9323

Diag. Cht. No. 1236-2.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PE 20-2-73 Office No. H-9323

LOCALITY

State North Carolina

General locality Coast of North Carolina

Locality Frying Pan Shoals

19 73

CHIEF OF PARTY

Ralph J. Land, CDR, NOAA

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DATE 6-3-75

USCOMM-DC 37022-P66

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FORM C&GS-537 (5-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9323

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. PE 20-2-73

State: North Carolina

General locality: Coast of North Carolina

Locality: Frying Pan Shoals

Scale: 1:20,000   Date of survey: ~~14 July 1973 - 5 Oct. 1973~~ 1973 & 1974

Instructions dated: April 11, 1973   Project No. OPR-437-PE-73

Vessel: NOAA Ship PEIRCE

Chief of party: Ralph J. Land, CDR, NOAA

Surveyed by: LCDR John K. Callahan, LT Martin R. Mulhern, LTJG Jon M. Barnhill, LTJG Richard W. Permenter, LTJG Richard P. Floyd, ENS Patrick D. Harman, ENS Kenneth M. Holden

Soundings taken by echo sounder, hand lead, pole: echo sounder

Graphic record scaled by: Ship's Personnel

Graphic record checked by: ~~Ship's Officers~~ AMC Personnel

Protracted by: AMC Processing Division   Automated plot by: CALCOMP AMC

Soundings inked ~~penciled~~ by: ~~LTJG Permenter, LTJG Barnhill, LTJG Floyd, ENS Harman~~ CALCOMP AMC

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: All times are Greenwich Mean Time.

This survey is not complete. (See Section L of this report).

Note This survey was run in two year. 1973 & 1974 see 1974 Descriptive Report in Addendum of This Report

Applied to stds 7/9/75 cl

USCOMM-DC 37009-P66

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9323 (PE 20-2-73)

Surveyed by Launches PE-1 and PE-2
of the NOAA Ship PEIRCE

Chief of Party
Ralph J. Land, CDR, NOAA

A. PROJECT

Project instructions for OPR-437-PE-73 are dated April 11, 1973. There were two supplements to the instructions. They are "Change No. 1 to Project Instructions: OPR-437" dated April 17, 1973 and "Change No. 2 to Project Instructions: OPR-437-PE-73" dated August 17, 1973.

This survey was part of the Southern COastal Plains Expedition (Project SCOPE) and was conducted in accord with the Project SCOPE directives.

B. AREA SURVEYED

The area surveyed was a portion of Frying Pan Shoal, offshore of Cape Fear, North Carolina from 33°49' N, 78°01' W to 33°49' N, 77°53.5' W to 33°44' N, 77°51.5' W to 33°38' N, 77°55.5' W to 33°42' N, 78°00.5' W to 33°45' N, 77°59' W back to 33°49' N, 78°01' W. The survey commenced on July 14, 1973 (Julian Day 195) and field work ended on October 5, 1973 (Julian Day 278). It junctions with contemporary surveys H-9115 and H-9116 on the west and with PE 20-3-73 on the north.

C. SOUNDING VESSELS

The survey was accomplished by the PEIRCE's Launch PE-1 (blue position numbers) and PE-2 (red position numbers).

D. SOUNDING EQUIPMENT

Launch PE-1 was equipped with a Raytheon fathometer, type DE-723-1, Serial Number 242. PE-2 also had a Raytheon fathometer type DE-723-1 with Serial Number 260. See the report on corrections to echo soundings for a detailed description of the methods used for determining echo sounder corrections.

E. SMOOTH SHEET

The smooth sheet for this survey will be computer plotted by the Atlantic Marine Center from basic data provided on punch tapes by the PEIRCE.

F. CONTROL

Raydist was used for horizontal control for the entire sheet. The shore stations were located at PAT 1973 (Pattern I) on Ocean Isle Beach, North Carolina at 33°53'57.478" N and 78°23'11.792" W, and at REGISTER II 1973 (Pattern II) east of Wilmington, North Carolina at 34°15'42.760" N and 77°46'27.623" W.

Calibration signals and the Raydist shore stations were located by Photo Party 62, Robert Tibbetts in charge, or were taken from published triangulation data. All stations established for this survey were located using third order traverse methods. For detailed information on horizontal control see the report on Raydist electronic control accompanying this survey.

G. SHORELINE

This survey does not lie adjacent to any shoreline.

H. CROSSLINES

West of the Pattern I Raydist arc 994 or a line approximately between 33°49' N, 77°54.5' W and 33°41' N, 77°58' W, crosslines amounted to 11% of the principle system of sounding lines. Agreement between crosslines and principle sounding lines was very good. Only one crossline was run east of the Pattern I Raydist arc 994 due to weather conditions which prevented launch operations near the end of the field season and the fact that the project was cut short and the survey was not completed.

I. JUNCTIONS

Junction with H-9115 and H-9116 was quite good. Soundings generally agree to within two feet on H-9115 and within four feet on H-9116. The differences can probably be attributed to velocity corrections and tides and agreement should improve when these corrections are applied. Junction with PE 20-3-73 is excellent.

J. COMPARISON WITH PRIOR SURVEYS

No evidence of the three wrecks in Item 5 of the pre-survey review was found. Lines over the area were split to 90 meters. The wrecks were all located in less than fifteen feet of water and in the 25 or more years that the wrecks have been there they would be battered and reduced to rubble on the bottom. They are no longer hazards to navigation and should be deleted from the chart.

Depths from the survey were compared with depths obtained from H-8511 and H-8512, both 1:20,000 surveys done in 1956.

The general size and location of this area of Frying Pan Shoal is the same. However, due to the loose type of bottom in the area and currents, some of the sand waves and mounds have shifted up to 0.2 mile.

An area of about one-half mile diameter centered about 33°44.7' N, 77°56.0' W has gotten 5 to 10 feet deeper. At 33°44.6' N, 77°56.1' W the depth on H-8512 is 7 feet, while on PE 20-2-73 it is 19 feet.

There has been considerable change in an area approximately 0.2 mile either side of a line between 33°46.7' N, 77°55.7' W and 33°45.4' N, 77°55.0' W. The 8, 9, and 10 foot depths in the northern half of this area have been leveled to 13, 15, and 15 foot depths. The sand ridge in the southern half of the area has migrated up to 0.3 mile southwest.

The 6, 7, and 8 foot soundings in the vicinity of 33°48.1' N, 77°56.6' W have been leveled and the sand may possibly been deposited 0.2 or 0.3 mile northeast of the area where some shoaling has occurred.

Similarly, the 6 foot soundings located near a line from 33°47.4' N, 77°56.5' W to 33°47.4' N, 77°57.1' W have been leveled and the sand possibly deposited west of the area. In fact, many depths in an area within one-half mile of 33°47.4' N, 77°56.5' W have gotten deeper.

The 16 foot sounding on H-8511 at 33°47.7' N, 77°55.7' W has probably eroded away. The nearest depth in the immediate vicinity on PE 20-2-73 is 22 feet.

K. COMPARISON WITH CHARTS

1. C&GS 426, 12th Edition, April 21, 1973

In general, it appears this portion of Frying Pan Shoal has been flattening out. In comparing the boatsheet with C&GS 426, the east side of the shoal has gotten slightly deeper and the top of the shoal has eroded to some extent. Deposits from the shoal have probably been scattered over a large area since there is no evidence of building to any great extent. Depths on the west side of the shoal remained quite stable up to the 12 foot contour. The two bare spots shown on C&GS 426 near 33°48.5' N, 77°57.5' W are no longer present and should be deleted from the chart. Many other of the shoalest spots have eroded somewhat or shifted two or three tenths of a mile.

As stated in Item "J" above, the three wrecks located near 33°48.7' N, 77°57.9' W should be deleted from the chart. No important newly found dangers have been discovered, but as implied above, many of the depths should be changed slightly in location and in value to give an accurate, up to date representation of the shoal.

2. C&GS 1236, 7th Edition, April 22, 1972

As with C&GS 426, the most extensive change has occurred right over the shoal, specifically, above the 6 foot contour. Most of the soundings less than 5 feet have gotten deeper. The 2 foot depth on C&GS 1236 at Latitude 33°46.3' N, Longitude 77°56.7' W has changed to 8 feet. Another 2 foot depth at 33°47.3' N, 77°57.0' W is also now an 8 foot depth. A 13 foot sounding was obtained over the 4 foot depth on C&GS 1236 at 33°48.3' N, 77°57.6' W. However, not all soundings have gotten deeper, some have gotten shoaler, and some have shifted in location. For example, on PE 20-2-73 there is a 2 foot depth at 33°48.3' N, 77°57.2' W which is not shown on the chart. A 5 foot depth shown on C&GS 1236 at 33°45.8' N, 77°57.0' W is shown about 0.3 mile east of that position on the boatsheet. The 6 foot contour should be examined closely before changes are made on the chart.

Elsewhere, the 15 foot depth on C&GS 1236 at 33°46.4' N, 77°55.0' W appears to have been eroded, leaving 24 to

28 foot depths in the area. The 8 foot depth at 33°45.7' N, 77°55.2' W is no longer accurate in its position on Chart 1236. This is also true for the 5 foot depth at 33°45.1' N, 77°55.3' W. The 4 foot sounding shown on the chart at 33°42.0' N, 77°55.0' W does not show upon the boatsheet. Some of the deeper water around the shoal has gotten 2 to 3 feet shoaler probably as a result of deposits from erosion of the top of the shoal.

In summary, the general size and shape of the area of Frying Pan Shoal on this sheet is as it is shown on C&GS 1236, but a great many of the shoal's individual features are no longer accurately represented. Only the more radical changes are mentioned in this report.

L. ADEQUACY OF THE SURVEY

This survey is not complete. The portion west of a line from 33°49' N, 77°54' W to 33°40' N, 77°58' W is adequate to supersede prior survey for charting while that portion east of the line is not adequate for this purpose. Only one short crossline was run on the east portion. Bottom samples were not completed on either portion. Certain areas in the eastern part of the sheet were not split to the desired line spacing. (See Item "P" for recommendations on specific areas to be split). The reason this sheet was not completed is that the 1973 field season was cut short and there were not enough days left in the season with good enough weather to run launch hydrography.

M. AIDS TO NAVIGATION

Only one aid to navigation, Buoy 6FP, is located on this sheet. Its location is not accurate on C&GS 1236 where it is shown at Latitude 33°43.25' N, Longitude 77°59.1' W. Its actual position is 33°43.1' N, 77°58.85' W. This is midway between positions of the buoy which were determined on Julian Day 210 and Julian Day 220. See Sounding Volume No. 1, Pages 9 and 16 for information on the two positions. The difference between the two locations determined for the buoy during this survey can be attributed to the scope of the buoy.

N. STATISTICS

VESSEL	NO. OF POS.	MISSING POS. NO.	NM OF HYDRO	*BS	AREA (SQ. MI.)
PE-1	864	257-380 incl.	260	5	
PE-2	1231	5744 6233-6258	329	10	
TOTAL	2095		589	15	54

*Bottom Samples

O. MISCELLANEOUS

Launch PE-2 worked a Pattern II shadow area west of a line from approximately 33°49.1' N, 77°58.1' W to 33°45.6' N, 77°59.6' W. This hydrography includes position numbers 5652 through 5743 inclusive and 5805 through 5946 inclusive. Calibrations were done in the shadow area before and after the work was done there.

P. RECOMMENDATIONS

It is recommended that this sheet be completed by the PEIRCE as early in the 1974 field season as weather permits. To complete the boatsheet would require the following:

1. Finish the bottom samples. This will involve about 20 stations scattered about most of the sheet. Bottom sample spacing should be 5 inches since this area was covered by H-8511 and H-8512 in 1956. Care should be taken not to duplicate any of the 15 stations already completed on PE 20-2-73.

2. Line spacing should be split to 4 Raydist lanes (180 meters) east of the Pattern I Raydist arc 1078 or approximately between 33°47' N, 77°52' W and 33°39' N, 77°57' W. The splits need not be run the entire length of the working area, but should be run outside the boundary of H-8512 and over the shoal, between the 24 foot contours.

Sounding lines should also be split between a line from 33°47.0' N, 77°55.2' W to 33°45.0' N, 77°54.4' W and a line from 33°45.0' N, 77°56.0' W

to 33°44.0' N, 77°55.0' W. The bottom in this area is relatively rough and possibly quite unstable.

3. Crosslines should be run east of the Pattern I Raydist arc 994, or a line approximately between 33°49.0' N, 77°54.5' W and 33°41.0' N, 77°58.0' W. Only one crossline, on the northern part of this sheet, was run in the area.

4. A rather prominent side echo was picked up by the fathometer at Latitude 33°41.65' N, Longitude 77°57.45' W, between position numbers 5489 and 5490. The area should be thoroughly investigated, as the fathometer trace came up 20 feet off the bottom in about 40 feet of water. Developement run 1974 Pos# 2318 to 2331 shoalest depth 40 ft.

Q. REFERENCE TO REPORTS

Reference can be made to the following reports:

1. Corrections to Echo Soundings, OPR-437, Coast of North Carolina, NOAA Ship PEIRCE, 1973

2. Report on Raydist Electronic Control, OPR-437, Coast of North Carolina, NOAA Ship PEIRCE, 1973

Respectfully Submitted,

Richard C Floyd

Richard P. Floyd
LTJG, NOAA

APPROVAL SHEET

Field work on PE 20-2-73 was done under my immediate daily supervision. As stated in Item "L. ADEQUACY OF SURVEY", the survey is not complete and a portion of it is not adequate to supersede prior surveys for charting. Additional field work is required as stated in Item "P".

The boatsheet and all records have been reviewed and approved by me.

Ralph J. Land
CDR, NOAA
Comdg, NOAA Ship PEIRCE

10/9/74

I

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 **Form 362**

Tide Station Used (NOAA Form 77-12): **Frying Pan Shoals**

Period: **July 14 - Oct. 19, 1973**
July 24-30, 1974

HYDROGRAPHIC SHEET: **H9323**

OPR: **437**

Locality: **Outer Coast of North Carolina**

Plane of reference (mean ~~lower~~ low water): **7.5 (1973)** **1.9 (1974)**

Height of Mean High Water above Plane of Reference is **3.8 ft.**

Remarks: **Zone direct.**

James R Hubbard
for Chief, Tides Branch

ATLANTIC MARINE CENTER
VERIFICATION OF SMOOTH TIDES

SURVEY H-9323

PLANE OF REFERENCE MLW OR MLLW
TIME MERIDIAN 0
HEIGHT DATUM ON STAFFS 1. 7.5('73)-1.9('74)3. _____

TIDE STATIONS	POSITION	TYPE GAGE	TIME CORR. H.W.	TIME CORR. L.W.	HEIGHT CORR. * H.W.	HEIGHT CORR. * L.W.
1 Frying Pan Shoals, N.C.	ø 33° 29.1' Y 77° 35.4'	Bubbler				
2.	ø Y					
3.	ø Y					

HOURLY HRIGHTS [x] FROM ROCKVILLE OFFICE
[ ] FROM FIELD MARIGRAMS VERIFIED BY: JRH

TIDE ZONING [ ] NOT APPLICABLE
[x] BY COMPUTER
[ ] FROM TWO OR MORE GAGES

LIMITS AND DESCRIPTION OF ZONING METHODS

Zone direct.

TIDE CORRECTIONS COMPILED [x] BY COMPUTER VERIFIED BY: RGC
[ ] MANUALLY VERIFIED BY: _____

HEIGHT OF MHW ABOVE PLANE OF REFERENCE 3.8

TIDE CORRECTIONS VERIFIED ON SOUNDING PRINTOUT BY: RGC

DATE OF VERIFICATION 13 Nov. 1974

*OR RATIO

EXAMINED & APPROVED

```
 140800 0 0004 0001 208 283100 009323
144500 0 0002
144730 0 0004
170900 0 0004 0001 209 283100 009323
170930 0 0002
171100 0 0004
182730 0 0002
183000 0 0004
120330 0 0004 0001 210 283100 009323
133630 0 0002
134030 0 0004
144130 0 0002
144800 0 0004
153000 0 0002
153030 0 0004
170000 0 0002
171200 0 0004
171800 0 0002
172530 0 0004
190330 0 0002
191730 0 0004
202800 0 0002
202900 0 0004
122600 0 0004 0001 211 283100 009323
175700 0 0004 0001 218 283100 009323
193500 0 0002
193940 0 0004
131700 0 0004 0001 220 283100 009323
131340 0 0004 0001 221 283100 009323
143520 0 0006
143700 0 0004
145240 0 0006
145420 0 0004
152200 0 0006
152340 0 0004
132000 0 0004 0001 266 283100 009323
141920 0 0006
142020 0 0004
134900 0 0004 0001 267 283100 009323
151220 0 0004 0001 276 283100 009323
133620 0 0003 0001 277 283100 009323
141120 0 0004
132300 0 0004 0001 278 283100 009323
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153200 0 0004 0002 195 283200 009323
165200 0 0003
170000 0 0004
175500 0 0003
180300 0 0004
152200 0 0004 0002 205 283200 009323
164600 0 0000
164700 0 0004
130020 0 0004 0002 207 283200 009323
133220 0 0003
134130 0 0001
134300 0 0003
134320 0 0004
141520 0 0003
142900 0 0004
204900 0 0006
205000 0 0004
213940 0 0002
214040 0 0004
134020 0 0004 0002 208 283200 009323
141400 0 0003
142800 0 0004
152000 0 0003
153500 0 0004
173920 0 0003
174300 0 0004
201000 0 0002
201400 0 0004
201940 0 0002
222040 0 0004
171600 0 0004 0002 209 283200 009323
172840 0 0006
173100 0 0004
173300 0 0002
173320 0 0004
183400 0 0006
183600 0 0004
183800 0 0002
183840 0 0006
183900 0 0004
130740 0 0004 0002 210 283200 009323
133620 0 0006
133800 0 0004
135320 0 0002
135340 0 0004
173300 0 0003
173400 0 0005
173600 0 0003
174200 0 0004
184300 0 0002
184600 0 0004
185840 0 0002
190000 0 0004
191040 0 0002
211740 0 0004
213620 0 0002
```

TC/TI TAPE OPR 437 H-9323 PE 20-2-73 PE-2

(CONTINUED)

```
213800 0 0004
130220 0 0004 0002 211 283200 009323
133240 0 0006
133340 0 0004
134520 0 0002
134600 0 0004
135940 0 0002
140140 0 0004
140940 0 0002
141100 0 0004
162200 0 0002
162820 0 0004
190000 0 0006 0002 218 283200 009323
190100 0 0004
190520 0 0006
190640 0 0004
191400 0 0006
191540 0 0004
191720 0 0002
191820 0 0004
192120 0 0006
192400 0 0004
193300 0 0006
193600 0 0004
193720 0 0002
193740 0 0004
194200 0 0006
194600 0 0004
142600 0 0004 0002 219 283200 009323
143020 0 0006
143140 0 0004
161120 0 0006
161240 0 0004
170040 0 0006
130640 0 0004 0002 220 283200 009323
152030 0 0003
152430 0 0001
152930 0 0003
153300 0 0001
164400 0 0004
171200 0 0003
181820 0 0004
184830 0 0003
164900 0 0003 0002 221 283200 009323
191500 0 0001
194500 0 0003
172120 0 0004 0002 265 283200 009323
175820 0 0002
180200 0 0004
140920 0 0002 0002 266 283200 009323
141040 0 0004
```

TC/TI TAPE OPR 437 H-9323 PE 20-2-73 PE-2
(CONTINUED)

~~1040 0 0004~~
145240 0 0006
145540 0 0004
133720 0 0002 0002 267 283200 009323
134000 0 0004
143920 0 0006
144320 0 0004
144840 0 0006
155100 0 0004

VELOCITY TABLE 1 OPR 437 PE 20-2-73 H-9323 PE-1

```
000014 0 0008 0001 000 283100 009323
000050 0 0010
000086 0 0012
000121 0 0014
000157 0 0016
000194 0 0018
000231 0 0020
000267 0 0022
000304 0 0024
000340 0 0026
000376 0 0028
000414 0 0030
000450 0 0032
000486 0 0034
999999 0 0036
```

VELOCITY TABLE 2 OPR 437 H-9323 PE 20-2-73 PE-2

```
000010 0 0010 0002 000 283200 009323
000044 0 0012
000079 0 0014
000114 0 0016
000150 0 0018
000187 0 0020
000225 0 0022
000260 0 0024
000295 0 0026
000330 0 0028
000366 0 0030
000401 0 0032
000437 0 0034
000473 0 0036
000510 0 0038
000546 0 0040
000582 0 0042
000619 0 0044
000656 0 0046
000691 0 0048
999999 0 0050
```

```
140800 0 0000 2831 208 100014 000074
183530 0 0000 2831 208 100014 000074
170900 0 0000 2831 209 000010 000007
190630 0 0000 2831 209 000010 000007
120330 0 0000 2831 210 000002 000007
210000 0 0000 2831 210 000002 000007
175700 0 0000 2831 218 100087 100066
200900 0 0000 2831 218 100087 100066
131700 0 0000 2831 220 100014 000010
174120 0 0000 2831 220 100014 000010
133040 0 0000 2831 221 000018 000037
194520 0 0000 2831 221 000018 000037
132000 0 0000 2831 266 100045 100027
194020 0 0000 2831 266 100045 100027
134900 0 0000 2831 267 100051 100029
144600 0 0000 2831 267 100051 100029
151220 0 0000 2831 276 100011 000000
185600 0 0000 2831 276 100011 000000
134220 0 0000 2831 277 100012 100026
162200 0 0000 2831 277 100012 100226
182200 0 0000 2831 277 100012 100326
183400 0 0000 2831 277 100012 100326
132300 0 0000 2831 278 000020 100018
142800 0 0000 2831 278 000020 100018
```

ELECTRONIC CORRECTOR TAPE OPR 437 H-9323

PE 20-2-73 PE-2

```
153200 0 0000 2832 195 000025 000037
183700 0 0000 2832 195 000025 000037
152200 0 0000 2832 205 000106 000019
164600 0 0000 2832 205 000106 000019
130020 0 0000 2832 207 000008 100038
221620 0 0000 2832 207 000008 100038
134020 0 0000 2832 208 000011 100009
143540 1 0360
194340 1 0100
202300 0 0000 2832 208 000011 100009
171600 0 0000 2832 209 000002 100012
185340 0 0000 2832 209 000002 100012
130740 0 0000 2832 210 100001 100012
220500 0 0000 2832 210 100001 100012
130220 0 0000 2832 211 000012 000048
183540 0 0000 2832 211 000012 000048
190000 0 0000 2832 218 000024 000006
195900 0 0000 2832 218 000024 000006
142600 0 0000 2832 219 000016 100017
180120 0 0000 2832 219 000016 100017
130640 0 0000 2832 220 000012 000042
140000 0 0000 2832 220 000012 100158
140400 0 0000 2832 220 000012 100358
145520 0 0000 2832 220 000003 000060
164400 0 0000 2832 220 000002 100023
191830 0 0000 2832 220 000002 100023
164900 0 0000 2832 221 000021 100030
195400 0 0000 2832 221 000021 100030
172120 0 0000 2832 265 000024 000006
190340 0 0000 2832 265 000024 000006
140920 0 0000 2832 266 000000 000002
182600 0 0000 2832 266 000000 000002
133720 0 0000 2832 277 100014 000000
185020 0 0000 2832 277 100014 100200
191620 0 0000 2832 277 100014 100300
```

VISUAL CORRECTOR TAPE OPR 437 H-9323 PE 20-2-73 PE-2

```
151500 0 0000 2832 263 045560 021350 0113 313 111
160500 0 0000 2832 263 027220 020500 0113 313 111
```

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2831 SHEET : H-9323

TIME	DAY	PATTERN 1	PATTERN 2
140800	208	-00014	+00074
183530		-00014	+00074
170900	209	+00010	+00007
190630		+00010	+00007
120330	210	+00002	+00007
210000		+00002	+00007
175700	218	-00087	-00066
200900		-00087	-00066
131700	220	-00014	+00010
174120		-00014	+00010
133040	221	+00018	+00037
194520		+00018	+00037
132000	266	-00045	-00027
194020		-00045	-00027
134900	267	-00051	-00029
144600		-00051	-00029
151220	276	-00011	+00000
185600		-00011	+00000
134220	277	-00012	-00026
162200		-00012	-00226
182200		-00012	-00326
183400		-00012	-00326
132300	278	+00020	-00018
142800		+00020	-00018

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2832 SHEET : H-9323

TIME	DAY	PATTERN 1	PATTERN 2
153200	195	+00025	+00037
183700		+00025	+00037
152200	205	+00106	+00019
164600		+00106	+00019
130020	207	+00008	-00038
221620		+00008	-00038
134020	208	+00011	-00009
202300		+00011	-00009
171600	209	+00002	-00012
185340		+00002	-00012
130740	210	-00001	-00012
220500		-00001	-00012
130220	211	+00012	+00048
183540		+00012	+00048
190000	218	+00024	+00006
195900		+00024	+00006
142600	219	+00016	-00017
180120		+00016	-00017
130640	220	+00012	+00042
140000		+00012	-00158
140400		+00012	-00358
145520		+00003	+00060
164400		+00002	-00023
191830		+00002	-00023
164900	221	+00021	-00030
195400		+00021	-00030
172120	265	+00024	+00006
190340		+00024	+00006
140920	266	+00000	+00002
182600		+00000	+00002
133720	277	-00014	+00000
185020		-00014	-00200
191620		-00014	-00300

CAM3-1
1/31/74

ATLANTIC MARINE CENTER

PROJECTION PARAMETERS

POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

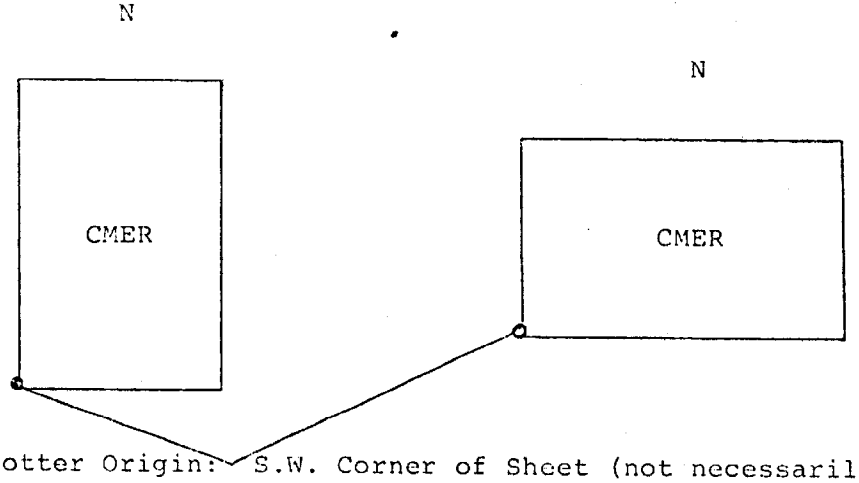
1. Project No. OPR-437
2. Reg. No. H-9323
3. Field No. PE-20-2-73
4. Requested By CHAS. M.
5. Ship or Office VERIFICATION BRANCH
6. Date Required ASAP

7. Polyconic [X] Modified Transverse Mercator [ ]
8. Central Meridian of Projection 77 ° 56 ' 00 "
9. Survey Scale: 1: 20,000
10. Size of Sheet (check one):

36 x ~~54~~ 48" [X] 36 x 60 [ ] Other [X] Specify 36 x 48

11. Sheet Orientation (check one):

NYX = 1 [X] NYX = Ø [ ]



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)
Latitude 33 ° 37 ' 00 "
Longitude 78 ° 02 ' 00 "
13. G.P.'s of triangulation and/or signals attached [ ]
14. Material Desired: Tracing Paper [ ] Mylar [X]
Smooth Sheet [X] Other [ ] Specify _____
15. Remarks: This form is completed on Jan.8,'75...to be used for Smooth Sheet and supersedes all previous copies of this form.

ATLANTIC MARINE CENTER

ELECTRONIC CONTROL PARAMETERS

1. Project # OPR-437 2. Reg. # H-9323 3. Field # [illegible]

4. Type of Control: Raydist (Hi-Fix, Raydist, EPI, etc.)

5. Frequency 3294.400 / 3294.520 (for conversion of electronic lanes to meters)

6. Mode of Operation (check one):

Range-Range [X] Range-Visual [ ]

Range One (R_1) Station I.D.	PAT 1973	Lat.	33 °	53 '	57.478"
		Long.	78 °	23 '	11.792"
Range Two (R_2) Station I.D.	REGISTER II 1973	Lat.	34 °	15 '	42.760"
		Long.	77 °	46 '	27.623"

Hyperbolic (3-station) [ ] Hyper-Visual [ ]

Slave One Station I.D.		Lat.	°	'	"
		Long.	°	'	"
Master Station I.D.		Lat.	°	'	"
		Long.	°	'	"
Slave Two Station I.D.		Lat.	°	'	"
		Long.	°	'	"

7. Location of Survey:

Range-Range [X] Imagine an observer is standing at R_1 Station and looking directly at R_2 (check one):

Survey area is to observer's Right [Ø] A=Ø

Survey area is to observer's Left [ ] A=1

Hyperbolic [ ] Looking from survey area toward Master Station:

Slave One must be to observer's Left;

Slave Two must be to observer's Right.

8. [✓] This form is submitted as an aid in preparing a boat sheet.

[✓] This form applies to all data on this survey.

[ ] This form applies to part of the data on this survey.

Vessel EDP #	From Time	From Day	To Time	To Day	Position Numbers (inclusive)
					to
					to
					to

9. Remarks:

FORM C&GS-733M
(6-66)

U.S. DEPARTMENT OF COMMERCE
ESS
COAST AND GEODETIC SURVEY

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
Launch 1 & 2 NOAA Ship PEIRCE	OPR-437	1973	PE-20-2-73 H-9323		

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (~~Fathoms~~) Feet	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)
		LATITUDE	LONGITUDE							
980	10/5/73	33° 48.2	77°57.6	10.5					brk Sh, br crs S	
981	10/5/73	33° 47.1	57.9	12.0					fne gn S, brk Sh	
982	10/5/73	45.8	58.5	38.5					bk M	
983	10/5/73	44.5	59.0	44.5					fne gn S, brk Sh, bk M	
986	10/5/73	43.6	59.7	43.0					crs gn S, brk Sh	
5951	8/9/73	45.8	59.5						bk M	
5952	8/9/73	46.5	77° 59.6						med gr S, bk M	
5953	8/9/73	47.1	78° 00.1						bk M, fne gn S	
5954	8/9/73	47.1	77°59.2						fne gn S	
5955	8/9/73	47.7	78 00.0						fne gn S, bk M	
5956	9/20/73	48.8	00.7	35					fne gn S	
5957	9/20/73	48.4	00.1	34					fne gn S	
5958	9/20/73	48.4	77°59.3	29					fne gn S	
5959	9/20/73	48.4	58.5	23					fne gn S	
5960	9/20/73	33° 47.8	77°59.4	32.5					fne gn S	

Use more than one line per sample if necessary.

USCOMM-DC 37019-

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PE 20-2-73 *Office No.* H-9323

LOCALITY

State North Carolina

General locality Cape Fear

Locality Frying Pan Shoals

1974

CHIEF OF PARTY

Joseph W. Dropp, CDR, NOAA

LIBRARY & ARCHIVES

DATE

USCOMM-DC 37022-P66

NOTE: THIS REPORT IS AN ADDENDUM TO THE ORIGINAL DESCRIPTIVE REPORT WHICH ACCOMPANIED THE PARTIALLY COMPLETED SURVEY H-9323, PE-20-2-73 SUBMITTED AT THE END OF THE 1973 FIELD SEASON.

FORM C&GS-537 (5-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9323

FIELD NO. PE 20-2-73

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State North Carolina

General locality Cape Fear

Locality ~~Frying Pan Shoals~~

Scale ~~1:20,000~~ Date of survey 23-30 July 1974 1974

Instructions dated 13 November 1973 Project No. OPR-437

Vessel NOAA Ship PEIRCE

Chief of party Joseph W. Dropp, CDR, NOAA

Surveyed by LCDR J. Callahan, Lt. D. Suloff, ENS K. Holden, ENS D. Mason, ENS B. Johnson ENS D. Dreves

Soundings taken by echo sounder, hand lead, pole echo sounder

Graphic record scaled by Ship's Personnel

Graphic record checked by ~~Ship's Officers~~ AMC Personnel

Protracted by _____ Automated plot by ~~Hydroplot system~~ CALCOMP AMC

Soundings penciled by CALCOMP AMC

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: All times are GMT.

USCOMM-DC 37009-P66

A. PROJECT

This survey is an integral part of Project SCOPE. It was conducted in accordance with Project Instructions OPR-437-PE-74, North Carolina Coast dated 13 November 1973 as ammended by Change No. 3 to Project Instructions OPR-437-PE-74, North Carolina Coast dated 8 July 1974.

B. AREA SURVEYED

The original survey area to be included on this boat-sheet was modified such that the outer most lines completed the previous season form the limits of the survey to be completed this season. The original area to be surveyed which was deleted by this change will be included in the survey limits of PE-20-1-74. The survey commenced on 23 July 1974 (Julian Day 204) and work ended on 30 July 1974 (Julian Day 211).

C. SOUNDING VESSEL

This survey was completed by the PEIRCE survey launch PE-1.

D. SOUNDING EQUIPMENT

Launch PE-1 was equipped with a Raytheon Survey Fathometer, type DE-723-1, serial #242. A detailed description of echo sounder corrections is contained in the Fathometer Report which accompanies this report.

E. SMOOTH SHEET

The smooth sheet for this survey will be computer plotted by the Atlantic Marine Center from the data provided by the PEIRCE.

F. CONTROL

Horizontal positioning control is discussed in detail in the Electronic Control Report which accompanies this report.

G. SHORELINE

There is no shoreline to be considered on this survey.

H. CROSSLINES

Crosslines constitute approximately 12% of the principle system of sounding lines. Although the crosslines completed this year cover an extensive portion of the work completed last year, agreement is excellent.

I. COMPARISON WITH JUNCTION SURVEYS

See original report.

There is one junction to be considered which did not exist in 1973. The junction is with PE-40-1-74, H-9395. This survey was completed by the PEIRCE early in the 1974 field season. Junction soundings are in excellent agreement.

J. COMPARISON WITH PRIOR SURVEYS

See original report.

Since the major portion of the work was competed the previous year, a comparison with the work completed this year must also be considered. In general, the soundings from the previous season and this season are in excellent agreement considering the nature of the bottom and the fact that the draft correction has not been applied to work completed this year as it was last season.

K. CHART COMPARISON

See original report.

L. ADEQUACY OF SURVEY

This survey is adequate to supersede prior surveys for charting pruposes.

M. AIDS TO NAVIGATION

See original report.

N. STATISTICS

These statistics refer only to the work completed this season.

Total number of positions	.474
Total Hydro Miles	100
Total Crosslines	34
Total Square Miles	10
Bottom Samples	30

O. MISCELLANEOUS

All times are GMT.

All recommendations included in the original Descriptive Report were carried out.

P. RECOMMENDATIONS

It is recommended that this survey be considered adequate to supersede prior surveys of this area.

Q. REFERENCE TO REPORTS

Reference can be made to the following reports accompanying this report:

1) Fathometer Report, PE-20-2-73, H-9426, 1974

2) Electronic Control Report, PE-20-2-73, H-9426, 1974

Respectfully submitted,

Kenneth Holden, ENS, NOAA

APPROVAL SHEET

Field work on PE 20-2-73, 1974, was done under my immediate, daily supervision. The boatsheet and all records have been reviewed and approved by me.

Joseph W. Dropp
Cdr., NOAA
Commanding, NOAA Ship PEIRCE

CORRECTIONS
TO
ECHO SOUNDINGS

General

This report covers corrections to echo soundings taken by the NOAA ship PEIRCE's launch PE-1 from July 24, 1974 to July 30, 1974. The corrections apply only to the survey H-9323.

Final corrections are a combination of velocity corrections and TRA corrections which are discussed separately in this report.

PE-1 operated with one fathometer: A Raytheon Model 723D S/N 242. The fathometer was maintained at zero initial by routine phase checks. There were no problems encountered that would affect the results of the soundings obtained by the Raytheon fathometer.

Velocity Corrections

Velocity corrections were obtained by averaging all bar checks and graphing the results. An abstract of velocity corrections is attached to this report.

TRA Corrections

TRA correctors are a combination of the following:

1) Initial Variation
2) Settlement and Squat
3) Draft

Initial Variation

The Raytheon fathometer was maintained at zero initial by routine phase checks. All initial corrections are tabulated on Form CAM3-12.

Settlement and Squat

Settlement and squat was determined for PE-1 on August 1, 1974 and the following corrections were obtained:

Correction	RPM
0.01 ft	800
0.02	1000
0.03	1200
0.05	1400
0.08	1600
0.13	1800
0.18	2000
0.23	2200

There were no reduced speeds on this survey and therefore the only correction is 0.23 ft. The correction for settlement and squat is tabulated on Form CAM3-12.

Draft

The draft of the launch is considered when a bar check is taken, and therefore no draft corrections are applied.

TRA correctors may be inserted in either the corrector tape or the TC/TI tape and the total corrector is the algebraic sum of the correctors in those locations. The TC/TI tape is the only place that a corrector is found for this survey.

Attachments to this report

1) Printout of TC/TI Tape
2) Printout of Velocity Tape
3) Form CAM3-12
4) Settlement and Squat Level Abstract and Graph

TC/TI TAPE PRINTOUT

```
134040 0 0002 0001 205 283100 009323
150840 0 0000
151000 0 0002
151720 0 0004
151820 0 0002
194520 0 0002 0001 206 283100 009323
134900 0 0002 0001 207 283100 009323
150700 0 0002 0001 208 283100 009323
164800 0 0002 0001 209 283100 009323
131900 0 0002 0001 211 283100 009323
```

VELOCITY TABLE PRINTOUT

```
000035 0 0008 0001 001 283100 020273
000064 0 0010
000092 0 0012
000119 0 0014
000148 0 0016
000175 0 0018
000204 0 0020
000232 0 0022
000260 0 0024
000289 0 0026
000316 0 0028
000345 0 0030
000373 0 0032
000400 0 0034
000427 0 0036
000458 0 0038
000485 0 0040
000512 0 0042
000540 0 0044
999999 0 0046
```

CAM3-12
2-22-74

OPR 437

TRA CORRECTION ABSTRACT

12

VESSEL PEIRCE SHEET PE-20-2-73 REGISTRY NO. H- 9323

Vol.	Jul. Day	GMT From Time	GMT To Time	Velocity Table ft/fms	Draft	Instrument Error Corr.	Initial Corr.	S&S Corr.	TRA Corr. ft/fms	Remarks
1	205	134040	150839				0.0	0.23	0.23	
		150840	150959				-0.2	0.23	0.03	
		151000	151719				0.0	0.23	0.23	
		151720	151819				0.2	0.23	0.43	
		151820	210900				0.0	0.23	0.23	
1	206	194520	215040				0.0	0.23	0.23	
1	207	134900	220120				0.0	0.23	0.23	
1	208	150700	182400				0.0	0.23	0.23	
1	209	164800	191500				0.0	0.23	0.23	
1	211	131900	173000				0.0	0.23	0.23	

CORRECTIONS IN FEET, FATHOMS

NOS FORM 317 (1-71) — U.S. DEPARTMENT OF COMMERCE, NOAA, NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship ______________________________

______________________________ Comdg.

These corrections are to be used

between __________ 19___ and __________ 19___

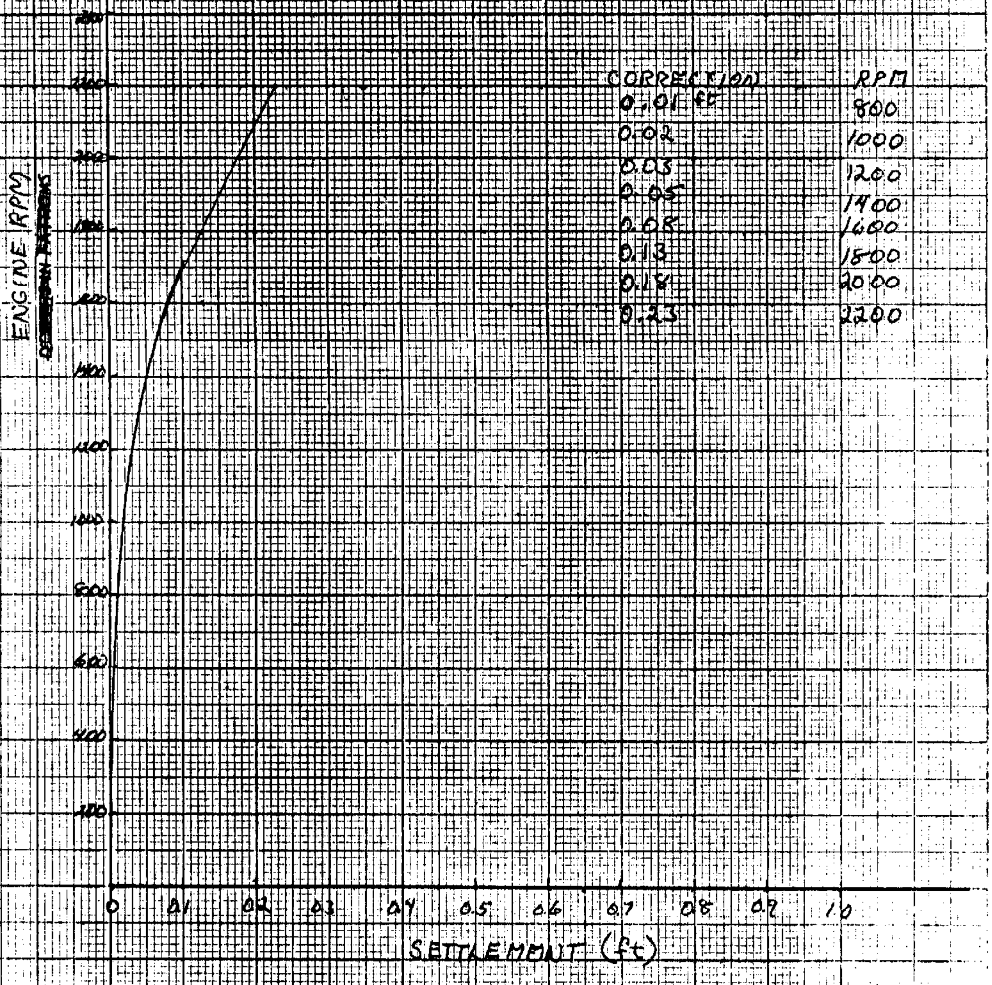
in the locality ______________________________

____

for hydrographic surveys Nos. ____________

____

RE-1
SETTLEMENT
&
SQUAT



CORRECTION	RPM
0.01 ft	800
0.02	1000
0.03	1200
0.05	1400
0.08	1600
0.13	1800
0.18	2000
0.23	2200

(For deep water add a 0 to these figures)

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

ELECTRONIC CONTROL REPORT

PE 20-2-73/1974 H-9323

A. Horizontal Control

Horizontal positioning for this portion of the survey, positions 2001 thru 2434, was established through the use of electronic Raydist operating in the range/range mode at a frequency of 3296.400 kHz.

B. Shore Stations

The shore station locations were as follows:

Slave 1: PAT 1973
Lat. 33 53 57.478
Long. 78 23 11.792

Slave 2: NICKEL 1971
Lat. 34 00 13.771
long. 77 54 14.476

C. Calibrations

Calibrations were of two types: three point sextant fixes with check angles to shore signals and Raydist lane counts on a calibration buoy positioned by the NOAA Ship PEIRCE. The calibration buoy consisted of an orange spar buoy securely anchored approximately twelve miles off Cape Fear on Frying Pan Shoals in thirty feet of water with a scope of thirty-five feet. Raydist lane counts for the visual fixes were calculated using AM 560 and the ship's PDP-8 computer. The lane count for the buoy was determined in the following manner.

Through trial and error it was determined that the partial lane correctors for both patterns varied considerably depending upon whether the launch calibrated on the east or south side of Cape Fear. This could possible have been due to the location of the stations and the configuration of the cape itself. Depending upon which side of the cape the launch calibrated on, there was a considerable land mass between the launch and at least one of the stations. Calibrating off the point of Cape Fear resulted in minimal land mass between both stations and the launch but produced a weak fix. Therefore, it was necessary to calibrate on the south side of Cape Fear in order to determine the partial lane correctors for Pattern I and then calibrate on the east side to determine the correctors for Pattern II.

After a set of calibrations, the launch proceeded to the calibration buoy. The Raydist dials were observed as the antenna passed close (two feet) to the buoy. The launch then proceeded to the working grounds. At the end of the work day, a set of calibrations was taken in order to determine the partial lane corrector drift throughout the day. This procedure was observed on Julian Days 204, 207, 208, 209, 210. This procedure produced a very strong statistical average of 1133.45 for Pattern I and 840.00 for Pattern II.

On Julian Days 205 and 206 this procedure was not followed. On these days calibrations were attempted off the point of Cape Fear. The resulting weak fix produced widely varying partial lane correctors with resulting erroneous lane counts on the calibration buoy. For these two days, the partial lane correctors were adjusted by using the difference between the averaged value and the observed lane values for the buoy and applying this adjustment to the calculated partial lane correctors.

This buoy was not used extensively for this boatsheet. However, it is expected that it will receive frequent use for the following boatsheet in this same area.

ELECTRONIC CORRECTOR ABS

VESSEL : 2831 SHEET : PE-20-2-73

TIME	DAY	PATTERN 1	PATTERN 2
134040	205	+00020	+00101
152500		+00025	+00097
174100		+00030	+00092
195000		+00035	+00088
194520	206	+00010	+00084
200500		+00015	+00080
210000		+00020	+00078
210300		+00020	+00078
211700		+00020	+00078
134900	207	-00050	+00095
141320		-00050	+00095
151640		-00050	+00095
153720		-00050	+00095
183840		-00059	+00095
150700	208	-00040	+00004
164400		-00045	+00007
165500		-00045	-00093
164800	209	-00059	-00005
172600		-00062	-00010
183000		-00065	-00015
131900	211	+00012	-00015
142000		+00016	-00010
150900		+00019	-00005
173000		+00026	+00005

ELECTRONIC CONTROL PARAMETERS

H-9323

PE 20-2-73

1. Project # OPR- 437 2. Reg. # H- 9399 3. Field # PE 20-4-73

4. Type of Control Raydist (Hi-Fix, Raydist, EPI, etc.)

5. Frequency 3296.400 (for conversion of electronic lanes to meters)

6. Mode of Operation (check one):

Range-Range [XXX]

Range One (R_1)
Station I.D. PAT 1973
Range Two (R_2)
Station I.D. NICKEL 1971

Range-Visual [ ]

Lat.	33°	53'	57.478"
Long.	78°	23'	11.792"
Lat.	34°	00'	13.771"
Long.	77°	54'	14.476"

Hyperbolic (3-station) [ ]

Slave One
Station I.D. _____
Master
Station I.D. _____
Slave Two
Station I.D. _____

Hyper-Visual [ ]

Lat.	°	'	"
Long.	°	'	"
Lat.	°	'	"
Long.	°	'	"
Lat.	°	'	"
Long.	°	'	"

7. Location of Survey:

Range-Range [XXX] Imagine an observer is standing at R_1 Station and looking directly at R_2 (check one):

Survey area is to observer's Right [XXX] A=Ø

Survey area is to observer's Left [ ] A=1

Hyperbolic [ ] Looking from survey area toward Master Station:

Slave One must be to observer's Left.

Slave Two must be to observer's Right.

8. [XXX] This form is submitted as an aid in preparing a boat sheet.

[ ] This form applies to all data on this survey.

[ ] This form applies to part of the data on this survey.

Vessel EDP #	From Time	From Day	To Time	To Day	Position Numbers (inclusive)	
						to
						to
						to

9. Remarks: _____

-11
74 22

OPR 437

POSITION DATA SHEET

LAUNCH PE-1 SHEET PE 20-2-73 REGISTRY NO. H-9323

Jul. Day	First Pos. No.	Time (GMT)	Last Pos. No.	Time (GMT)	Develop-ment Positions	Detached Positions	Rejected Positions	Duplicate Positions	Omitted Positions	Bottom Sample
205	2001	134040	2104	180240	—	—	—	—	—	—
205	2105	183520	2171	210900	—	—	2140, 2141 ~~2175, 2176~~	—	2145	—
~~206~~	~~21~~									
207	2178	194520	2224	215040	—	—	—	—	—	—
207	2225	134960	2409	220120		—	—	—	—	—
208	2410	150706	2423	182400	—	—	—	—	—	2410 thru 2423
209	2424	164800	2433	191500	—	—	—	—	—	2424 THRU 2433
210	—	120000 ~~160000~~	—	200000	—	—	—	—	—	—
211	2434	131900	2474	173000	2440 - 2473	2474	—	—	—	2434 - 2439

FORM C&GS-733M (6-66)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

U.S. DEPARTMENT OF CO
COAST AND GEODETIC

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHEC
NOAA Ship PEIRCE	OPR - 437	74			

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH feet (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, d cutter, stat. no., type of bottom relief slope, plain, disposition, etc.)
		LATITUDE	LONGITUDE							
2410	27July74	33 39.6	77 55.2	31.0					fne br S	
2411	27July74	33 38.6	77 55.6	43.0					fne br S	
2412	27July74	33 39.6	77 56.5	42.0					fne blk S	
2413	27July74	33 40.7	77 57.5	47.0					fne blk S	
2414	27July74	33 40.6	77 55.8	36.0					fne br S	
2415	27July74	33 40.6	77 54.1	18.0					fne br S	
2416	27July74	33 41.6	77 53.3	21.0					crs br S, brk sh	
2417	27July74	33 41.6	77 55.0	20.0					Med br S	
2418	27July74	33 41.6	77 56.6	42.0					fne br S,	
2419	27July74	33 42.6	77 56.2	30.0					fne brS, fne blk S	
2420	27July74	33 42.5	77 54.5	21.0					med br S	
2421	27July74	33 42.6	77 52.8	38.0					med br S, brk Sh	
2422	27July74	33 43.6	77 52.4	43.0					med brS, P	
2423	27July74	33 43.5	77 54.0	36.0					crs br S, brk Sh	
2424	28July74	33 42.9	77 59.7	40.0					fne blk S	
2425	28July74	33 42.3	77 58.1	38.0					fne br S	
2426	28July74	33 44.5	77 57.7	28.0					fne gy S	

Use more than one line per sample if necessary.

USCOMM-DC 3

FORM C&GS-733M (6-66)

U.S. DEPARTMENT OF CO

COAST AND GEODETIC

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHEC
NOAA Ship PEIRCE	OPR - 437	74			

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH feet (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dc. cutter, stat. no., type of bottom relief slope, plain, disposition, etc.)
		LATITUDE	LONGITUDE							
2427	28July74	33 45.7	77 56.7	9.0					crs br S, brk Sh, P	
2428	28July74	33 47.2	77 56.4	7.5					fne br S, brk Sh	
2429	28July74	33 48.3	77 56.0	21.0					crs br S, brk Sh	
2430	28July74	33 48.4	77 54.5	27.0					crs br S, brk Sh	
2431	28July74	33 47.4	77 54.5	31.0					fne br S, brk Sh	
2432	28July74	33 46.5	77 54.8	25.0					fne blk S, brk Sh	
2433	28July74	33 45.5	77 55.3	17.5					fne br S	
2434	30July74	33 44.5	77 52.3	40.0					fne blk S, brk Sh	
2435	30July74	33 47.5	77 52.9	37.0					crs br S, brk Sh	
2436	30July74	33 46.5	77 53.1	37.5					fne br S	
2437	30July74	33 45.5	77 53.5	36.0					fne blk S, brk Sh, P	
2438	30July74	33 44.5	77 54.0	32.5					fne blk S	
2439	30July74	33 44.4	77 54.8	10.0					crs br S, brk Sh	

Use more than one line per sample if necessary.

USCOMM-DC 3

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-9323

GEOGRAPHIC NAMES

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	
										1
										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

☆ U.S. G.P.O. 1972-769-565/516 REG. #6

Verifier: CHAS. MEEKINS January 7,1975

VERIFICATION NOTE TO EDP (AMC)
SURVEY H-9323 (PE-20-2-73)
OPR-437

The verification of the Preliminary Sounding Overlay is completed.

There are approx. 459 changes to be applied to the sounding printout, consisting of:

137...soundings to be corrected
316...soundings to have excess changes
5.....positions to be inserted
1.....record needs Com. G.P. card for previous change.

Distortion Point origin is Lat. 33°37'30" Long. 78°01'30" and Stamp no. 42 information is shown on attached sheet and the point of origin for the Stamp is Lat. 33°38'00" Long. 77°53'06".

After these revisions and additions have been completed, please furnish this office with a Smooth Sheet and a new plot of the one excess level (necessary due to numerous changes). Sheet size should be 36" x 48 and continue to plot with same point of origin as sounding overlay.

NOTE..Please see attached sheet for additional information. and correct your Electronic Control Parameters, '73 uses 3294.400 khz and '74 uses 3296.400 khz.

William L Jonns
William L. Jonns
Ch. Verification Branch

PS: Concerning the above note....'73 portion of control arcs are to be plotted at 40 lane intervals and in different color from that used for '74 arcs. Be sure that all pos. are computed on theproper khz.

NOAA FORM 77-27 (9-72) (PRESC. BY HYDROGRAPHIC MANUAL 20-2. 6-94. 7-137)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9323

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & 2-Overlays	1	BOAT SHEETS	3 X
DESCRIPTIVE REPORT	1	OVERLAYS	2 X

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	X		X			
CAHIERS	3 & Printouts	X	X			
VOLUMES	4					
BOXES			1			

T-SHEET PRINTS (List) N. A.

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				2694
POSITIONS CHECKED		250		
POSITIONS REVISED		20		
DEPTH SOUNDINGS REVISED		269		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		0		
JUNCTIONS		4		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		20		
SPECIAL ADJUSTMENTS		0		
ALL OTHER WORK		185		
TOTALS		~~139~~ 49		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY C. Meekins	8/5/74	1/23/75
VERIFICATION BY R. Cram	1/28/75	2/3/75
REVIEW BY	BEGINNING DATE	ENDING DATE

* U.S. G.P.O. 1972-769-562/439 REG.#6

VERIFICATION NOTES

Survey H-

General

There were no unusual problems with this survey and it appears to be an adequate basic survey. Soundings are in good agreement at crossings and the depth curves adequately delineate the bottom features of the area.

Norfolk, Virginia

William L Jonns

William L. Jonns
Chief, Verification Branch
AMC.

ATLANTIC MARINE CENTER
APPROVAL SHEET
FOR
AUTOMATED SURVEY H-9323

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.

Date: May 19, 1975

Signed: William L Jones

Title: Chief, Verification Branch

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic and AMC Manuals. Exceptions are listed in the verifier's report.

Date: May 21, 1975

Signed: Gregg B Bass

Title: Chief, Processing Division

NOAA FORM 76-97
(2-72)
(PRES. BY HYDROGRAPHIC MANUAL, 6-94)

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

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H 9323

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R
Note: The verifier should first read the Descriptive Report for general information and problems.		
1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None	X	
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: --None	X	
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None	X	
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed	NA	
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.	NA	
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None	X	
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.	NA	
Part III - JUNCTIONS **Note:** Make a cursory comparison preliminary to inking soundings in area of overlap.	X	
8. All junctions of contemporary or overlapping sheets were compared and overlapping curves were made identical. Remarks Required: -- None		
9. The notation in slanted lettering "JOINS H---- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None	X	

Part III - JUNCTIONS (Continued)	CL	R
10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of **Butt** junctions and areas which are **SUPERSEDED.**	X	
Part IV - VOLUMES		
11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None	X	
12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features	X	
Part V - MACHINE PLOTTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None	X	
14. The plotting of all unsatisfactory crossings was verified. Remarks Required: -- None	X	
15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	X	

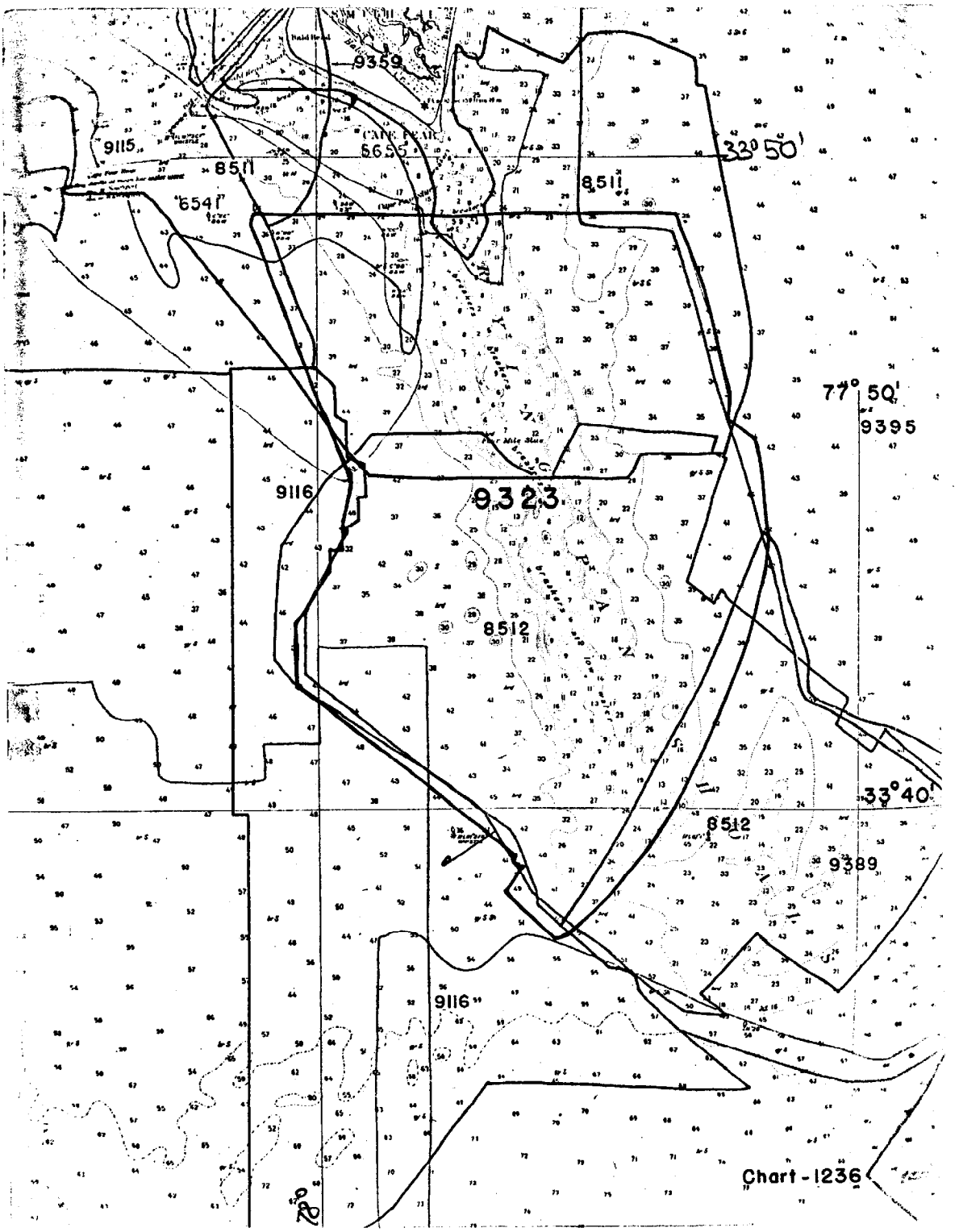
Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	NA	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	NA	
Part VI - SOUNDINGS		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	X	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	X	
Part VII - CURVES		
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.	X	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None	X	
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.	X	

Part VIII - AIDS TO NAVIGATION	CL	R
26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.	X	
27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required; -- None	X	
Part IX - BOAT SHEET		
28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None	X	
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	X	
Part X - GENERAL		
30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X	
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X	
32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	X	
33. The bottom characteristics are adequately shown. Remarks Required: -- None	X	
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.	X	
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X	
36. Supplemental information.	X	

Verified by
Roy G. Cram

Date
February 3, 1974

* U.S. G.P.O. 1972-769380/540 REG.#6


9359
9115
8511
6541
8511
33° 50'
77° 50'
9395
9116
9323
8512
33° 40'
8512
9389
9116
Chart - 1236

(9-25-63) NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9323

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
11537 (426)	7/14/75	Kevin Shaw	~~Full~~ Part ~~Before~~ ~~After~~ Verification Review ~~Inspection Signed~~ Via Drawing No. 27 EXAM. FOR CRITICAL CORR. - REVISED SNDGS. + CURVES.
11536 (426)	9/17/75	Kevin Shaw	~~Full~~ Part ~~Before~~ After Verification Review ~~Inspection Signed~~ Via Drawing No. 18 EXAM. FOR CRITICAL CORR. - REVISED SNDGS. + CURVES
11520 (1110)	11-18-75	G Moore	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via Drawing No.
1537	8/9/76	TB Parsons	~~Full Part Before~~ After Verification Review ~~Inspection Signed Via~~ Drawing No.
11536	16 May 79	Mrs. Radichevich	~~Full Part Before~~ After Verification Review Inspection Signed Via Drawing No. ADEQUATELY APPLIED from cl. 11537 AND (SOUTHERN AREA) DIRECTLY from H-9323
11520	10/21/82	Mark Green	~~Full Part Before~~ After Verification Review Inspection Signed Via Drawing No. 41 Thru Chart 11536
11009	2-17-83	[illegible]	~~Full Part Before~~ After Verification Review Inspection Signed Via Drawing No. [illegible]
			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-9/5. USCOMM-DC 8558-P53