, 1978)
#11332 (15th Edition, December 31, 1977)

a. Hydrography

All of the charted hydrography originates with the previously discussed prior surveys. In general the charted depths are ~~from~~ 1 foot ~~to 2 feet~~ shoaler than the present survey which require no further consideration.

The present survey is adequate to supersede the charted information when attention is given to the following items that come from sources not readily ascertainable at the time of verification. Item #1 is a charted (#11323) "Well (covered 53 ft.)" with symbol and note in latitude 29°09.4', longitude 94°29.7'. This item was not investigated by the field unit. The depths from the regular line spacing in this area is 54 ft. Recommend retaining the charted depth note and symbol. Item #2 is an ~~obstruction~~ and buoy located in the vicinity of latitude 28°47'54.29", longitude 94°17'12.23". For further discussion see Section L. of the Descriptive Report.

b. Aids to Navigation

One aid to navigation was located by the field in latitude 28°47'51.54", longitude 94°17'12.00" (Pos. #2902). No description other than "this aid is private maintained" was made by the field. Recommend charting this aid as located by the field.

8. Compliance With Instructions

This survey adequately complies with the Project Instructions with the exceptions listed under Section 7 a&b of this report.

9. Additional Field Work

This is a good basic survey, no additional field work is recommended.

Inspection Report
H-9784

Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.

Examined and Approved:
Hydrographic Inspection Team
Date:

Robert A. Trauschke, CDR, NOAA
Chief, Processing Division

Absent
Carl W. Fisher, CDR, NOAA
Chief, Operations Division

Absent
R. D. Sanocki
Technical Assistant
Processing Division

Maureen R. Kenny
Maureen Kenny, LT, NOAA
Chief, Electronic Data
Processing Branch

Billy J. Stephenson
Billy J. Stephenson
Team Leader
Verification Branch

Approved/Forwarded

Robert C. Munson
Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

OA/C352:RWD

August 23, 1979

TO: R. H. Carstens
Acting Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch

FROM: R. W. DerKazarian
Quality Evaluator

SUBJECT: Quality Control Report for H-9784 (1978), Texas, Gulf of Mexico, Offshore, Southeast of Galveston

A quality control inspection of H-9784 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report, the HIT Report, and as follows:

1. The following information supersedes in part and supplements the Verifier's Report, paragraph 6.

a. The present survey depths are in very good agreement with prior depths; however, several isolated shoaler depths are indicated on the prior survey. These shoaler depths, rising 1 to 2 feet off the sand and mud bottom, are likely to be migrating in nature and are no longer considered existent. A random deepening of 1/2 to 1 foot exists throughout the survey area.

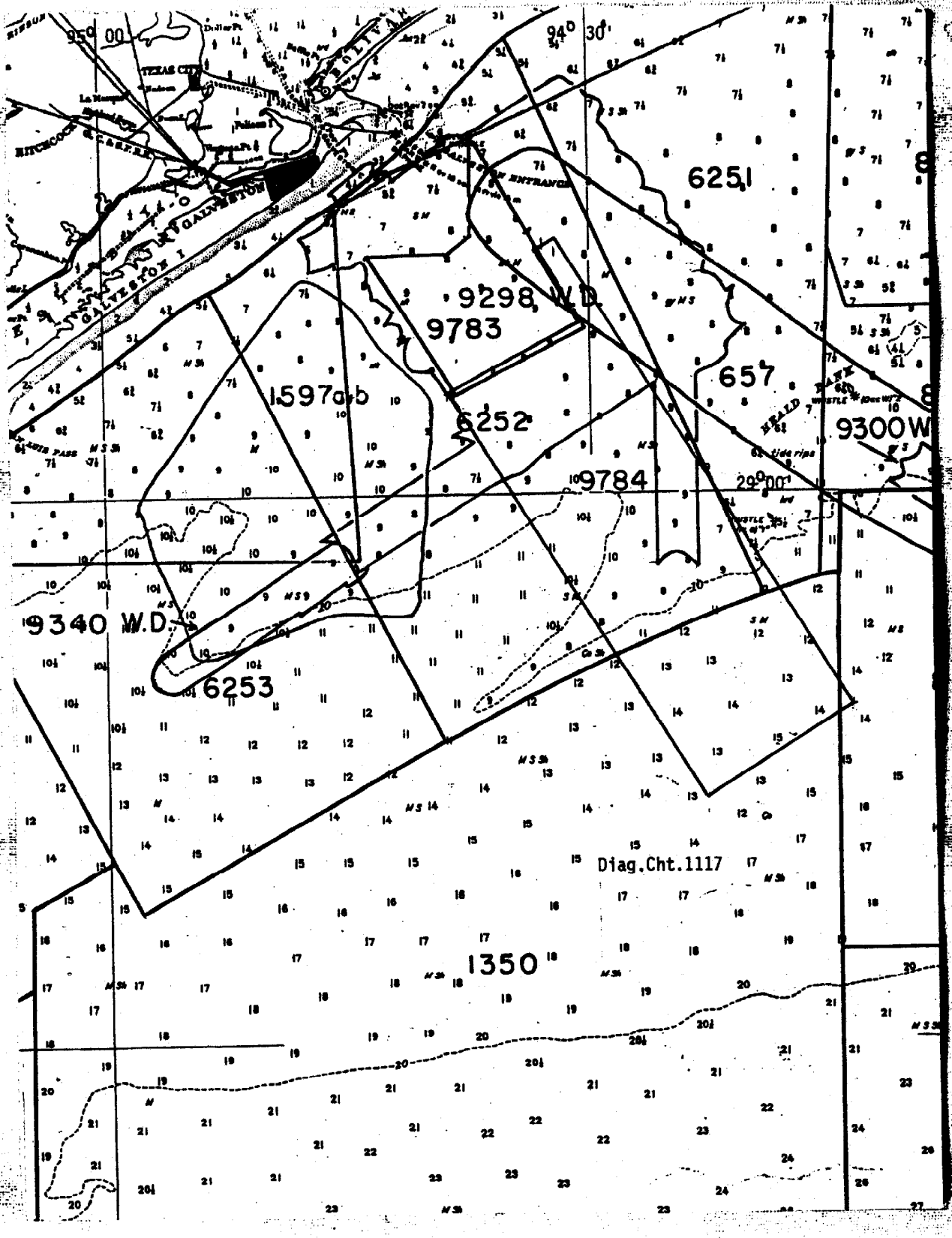
The present survey is adequate to supersede these prior surveys in the common area.

b. Prior F.E. No. 1 (1965) had not been considered in the Verifier's Report. The report has been annotated and an appropriate comparison accomplished during the quality control inspection.

There are no conflicts between this wire-drag survey and the present survey.

2. The Verifier's Report indicates that a discussed wire-drag survey had been superseded by the present survey. This is not a customary practice as the superseding statement refers only to the hydrographic surveys. See the Verifier's Report Format, dated March 21, 1977, paragraph 6.b.

cc:
OA/C35
OA/C351


95° 00
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TEXAS CITY
GALVESTON
GALVESTON I.
625
9298 W.D.
9783
657
1597a-b
6252
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9340 W.D.
6253
Diag.Cht.1117
1350

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9784

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
11332	3-12-80	O. Williams	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 23
11340	3-31-80	O. Williams	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 58
11300	4-1-80	D. Wylie	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 37
11323	3-30-80	D. Wylie	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 60-X
411	6-5-80	D. Wylie	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 55
11006			Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 31
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8556-P63