9938

Diagram No. 905-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ..... Hydrographic

Field No. PE-10-5-81

Registery No. H-9938

LOCALITY

State ..... U.S. Virgin Islands

General Locality ..... St. Croix

Sublocality ..... Vicinity of Southwest Cape

1981

CHIEF OF PARTY
CDR D.E.Nortrup

LIBRARY & ARCHIVES

DATE ..... October 15, 1986

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

9938

AERO
CHTS
25644 & inset
25632
25641
25640

TO SIGN OFF SEE "RECORD OF APPLICATION"

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-9938

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 10-5-81

State U.S. Virgin Islands

General locality St. Croix

Locality Vicinity of Southwest Cape

Scale 1:10,000 Date of survey 08-18 April, 1981

Instructions dated 13 Nov 80, 24 Nov 80, 26 Mar 81 Project No. I 149-MI,PE-81

Vessel PEIRCE Launch 1009 (2839), and Launch 1017 (2837)

Chief of party Donald E. Nortrup, CDR, NOAA

Surveyed by T.W. Ruszala,E.J. Fields,E.S. Varney,L.F. Simoneaux,J.W. Bailey

Soundings taken by echo sounder, ~~hand lead, pole~~ Ross Model 5000 Echo Sounder

Graphic record scaled by E.S.V., J.W.B., T.R.O., B.E.M.

Graphic record checked by E.J.F., L.F.S., C.M.

Protracted by N/A Automated plot by Xynetics 1201 ~~AMC Digital~~ Plotter (AMC)

Verification by D.V. Mason

Soundings in fathoms and tenths at ~~XXXX~~ MLLW

REMARKS:

Remarks in red in Descriptive Rept. were made during processing of survey.

Final Descriptive Rept. combines two field D.R's.

STANDARDS CK'D 10-17-86
Cloy

AWOIS/SURF MSM 10/25/86

☆ U.S. GPO: 1974-0-768-081/1207

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9938

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-10-5-81

State U.S. VIRGIN ISLANDS

General locality ST. CROIX

Locality VICINITY OF SOUTHWEST CAPE

Scale 1:10,000 Date of survey 3 MAR 1982 - 25 MAR 1982

Instructions dated 27 NOVEMBER 1981 Project No. OPR- I149-MI/PE-82

Vessel PEIRCE LAUNCH 1009 (VESNO 2839) and LAUNCH 1012 (VESNO 2832)

Chief of party CDR. DONALD E. NORTRUP, COMMANDING OFFICER

Surveyed by T.W.RUSZALA, G.E.LEIGH, J.W.BAILEY, P.GLICKMAN, R.B.HARRIS, S.I.ANDREEVA

Soundings taken by echo sounder, ~~hand lead, pole~~ ROSS MODEL # 5000 DIGITAL FATHOMETER
RAYTHEON DE-723 D DIGITAL FATHOMETER

Graphic record scaled by R.B.H., I.P.R., J.W.B., S.I.A., B.E.M., B.M.

Graphic record checked by R.B.H., G.E.L.

Protracted by _____ Automated plot by Xynetics 1201 plotter (Amc)

Verification by D.V. Mason and Verifiers

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

REMARKS: THIS SURVEY SUPPLEMENTS WORK BEGUN IN 1981 and SERVES TO COMPLETE THAT WORK. ALL TIMES RECORDED IN THIS SURVEY ARE GREENWICH MEAN TIME (GMT).

Remarks in red in Descriptive Report made during processing of survey.

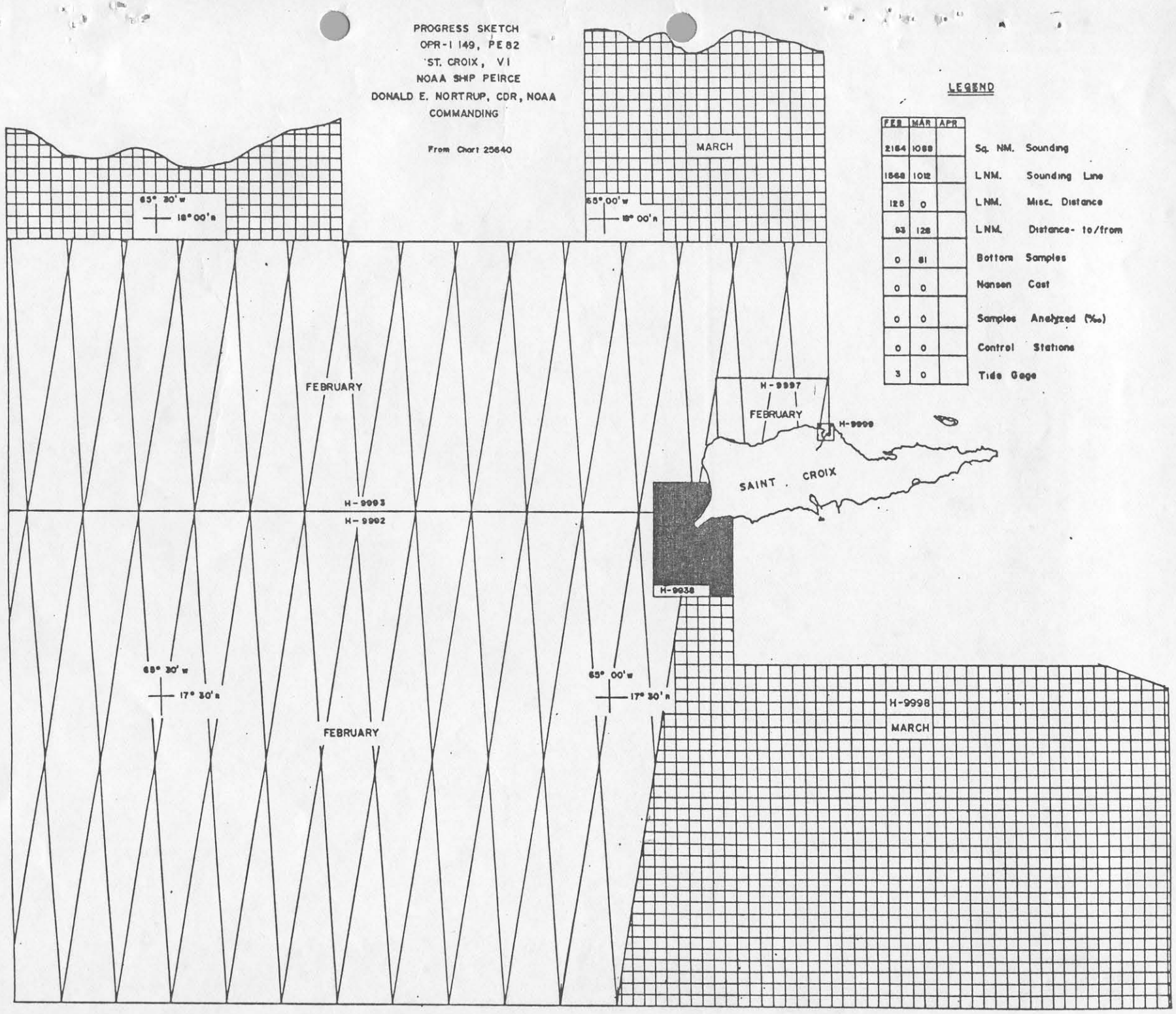
Final Descriptive Report combines two field D.R's.

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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6

PROGRESS SKETCH
OPR-I 149, PE 82
ST. CROIX, VI
NOAA SHIP PEIRCE
DONALD E. NORTRUP, CDR, NOAA
COMMANDING

From Chart 25640



LEGEND

FEB	MAR	APR	
2184	1088		Sq. NM. Sounding
1868	1012		L.NM. Sounding Line
125	0		L.NM. Misc. Distance
93	128		L.NM. Distance- to/from
0	81		Bottom Samples
0	0		Nansen Cast
0	0		Samples Analyzed (‰)
0	0		Control Stations
3	0		Tide Gage

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY
PE-10-5-81
H-9938

A. PROJECT

Instructions for survey H-9938, (Field No. PE-10-5-81) are contained in Hydrographic Project Instructions OPR-I149-MI,PE-81 dated 13 November 1980. Change No. 1: Supplement to Instructions, was dated 24 November 1980 and a related radio/teletype message was dated 1950 hrs. GMT, 26 March 1981. A copy of the radio/teletype message is appended to this report.

B. AREA SURVEYED

The area surveyed is on the west and southwest coast of St. Croix Island. The limits of the survey are the shore and the 150 fathom curve from about 17°42'45"N southward to Sandy Point, that is, latitude 17°40'54"N, and an area within 900 meters of Sandy Point and an area from the shore east of Southwest Cape southward to the latitude of the cape as far east as longitude 64°52'15"W. Survey operations were conducted between 08 and 18 April 1981.

This survey is incomplete. The area south of 17°40'50"N and from the 150 fathom curve west of Sandy Point to the eastern limits of the survey were not completed.

C. SOUNDING VESSELS

The ship's type 1 aluminum survey launches, Launch 1009 (VesNo 2839) and Launch 1017 (VesNo 2837) were used during this survey. The launches used Ross Model 5000 echo sounders; no unusual problems were encountered.

D. CORRECTIONS TO ECHO SOUNDINGS

Both launches used Ross Model 5000 echo sounders exclusively. Launch 1017 (VesNo 2837) used S/N 1078; Launch 1009 used S/N 1079 on J.D. 107 and on J.D. 108 used S/N 1078.

Corrections to echo soundings were derived from a Nansen cast taken by NOAA Ship MT MITCHELL in about 17°49'12"N., 64°41'35"W on 19 March 1981. MT MITCHELL's cast was only to 105 fathoms and since survey depths are as great as 200 fathoms, a comparison was made between graphs of velocity correctors of MT MITCHELL's cast and a cast made by PEIRCE for S-I103, Navassa Island Project. The graphs were nearly identical; therefore the MITCHELL's graph was extrapolated using the Navassa Island velocity corrector graph as a guide. Data for PEIRCE cast could not be found, however the curve appears to be linear extension of MT. MITCHELL curve.
Bar checks were taken twice daily. The correctors derived from averaging the bar check correctors compare favorably (within 0.1 fathom) with those correctors derived from Nansen cast data.

Settlement and squat for the launches was measured at Guantanamo Bay Cuba; for Launch 1017 on 23 February 1981 and for Launch 1009 on 06 March 1981. The corrections for the speeds at which the launches were used in this survey are 0.04 fathom or less and were not applied. A copy of the Abstract of Echo Soundings for each launch is submitted in the supplemental data for this survey.

E. HYDROGRAPHIC SHEETS

The field sheet for this survey was drawn aboard NOAA Ship PEIRCE using a Complot roll bed plotter, PDP8/E computer and program RK 201. The positions and soundings were plotted using programs RK 212 and RK 216. This survey will be sent to NOAA Atlantic Marine Center, Norfolk, Virginia for verification and smooth plotting. Information on projection and electronic control parameters is appended to this report.

F. CONTROL STATIONS

The control stations used for this survey are monumented; their positions were verified or computed and descriptions written by personnel from Operations Division, Atlantic Marine Center. The positions and descriptions are filed with the National Geodetic Survey. Adjusted data entered during verification on stations effected.

A complete list of control stations for this project is appended to this report. The stations were verified or located in November 1980 using standard traverse and triangulation methods. Additional information regarding geodetic control for this project may be obtained from Chief, Operations Division, CAM 1, NOAA Atlantic Marine Center, Norfolk, Virginia. Field did not submit Sig. Name List. Verification researched this data.

G. HYDROGRAPHIC POSITION CONTROL

The method of position control for this survey was range/azimuth. Azimuths were obtained by theodolites initialed on third-order control stations. Ranges were obtained by equipment manfactured by Del Norte Technology, Inc. There were no known problems with the electronic control equipment for this survey. Models and serial numbers were as follows:

Remotes & Masters Model 217 C		DMU Model 202R03C		
CODE	S/N	S/N	LOCATION	DAY(s)
M	162	192	VesNo 2837	098-103
M	273A	298	VesNo 2837	105-107
M	1068	188	VesNo 2839	107
M	217	188	VesNo 2839	108
76	1135	---	Station 018	103
78	188	---	Station 019	105-107
74	262	---	Station 015	107
72	221	---	Station 015	108

Fixed point calibrations were taken twice daily as a check on baseline calibrations. Baseline calibrations, which were taken on 13 April (J.D. 103) and on 22 April (J.D, 112), indicated that no correctors were necessary. None applied.

H. SHORELINE

Shoreline for this sheet was taken from a 1:10,000 scale class III manuscript: Job CM-7718, TP-00006. No field edit was done, per project instructions. See Eval. Rep. for shoreline revisions.

A comparison was made between photobathmetry and this survey inside of the 18-foot curve. Along the west shore of the island, agreement was good with the photobathymetry generally shoaler by 1 or 2 feet. Along the southern shore east of Southwest Cape, the photobathymetry was generally 1 to 3 feet shoaler.

I. CROSSLINES

A total of 5.8 miles of crosslines were run during this survey, which constitutes 22.8% of the mainscheme hydrography. Agreement was excellent with differences of 0.0 to 0.2 fathom in depths less than 11 fathoms and less than 1 fathom elsewhere, except on steep slopes.

J. JUNCTIONS

No junctions were required with any prior surveys. The survey does, however, junction with two contemporary surveys, both at the northern limit of the sheet. Survey H-9934, Field No. PE-2.5-1-81 junctions with this survey along latitude 17°42'44"N from the shoreline westward to longitude 64°53'29"W. The junction is excellent with differences of 0.1 to 0.2 fathom common. Survey H-9937, Field No. PE-10-4-81, junctions with this survey along the northern limits from 64°53'25"W to 64°53'52"W longitude. The sounding lines of this survey ran between those of Survey H-9937 along their junction; agreement is excellent with no displacement of contours. See Eval. Rpt.

K. COMPARISON WITH PRIOR SURVEYS

There were no presurvey review items within the survey area. Comparison with prior survey H-4653a, 1:20,000 1924-24 was excellent with differences of 0.2 fathom or less in depths under 10 fathoms and 1 fathom or less in greater depths. A 3 fathom sounding (from H-4653a) in about 17°42'09"N, 64°53'28"W was not developed on this survey and soundings from photobathymetry should be used. 3-fm. sdg. from H-4653b WD carried forward to pres. survey.

L. COMPARISON WITH THE CHART

This survey compares well with chart 25644, 8th ed. (May 6th, 1978). Differences are generally less than 1 fathom throughout the survey areas with no shifts in the bottom contours.

M. ADEQUACY OF SURVEY

The survey north of latitude 17°40'54"N is complete and in conjunction with photobathymetry, is adequate to supersede prior surveys. The survey areas south of Sandy Point are incomplete and must be surveyed. The survey between the shoreline and a line due east of Southwest Cape is sufficient for comparison with photo bathymetry. Incomplete area, surveyed in 1982.

N. AIDS TO NAVIGATION charted as lighted buoy "Y Float", Navy maintd.

Only one floating aid to navigation was within the survey area: a Navy-maintained radar beacon that was located by position ~~156~~ 6156. Its position agrees well with the 1981 Light List. One fixed aid was within the survey area: Southwest Cape Light is a triangulation station that was recovered in November, 1980.

O. STATISTICS See Eval. Rep.

The following statistics were compiled during this survey:

O. STATISTICS (cont'd.)

CATEGORY	LAUNCH 1017 (VesNo 2837)	LAUNCH 1009 (VesNo 2839)	TOTAL
No. of Positions	262	47	309
N. Miles of Soundings	28.5	2.7	31.2
Sq. N.M. of Soundings	2.19	0.26	2.45
No. of Bottom Samples	0	17	17
Tide Stations Occupied	---	---	2
Nansen Casts Used	---	---	1

P. MISCELLANEOUS

None

Q. RECOMMENDATIONS

It is recommended that the survey north of 17°40'54"W be used in conjunction with photobathymetry to supersede all prior surveys for the area south of Sandy Point and the area south of the latitude of Southwest Cape, a complete basic survey is recommended.

R. AUTOMATED DATA PROCESSING

The following programs were used to acquire and process data for this survey:

PROGRAM NUMBER	TITLE	VERSION
RK 201	Grid, Signal & Lattice Plot	4/18/75
RK 212	Visual Station Table Load	4/01/74
RK 216	Range/Azimuth Non-Real Time Plot	2/09/81
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
RK 360	Electronic Corrector Abstract	2/02/76
RK 407	Geodetic Inverse/Direct Computation	9/25/78
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
AM 602	Elinore--Line Oriented Editor	5/20/75
RK 612	Line Printer List	3/22/78

S. REFERRAL TO REPORTS

All information regarding tide gages for this project, that is, installation, removal, leveling and marigram records, have been sent to Chief, Tides and Water Levels Division (OA/C234), NOAA, Rockville, Md. 20852. Any information about those records should be referred to Chief, Tides and Water Levels Division.

Respectfully Submitted,

E. Scott Varney
Lieutenant, NOAA

FIELD TIDE NOTE

Predicted tides were computed for the western shore of St. Croix Island based on Galveston, Texas, corrected to Charlotte Amalie, St. Thomas using correctors listed in the Tide Tables and interpolated by an onboard PDP 8/E computer with program AM 500. The predicted tides thus derived had a range of 0.1 fathom and consequently were not applied to surveys H-9934 (PE2.5-1-81), H-9937 (PE10-4-81), and H- (PE10-5-81).

Two Metercraft bubbler tide gages were installed at sites within the project area. The first two gages listed were installed by NOAA Ship PEIRCE personnel and the third one listed, an ADR gage, was installed by NOAA Ship MT MITCHELL personnel and was maintained by MT MITCHELL personnel. Times of recorded tides for PEIRCE-installed gages are GMT.

Site, Station No.	Location	Period
Frederiksted 975-1584	17°42'48" N. 64°53'23" W.	35 days 19 March-23 April
Limetree Bay 975-1401	17°41'56" N. 64°45'13" W.	13 days 10 April-22 April
Christiansted 975-1364		Early February to Midddle April

Frederiksted
Gage (S/N 7536-22) was installed 19 March but vandalism on 20 March ruined the first two days' record, and the gage was restarted on 21 March, 1981. The staff was installed on 19 March and leveled 21 March. Thereafter, very good records were obtained for 33 days with no interruptions. The marigrams read about 1.7 fathom less than the staff.

Limetree Bay
Gage (S/N 7602705108) was installed and leveled on 10 April. Very good records were obtained for the 12 days the gage was installed. The marigrams and the staff have nearly the same zero mark.

Christiansted
The gage was installed and maintained by MT MICHELL personnel who were operating in the Christiansted area under same project instructions as the PEIRCE.

Levels
Levels were run at the installation and removal of the gages. Records were sent to Tides and Water Levels Division (OA/C234) and are not available for comparison.

Zoning
The following zones are suggested in the project instructions:

Station Number	Area of Hydrography
975 - 1584	West side of island from SW Cape North to Ham's Bluff
975 - 1401	South side of island from SW Cape east to East Point
975 - 1365	North of 17°45'00"N., and East of 64°52'36"

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship PEIRCE S-328
439 West York Street
Norfolk, Virginia 23510

TO: Chief, Tides and Water Levels Division (OA/C234)

FROM: Commanding Officer
NOAA Ship PEIRCE S-328

SUBJECT: Request for Smooth Tides

Smooth tides are requested for surveys H-9934, H-9937 and PE-10-5-81 of the St. Croix project, OPR-I149, MI/PE-81.

The following tide stations should be used:

Survey	Tide Station
H-9934 (Frederiksted Harbor)	Frederiksted Pier (975-1584)
H-9937 (Frederiksted North to Hams Bluff)	Frederiksted Pier (975-1584) Christiansted (975-1364)
PE-10-5-81 (Frederiksted Harbor South to Long Point)	Frederiksted Pier (975-1584) Limetree Bay (975-1401)

The following is the Julian Day and times of hydrography for each survey:

H-9934 (PE-2.5-1-81)

JULIAN DAY	TIME FROM TO
078	175700-191100
082	133400-203100
083	131150-202834
084	125212-202216
090	172238-200051
091	133845-214714
092	132845-145333
093	174700-182000
096	150157-202129
097	140326-140656
098	125500-192200
099	122500-142500
100	203830-213427
110	125731-141604

10TH ANNIVERSARY 1970-1980
National Oceanic and Atmospheric Administration
A young agency with a historic tradition of service to the Nation

H-9937 (PE-10-4-81)

JULIAN DAY	TIME FROM	TO
086	132618	152954
087	132411	200434
088	134108	205937
089	140343	201355
090	133645	134752
092	152130	213113
099	143520	201603
100	134258	190348
109	130951	173549
141	141300	194344

H-9938 (PE-10-5-81)

JULIAN DAY	TIME FROM	TO
098	144330	191519
103	142811	202443
105	135408	211612
106	145059	163908
107	152334	200431
108	125631	160311

The limits of hydrography can be determined from the attached progress sketch. All times listed are GMT.

Attachment: Progress Sketch
cc: CAM 1
CAM 3

OPR I 149

SOUNDING CORRECTION ABSTRACT

FIELD NO. PE 10-5-81

VESSEL 2837

REGISTRY NO. H-9938

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(NOTE: TRA Corr. is the algebraic sum of these columns) Draft Corr.	Instrument Error Corr.	Initial Corr.	S & S Corr.	TRA Corr. ft/fms	Remarks
098	144330	191519	1	0.2 3	0.0	0.0	0.0	0.2 3	1000 RPM
103	142811	202443	1	0.2 3	0.0	0.0	0.0	0.2 3	1000 RPM
105	150041	211612	1	0.2 3	0.0	0.0	0.0	0.2 3	1000 RPM
098	185330			0.0				0.0	DP (Buoy)
098	195938			0.3				0.3	
105	173656			0.0				0.0	DP (Rocks)
105	175336			0.3				0.3	1000 RPM

NOTE: A draft corrector of 0.2 fathom has been applied on corrector tapes.

OPR I 149

SOUNDING CORRECTION ABSTRACT

VESSEL 2839

FIELD NO. PE 10-5-81

REGISTRY NO. H-9938

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(NOTE: TRA Corr. is the algebraic sum of these columns) Draft Corr.	Instrument Error Corr.	Initial Corr.	S & S Corr.	TRA Corr. ft/fms	Remarks
107	152334	200431	1	0.2	0.0	0.0	0.0	0.2	Bottom Samples
108	125631	160311	1	0.2	0.0	0.0	0.0	0.2	Bottom Samples
108	144503	154320	1	0.3	0.0	0.0	0.0	0.3	1000 RPM
108	155252	235959	1	0.0	0.0	0.0	0.0	0.0	Bottom Samples

NOTE: A draft corrector of 0.2 fathom has been applied on corrector tapes.

VELOCITY TABLE LISTING

REGISTRY NO. H-9938

FIELD NO. PE 10-5-81

```
000001 0 0000 0001 001 283000 010581
000025 0 0001
000042 0 0002
000060 0 0003
000080 0 0004
000098 0 0005
000118 0 0006
000135 0 0007
000154 0 0008
000170 0 0009
000188 0 0010
000206 0 0011
000223 0 0012 - 23.3
000270 0 0014 - 26.8
000304 0 0016
000340 0 0018
000378 0 0020
000411 0 0022
000448 0 0024
000485 0 0026
000521 0 0028
000558 0 0030
000593 0 0032
000629 0 0034
000665 0 0036
000701 0 0038
000739 0 0040
000788 0 0042 - 77.5
000815 0 0044
000853 0 0046
000890 0 0048
000935 0 0050 - 93.3
000972 0 0052
001011 0 0054
001059 0 0056
001108 0 0058 - 110.5
001243 0 0060 - 118.5
001485 0 0070
001737 0 0080
001988 0 0090
999999 0 0090
```

✓DVM
✓LG

130.5 0 6.5
142.5 0 7.0
155.0 0 7.5
167.8 0 8.0
179.8 0 8.5
192.0 0 9.0
205.5 0 9.5

SIGNAL TAPE LISTING

REGISTRY NO. H-9938

FIELD NO. PE 10-5-81

001	7	17	45	10306	064	50	18243	139	0000	000000
002	7	17	45	30654	064	51	44022	139	0000	000000
003	7	17	46	16087	064	52	16712	139	0000	000000
004	0	17	46	16136	064	52	16714	250	0120	000000
005	7	17	46	17976	064	52	40698	250	0002	000000
006	7	17	46	10398	064	52	53606	250	0003	000000
007	7	17	45	46033	064	53	20838	250	0001	000000
008	7	17	45	02528	064	52	38157	139	0248	000000
009	7	17	44	58704	064	53	39800	250	0001	000000
010	7	17	44	50878	064	53	40812	250	0001	000000
011	7	17	44	30545	064	53	23843	139	0000	000000
012	7	17	43	40693	064	53	02028	139	0000	000000
013	7	17	43	16256	064	52	42609	139	0000	000000
014	4	17	43	12163	064	53	04841	250	0001	000000
015	4	17	42	58024	064	53	05084	250	0001	000000
016	4	17	42	56229	064	53	18162	250	0002	000000
017	7	17	42	53385	064	52	49025	139	0000	000000
018	7	17	42	45550	064	53	01834	250	0002	000000
019	0	17	40	46879	064	54	01044	250	0011	000000
020	7	17	40	46824	064	54	01034	139	0000	000000
021	2	17	41	23398	064	51	11909	250	0000	000000
022	2	17	45	45409	064	53	21052	252	0000	000000
023	5	17	42	56132	064	53	20717	252	0000	000000
024	7	17	42	55668	064	53	20653	252	0000	000000

WASHINGTON, 1919

BENCH MARK 1584 E, 1980
PEIRCE, 1980
RED CHURCH STEELE, 1919
PEIRCE AZ 1, 1980
51197 AZ MK, 1977
SOUTHWEST CAPE LT, 1980

FREDERIKSTED PIER LT: NORTH, 198
FREDERIKSTED PIER LT. SOUTH, 1980

DVM

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
[X] HYDROGRAPHIC PARTY
[ ] GEODETIC PARTY
[ ] PHOTO FIELD PARTY
[ ] COMPILATION ACTIVITY
[ ] FINAL REVIEWER
[ ] QUALITY CONTROL & REVIEW GRP.
[ ] COAST PILOT BRANCH
(See reverse for responsible personnel)

[X] TO BE CHARTED
[ ] TO BE REVISED
[ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Ship PEIRCE S-328	Virgin Islands	St. Croix, West Side	4/29/81

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-I149		H-9934, H-9937 PE-10-5-81	Puerto Rican

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	Latitude °	Latitude '	Latitude " D.M. Meters	Longitude °	Longitude '	Longitude " D.P. Meters	Method and Date of Location: OFFICE	Method and Date of Location: FIELD	CHARTS AFFECTED
Light	Southwest Cape Light, 1980	17	40	46.82	64	54	01.03		L-1-6 11-80	25644 25641
Tank	Tallest of Six	17	42	23.79	64	53	01.50	not plotted on smooth sheet	V-5-8 4-14-81	"
Spire	Red Church Steeple, 1919	17	42	53.38	64	52	49.02		L-1-6 11-80	"
Chimney	La Grange Chimney, 1919	17	43	16.25	64	52	42.60		L-1-6 11-80	"
Chimney	Propsperity Chimney Hot, 1919	17	43	40.69	64	53	02.02	See H-9937	L-1-6 11-80	"
Old Mill	Sprat Hall Mill	17	44	30.54	64	53	23.84	See H-9937	L-1-6 11-80	"
Old Mill	Northside ESTATE MILL, 1919	17	45	46.03	64	53	20.83	See H-9937	L-1-6 11-80	"
Old Mill	~~Butter~~ BUTLER Bay MILL, 1919	17	44	58.70	64	53	39.80	See H-9937	L-1-6 11-80	"
Old Mill	Bodkin Mill, 1919	17	45	10.31	64	50	18.24	See H-9937	V-5-8 4-14-81	"
Light	Hams Bluff Lighthouse, 1919	17	46	16.08	64	52	16.71	See H-9937	L-1-6 11-80	"

NC L-306(82) L-1141(82)
~~L-660(82)~~

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Ship PEIRCE(S328)	Virgin Island	St. Croix	4/29/81

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-I149		H-9934, H-9937 PE-10-5-81	Puerto Rican

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
Light	Frederiksted Harbor Light, 1982	17 42	58.74	64 53	3.33		L-2-6 4/20/81	25644 25641
Light	Frederiksted Pier Lt. South, 1981	17 42	55.66	64 53	20.65		L-2-6 4/23/81	25644 25641
Light	Frederiksted Pier Lt. North, 1981	17 42	56.13	64 53	20.71		L-2-6 3/20/81	25644 25641
	NC L-302(82) L-660(82) L-1141(85)							

35

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: H-9938 FIELD NO.: PE-10-5-81

U.S. Virgin Islands, St. Croix, Vicinity of Southwest Cape

SURVEYED: April 8 to April 18, 1981; March 3 to March 25, 1982

SCALE: 1:10,000 PROJECT NO.: OPR-I149-MI,PE/81
OPR-I149-MI/PE-82

SOUNDINGS: Ross Model 5000
Fineline Echo Sounder,
Raytheon DE-723D Echo Sounder

CONTROL: Range/Range - ARGO
Range/Azimuth - Del
Norte/Theodolite

Chief of Party ..... D. E. Nortrup

Surveyed by ..... T. W. Ruszala
..... E. J. Fields
..... E. S. Varney
..... L. F. Simoneaux
..... J. W. Bailey
..... G. E. Leigh
..... P. N. Glickman
..... R. B. Harris
..... S. I. Andreeva

Automated Plot by ..... Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

a. There were no unusual methods of surveying performed during this survey.

b. The survey was conducted in both 1981 and 1982 and separate field reports were submitted for each part of the survey. These reports were combined as a final Descriptive Report during the processing of the survey.

c. Changes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. The source of control is adequately described in sections F and G in both parts of the combined Descriptive Report.

b. Shoreline originates with Class III registered map TP-00006 of 1977. The map consists of two parts, the shoreline map and a photobathymetric overlay.

c. Soundings in red were determined by photobathymetric methods using photographs of 1977. These soundings were transferred from the map overlay and provide supplemental information for areas not covered by the hydrographic survey.

d. The obstruction at MLW at latitude 17°42'12"N, longitude 64°53'13"W depicted on TP-00006 falls in present depths of 3 feet. A line of soundings run parallel to shore at low water over this item did not reveal its identity. As the probable identity of the obstruction is listed as unknown from information furnished by the Photogrammetric Branch, the obstruction is considered of a temporary nature and is not shown on the smooth sheet.

e. The ruins, bare at MHW, in the vicinity of latitude 17°42'56"N, longitude 64°53'10"W on TP-00006 were investigated by the hydrographer on H-9934 (1981). The results of this investigation are shown on H-9934 and should be charted. The high water feature as shown on the shoreline map was not transferred to the present survey during evaluation.

f. A ramp, not labeled on TP-00006, at latitude 17°42'59"N, longitude 64°53'04"W, was stated to have been removed in the early part of 1982 in the Descriptive Report of H-9934. This statement was confirmed by a member of the field party during the evaluation of the present survey. The shoreline in this area is shown by a red dashed line on the present survey as described by the hydrographer.

3. HYDROGRAPHY

a. Depths at crossings are in good agreement considering the nature of the bottom.

b. The standard depth curves are adequately delineated, except for the 0-depth curve. This curve could not be drawn due to its proximity to shore and the small range of tide.

c. The development of the bottom configuration and the determination of least depths are considered adequate.

4. CONDITION OF SURVEY

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

5. JUNCTIONS

Adequate junctions were effected with H-9937 (1981) on the north and with H-10009 (1982) on the east during the verification of those surveys. In accordance with Hydrographic Survey Guideline No. 22, formal junctions were precluded with H-9934 (1981) on the north, H-9993 (1982) on the west, and

H-10092 (1982) on the south because the surveys were archived at headquarters prior to the verification of the present survey. The label "ADJOINS" precedes the registry number in the junctional notes. In general, hydrography and/or photobathymetric depths on the present survey are in harmony with soundings on the adjoining surveys.

6. COMPARISON WITH PRIOR SURVEYS

a. H-4653a (1924-1925) 1:20,000
H-4653c (1924-1925) 1:10,000

These prior surveys cover the entire area of the present survey. While there are areas of agreement, a comparison of prior and present depths beyond the 20-fathom depth curve reveals significant differences along the deep slope. In shoaler depths, only minor differences of about 1 fathom indicate a relatively stable bottom. Differences can be attributed to the different surveying methods used and the irregularity of the bottom.

The label "Rips" charted at latitude 17°39'42"N, longitude 64°54'25"W originating with H-4653a was not mentioned by the hydrographer on the present survey. This item should be expunged from the chart.

With the addition of a few soundings and a bottom characteristic carried forward from the prior surveys, the present survey is adequate to supersede the prior surveys in the common area.

b. H-4653b (1925) WD 1:20,000

This wire-drag survey covers portions of the present survey area. No conflicts between present depths and effective wire-drag depths were found.

Some soundings and groundings have been carried forward from the wire-drag survey to supplement the present survey.

7. COMPARISON WITH CHART 25644 (8th Edition, May 6, 1978)

a. Hydrography

The charted hydrography primarily originates with the previously discussed prior surveys which need no further consideration, supplemented by some depths from miscellaneous sources.

(1) The anchorage symbol charted at latitude 17°42'45"N, longitude 64°53'26"W from a miscellaneous source was not mentioned by the hydrographer on the present survey. This item should be retained on the chart unless the chart compiler has information to the contrary.

(2) The two sunken rocks (unknown depth) charted in the vicinity of latitude 17°40'31"N, longitude 64°54'01"W from a miscellaneous source presently fall in 0.3-fathom bathymetric depths as shown on the present survey. These sunken rocks should be retained on the chart but revised to dangerous rocks awash near the level of the chart sounding datum.

(3) The 5½-fathom depth charted at latitude 17°38'43"N, longitude 64°54'23"W from a miscellaneous source was not verified or disproved on the present survey. However, a 6.9-fathom shoal sounding falls near the charted depth in about 9 fathoms of water on the present survey. Retain the 5½-fathom depth on the chart.

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

b. Aids to Navigation

The aids to navigation on the present survey are in substantial agreement with their charted positions and adequately mark the features intended, except for the following:

(1) As stated in the Descriptive Report, the two privately maintained Texaco Channel Buoys "1" and "2" have been moved, probably to mark the 5-fathom shoal areas.

(2) The lighted buoy "Y Float," Navy maintained, charted in latitude 17°41'18"N, longitude 64°54'13"W apparently marks a restricted anchorage area. It is shown as a lighted buoy on the present survey with no additional annotations.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK

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

Douglas V. Mason
Cartographic Technician
Verification of Field Data

George K. Myers
Chief, Standards Section (N/CG242)
Hydrographic Surveys Branch
Evaluation and Analysis

Robert R. Hill
Senior Cartographic Technician
Verification Check

Inspection Report
H-9938

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The survey complies with National Ocean Service (NOS) requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

Dale E. Westbrook

Dale E. Westbrook
Deputy Chief, Hydrographic Surveys
Branch (N/CG24x1)

Approved

Wesley V. Hull

Wesley V. Hull, RADM, NOAA
Director, Atlantic Marine Center

CONTROL STATIONS

PE-10-5-81

H-9938

STATION NUMBER	STATION	ESTABLISHED	TYPE
008	WASHINGTON	NGS, 1919	Published, Third Order, Class I Quad 170644, Station 1141
011	SPRAT HALL MILL	NGS, 1919	Published, Third Order, Class I Quad 170644, Station 1130
012	PROSPERITY CHIMNEY HOT	NGS, 1919	Published, Third Order, Class I Quad 170644
020	SOUTHWEST CAPE LIGHT	AMC, 1980	Nonpublished, Third Order, Class I
026	HOUSE RM 3	AMC, 1980	Nonpublished, Third Order, Class I
037	FREDERIKSTED HARBOR LIGHT	AMC, 1982	Nonpublished, Third Order, Class I
042	MARTIN MARIETTA	AMC, 1982	Nonpublished, Third Order, Class I
044	LONG POINT	AMC, 1982	Nonpublished, Third Order, Class I
048	LONG POINT RM 1	AMC, 1982	Nonpublished, Third Order, Class I

APPROVAL SHEET
H-9938

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and the final field sheet have been closely reviewed and found to represent a complete survey adequate to supersede the common coverage portions of all prior surveys cited in Section K of the Descriptive Report with exception of recommendations made in Section L of this report.

Also, see Eval. Rpt.

Donald E. Nortrup
CDR, NOAA
Commanding Officer
NOAA Ship PEIRCE S-328

SIGNAL TAPE

PE 10-5-81

H-9938

001	7	17	45	10414	064	50	18319	139	0000	000000	
002	7	17	45	30654	064	51	44022	139	0000	000000	
003	7	17	46	16088	064	52	16709	139	0000	000000	
004	0	17	46	16137	064	52	16714	250	0120	000000	
005	7	17	46	17977	064	52	40699	250	0002	000000	
006	7	17	46	10399	064	52	53606	250	0003	000000	
007	7	17	45	46034	064	53	20838	250	0001	000000	
008	7	17	45	02528	064	52	38157	139	0248	164670	WASHINGTON, 1919
009	7	17	44	58704	064	53	39801	250	0001	000000	
010	7	17	44	50878	064	53	40813	250	0001	000000	
011	7	17	44	30545	064	53	23843	139	0000	000000	SPRING HALL MILL, 1919
012	7	17	43	40693	064	53	02029	139	0000	000000	PROSPERITY CHIMNEY NOT, 1919
013	7	17	43	16256	064	52	42609	139	0000	000000	
014	4	17	43	12163	064	53	04841	250	0001	000000	
015	4	17	42	58025	064	53	05088	250	0001	000000	
016	4	17	42	56230	064	53	18163	250	0002	000000	
017	7	17	42	53386	064	52	49025	139	0000	000000	
018	7	17	42	45551	064	53	01835	250	0002	000000	
019	0	17	40	46879	064	54	01044	250	0011	000000	
020	7	17	40	46824	064	54	01035	139	0000	000000	SOUTH WEST CAPE LT, 1980 (Adj)
021	2	17	41	23988	064	51	19093	250	0000	000000	
022	2	17	45	45409	064	53	21052	252	0000	000000	
023	5	17	42	56132	064	53	20717	252	0000	000000	
024	7	17	42	55668	064	53	20653	252	0000	000000	
025	7	18	19	04387	064	47	21668	250	0086	164670	
026	7	17	59	24458	065	53	07765	250	0011	164670	HOUSE RM3, 1980
027	7	17	45	55932	064	49	37681	139	0000	000000	
028	7	17	46	10990	064	49	03923	139	0000	000000	
029	7	17	46	43409	064	48	23855	139	0049	000000	
030	7	17	46	21548	064	48	45797	139	0000	000000	
031	7	17	46	43822	064	48	13582	139	0000	000000	
032	7	17	47	02614	064	44	55987	139	0000	000000	
033	4	17	45	28995	064	34	02450	250	0067	000000	
034	7	17	46	48515	064	45	15121	250	0000	000000	
035	7	17	46	44494	064	45	06720	250	0000	000000	
036	7	17	46	51285	064	45	30017	250	0000	000000	
037	7	17	42	58500	064	53	03250	139	0000	000000	FREDERIKSTED HARBOR LT, 1982
038	7	17	42	09470	064	52	54680	139	0000	000000	
039	7	17	42	23600	064	53	01600	139	0000	000000	
040	7	17	43	13600	064	51	28200	139	0000	000000	
041	7	18	19	04495	064	47	21847	250	0000	164670	
042	7	17	41	25028	064	45	57436	139	0000	000000	MARTIN MARIETTA, 1982
043	7	17	43	13463	064	51	28570	139	0265	000000	
044	7	17	40	54267	064	50	22096	139	0000	000000	LONG POINT, 1982
045	7	17	44	56707	064	35	39299	250	0002	164670	
046	7	17	42	05437	064	51	41506	250	0000	000000	
047	7	17	41	44350	064	52	03370	250	0000	000000	
048	7	17	40	54556	064	50	21967	250	0002	000000	LONG POINT, RM1, 1982
049	7	17	46	44406	064	45	08271	250	0001	000000	
050	7	17	46	35076	064	45	36666	250	0001	000000	
051	7	17	46	35178	064	45	40786	250	0001	000000	

DVM

SUPPLEMENTAL
DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9938
FIELD NUMBER PE 10-5-81
CDR. DONALD E. NORTRUP, NOAA

A. PROJECT

This survey was conducted in accordance with Project Instructions OPR-1149-MI/PE-82 dated 27 November 1981. This survey is a continuation of work begun in April 1981 and serves to complete the survey. A separate report was submitted in 1981 describing the first part of the survey. The changes to the project instructions that affect this survey are Change No. 1, Amendment to Instructions dated 21 December 1981 and Change No. 3, Supplement to Instructions dated 25 January 1982.

B. AREA SURVEYED

The area surveyed is on the west and southwest coast of St. Croix Island. The limits of the survey are the shore and the 150-fathom curve and/or where the ship junctions with the survey.

The following are the approximate limits of this survey:

Northern Limit	17°40'42"N (and/or the shore)
Southern Limit	17°37'12"N (junctions with the ship)
Eastern Limit	64°51'48"W
Western Limit	64°55'42"W

The survey was performed between the dates of 3 March 1982 (JD 062) and 25 March 1982 (JD 084).

C. SOUNDING VESSEL

The Type I Jensen survey launches, Launch 1009 (Vesno 2839) and Launch 1012 (Vesno 2832), were used in this survey. Launch 1009 was equipped with the hydroplot system. Launch 1012 was equipped with a manual data logger. Problems were encountered while using the data logger on line. The logger (using the automatic update of time) was erroneously throwing times out of sequence, therefore, data had to be logged again off line.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

This survey was conducted using the Ross digital fathometer Model #5000 and the Raytheon DE-723D digital fathometer. The sounding equipment serial numbers and dates used are listed below:

Vesno	Fathometer (Day Number)
2832 1278 (Raytheon)	62, 63, 75 - 78, 81, 84
2839 1079 (Ross)	63, 64, 76, 77

Launch 1012 (Vesno 2832) encountered actual depths of 1.3 to 143 fathoms. Phase checks were not taken on line, however, the Raytheon DE-723D digital fathometer was checked thoroughly each day by an electronic technician to ensure that the fathometer was properly calibrated. An initial correction of +0.2 was applied to part of the data on JD 075. (See Sounding Correction Abstract.) Launch 1009 (Vesno 2839) encountered actual depths of 1.4 to 205 fathoms. Full phase checks were performed on the Ross digital fathometer at the conclusion of each sounding line. All discrepancies and depths were corrected during the scanning of the graphic record by trained ship personnel.

Velocity corrections were computed from Nansen cast data obtained by the NOAA Ship MT. MITCHELL.* The cast was taken on 20 February 1982 (JD 051). Data from the NOAA Ship MT. MITCHELL Nansen cast taken on 25 March 1982 will be submitted at the conclusion of the project. * used this cast.

Velocity corrections taken from Nansen Cast #1 (Table #2) were graphed and scaled at the following interval:

Depth (fms)	Scaled Interval (fm)
0 - 20	0.1
20 - 110	0.2
Over 110	0.5

The memory capacity of the PDP 8/E computer can store only a limited number of correctors utilizing program RK 216 (Range-Azimuth Non Real Time Plot), therefore a condensed version of Table #2 was generated with less than 30 correctors. The condensed velocity tape (Table #5) was graphed and scaled at the following interval.

Depths (fms)	Scaled Interval (fm)
0 - 20	0.1
20 - 54	0.2
54 - 110	0.4
Over 110	1.5

} Not used.

Soundings from Positions 001 - 725 and from Positions 5319 - 5324 were plotted using Table No. 5. All other soundings were plotted using Table No. 2.

A TDC cast was taken on 22 March 1981 (JD 081) to a depth of 85 feet. The TDC cast was graphed and scaled at increments of 0.1 fathom. The cast was performed with the Martek VII, Model #167-20, S/N 177, water quality instrument with the Martek Sensor, Model #167-20, S/N 177. The data obtained from the cast was used in comparisons with the Nansen cast and the bar checks. Comparisons between the TDC cast, Nansen cast, and bar checks indicated no significant discrepancies (See Velocity of Sound Correction graph located in the supplemental data files of this report).

An assumed draft of 0.3 fm (~~1.6~~ 1.8 ft.) was used for both launches and was applied during on-line data acquisition and to the off-line data via corrector tapes. The assumed draft is a physical measurement from the waterline to the transducer face on each launch.

Settlement and squat corrector were determined for both launches on 26 March 1982 at FREDERIKSTED PIER, St. Croix Island. Readings were obtained using the Zeiss level instrument, S/N 19846 and the Philadelphia rod positioned over the transducer. Corrector values for speeds used in this survey were found to be a negligible 0.05 fathom, therefore, they were not applied to soundings. The following is a list of stations observed:

Station	Vesno	JD	Latitude	Longitude
Nansen Cast #1	2220	051	17°51'12"N	064°49'24"W
Nansen Cast #2	2220	084	17°53'54"N	064°41'18"W
TDC Cast	2832	081	17°38'12"N	064°53'24"W
Bar Checks	2832	062 - 084	17°43'00"N	064°54'00"W
	2839			

A copy of the Sounding Correction Abstract, listings of the velocity tables and TC/TI tapes are in Appendix D of this report.

In areas where this survey junctioned with offshore survey coverage over steeply sloping bottom, junction sounding disagreement was anticipated. This anticipated disagreement was a function of the sounding systems employed during a survey (Ross narrow beam echo sounder vs UGR wide beam sounder). The following procedure was followed in dealing with this condition:

Ross soundings greater than 150 fathoms not to be smooth plotted (NSP)

Where Ross and UGR soundings conflict in less than 150 fathoms:

A. Save Ross and NSP UGR IF Ross fatho trace can be interpreted confidently.

B. Save UGR and NSP Ross IF Ross trace is ambiguous (must also NSP all deeper soundings on same Ross sounding line in this case).

A list of NSP soundings for this survey is in Appendix D of this report.

E. HYDROGRAPHIC SHEETS

The final field sheets were constructed and drawn on board PEIRCE. The sheets were prepared by the Digital PDP 8/E computer and complot system utilizing program RK 201.

All hydrographic data is presented on four plotter sheets. Two of the sheets depict mainscheme and mainscheme split hydrography while the overlays depict bottom samples, developments, and crosslines. The four plotter sheets are at a scale of 1:10,000 with a skew of 90, 20, 50. Listings of the sheets' parameters are in Appendix A of this report.

The final smooth sheet will be compiled by Atlantic Marine Center (A.M.C.). All field sheets will be forwarded to A.M.C. for final verification.

F. CONTROL STATIONS

All hydrography performed in the range/range mode using the ARGO system was controlled by reference stations HOUSE RM 3, 1980 (Signal #026) and WASHINGTON, 1919 (Signal #008). Hydrography performed in the range/azimuth mode using the DEL NORTE system was controlled by range station LONG POINT (044), azimuth station LONG POINT RM 1, 1982 (048) and initial stations MARTIN MARIETTA (042) and SOUTHWEST CAPE LIGHT (020). Stations SPRAT HALL MILL, 1919 (011) PROSPERITY CHIMNEY HOT, 1919 (012) and FREDERIKSTED HARBOR LIGHT, ~~1975~~ 1982 (037) were used only as visual calibration objects.

All stations used in this survey meet the Third Order, Class I accuracy standards required with exception of FREDERIKSTED HARBOR LIGHT. The position of FREDERIKSTED HARBOR LIGHT, ~~1975~~ 1982 was taken from the Fixed and Floating Aid computer list. A preliminary position was determined by PEIRCE in 1981. A final position will be computed by MT. MITCHELL.

All horizontal control used in this survey is based on the Puerto Rico datum. A complete list of signals is located in Appendix F of this report. Additional information regarding geodetic control for this project may be obtained from Chief, Operations Division, Atlantic Marine Center.

G. HYDROGRAPHIC POSITION CONTROL

Hydrographic positioning for this survey was obtained in the range/range mode (via Launch 1009) and the range/azimuth mode (via Launch 1012). Electronic positioning control in the range/range mode utilized the ARGO system. In the range/azimuth mode, azimuths were obtained by theodolite initialed on third-order control stations and ranges were obtained using the Del Norte system.

The electronic equipment and serial numbers used in this survey are as follows:

ARGO

Vesno 2839

Equipment	S/N	JD
Range Processing Unit	R047854	63, 64
	R0379119	76, 77

	Control Display Unit	C037961	63 - 76
	Power Supply Unit	V0379122	63 - 76
Station			
HOUSE RM 3, 1980	Antenna Loading Unit	A047859	63 - 76
(026)	Range Processing Unit	R0379117	63 - 76
	Power Supply Unit	V0379112	63 - 76
Station	Antenna Loading Unit	A047864	63 - 76
WASHINGTON, 1919	Range Processing Unit	R0379127	63 - 76
(008)	Power Supply Unit	V0379124	63 - 76

DEL NORTE

Vesno 2832

DMU	Master	Remote	JD
188	1066	72/1320	62 - 78, 84
123	246	72/221	81

The ARGO system was calibrated by two methods. The system was calibrated by fixed point calibration at the end of FREDERIKSTED PIER on 6 March 1982 (JD 063). (See Hydrographic Manual Fourth Edition, Section 4.4.3.3 for description of this method). The primary method of calibration was via the three-point sextant fix with check.

The Del Norte units were calibrated twice daily by an Electronic Distance Measuring Instrument (HP83810B, S/N 1928A00361). Both the EDM unit and the remote unit occupied station LONG POINT (044) and ranges from the DMU and EDM were simultaneously observed and recorded. The prisms were held directly below the Del Norte Remote Unit on the launch. Correctors to the Del Norte units were computed by observing the difference between ranges recorded from both units. This method provides a calibration in the true meaning of the word; real time, in the working area and all equipment in its working environment. These correctors were compared to the baseline calibration of that DMU/Master /Remote combination. No unusual problems were encountered with this method of calibration and all correctors were within $\pm$ 5 meter of baseline calibrations. The Del Norte baseline calibrations sheets are located in the supplemental data files.

Both systems were calibrated twice a day. On-line partial rate correctors to the ARGO system were based on each day's opening calibration and entered into the program via the nav-cal feature of RK 112. The average of the opening and closing calibration

was used as the final corrector value for hydrography completed between the times of the opening and closing calibration. Correctors to both systems were applied via the off-line corrector tape. All calibrations to the ARGO and Del Norte systems can be found in the supplemental files of this report.

Throughout the survey ARGO was maintained at a smoothing code of 02. Two time slots (02-06-00-00) were incorporated into the system to allow for a one second update of rates. Fixed shore stations' AGC values and antennae range tune values were monitored hourly on a daily basis. The ARGO system was maintained at a frequency of 1646.7 KHz. Daily AGC values and antennae range tune values can be found in the supplemental data files.

H. SHORELINE

Shoreline for this sheet was taken from a 1:10,000 scale, registered Class III manuscript; JOB CM-7718, TP-00006. No field edit was performed as per project instructions.

A comparison was made between photobathymetry and this survey inside of the 18-foot curve. Along the southwest shore of the island, agreement was good with the photobathymetry generally shoaler by 1-2 feet. Along the southern shore, east of Southwest Cape to longitude 64°53'00"W, agreement is good with the photobathymetry generally shoaler by 1-3 feet. East of that longitude, differences of 1 - 4 feet are noted with the survey sounding generally reflecting the shoaler depth.

I. CROSSLINES

A total of 21.2 nautical miles of crosslines were run. This constitutes 17.7% of the total mainscheme hydrography. Ninety-seven percent (97%) of the crossline and mainscheme agreement were within ± 0.5 fathom. Occasional differences of as much as 1.0 fathom were observed throughout the survey. Overall, agreements between mainscheme and crossline soundings were very good.

J. JUNCTIONS

See Eval. Rpt.

present survey now contains both 1981 and 1982 work

This survey junctioned with survey H-9938 (1981) and contemporary survey H-~~9972~~ 9992 (1982). Survey H-9938 (PE 10-5-81) consists of the 1981 field work.

Junctioning with unverified H-9938 (1981) work was very good with 100% of the sounding comparisons within ±1 fathom for depths less than 50 fathoms. For depths greater than 50 fathoms, general agreements were ± 3 fathoms. The most significant discrepancy was noted along a steep continental slope located at approximately 17°40'36"N, 064°30'48"W where Survey H-9938 (1981) revealed a depth of 117 fathoms and this year's survey revealed a depth of 128 fathoms. This discrepancy is due to the nature of the narrow beam Ross sounding along a steep continental slope.

H-9997 3

Junction comparisons with unverified Survey H-9997 3 indicate favorable agreement up to 135 fathoms. General agreement is within ± 3 fathom. Larger discrepancies are noticeable in water in excess of 135 fathoms. The unfavorable junctioning is probably due to the steep slope and to the inherent differences in the sounding equipment used in each survey (narrow beam Ross system vs. wide beam UGR system). The UGR soundings

appear to be systematically shoaler than the Ross soundings. Exception to this rule occurs approximately 17°40'00"N, 064°55'00"W with a 194 fathom UGR sounding in the vicinity of a 170 fathom Ross sounding.

Junctioning to the east of this survey occurs with H-10009 (MI 10-6-82), however, this contemporary survey was not available during the writing of this report.

K. COMPARISON WITH PRIOR SURVEYS

The St. Croix Presurvey Review was issued 14 November 1981 and updated 12 January 1982. There was no presurvey review item located within the limits of this survey.

Comparisons were made with the following two prior surveys:
See Eval. Rpt. Comparison also made with H-4653b (1925) WD

Survey	Scale	Year Survey
H-4653A a	1:20,000	1924 - 25
H-4653C c	1:10,000	1924 - 25

Comparisons were made with prior survey H-4653A. a This prior survey covers the entire area of the survey. Depth comparisons indicate excellent agreements with the majority of soundings agreeing with ± 1 fathom for depths less than 20 fathoms. For depths ranging from 20 - 150 fathoms, general agreements were within ± 5 fathoms. Depths greater than 150 fathoms were not smooth plotted (NSP). See Section D of this report for guidelines and recommendations concerning these soundings. No anomalies were noted with respect to the depth curves. A discrepancy was noted in 5-fathom depth curve areas. Details and recommendations concerning these discrepancies are noted in Section L of this report (Comparison with the Chart).

Comparisons were made with prior survey H-4653C. c This prior survey covers only the development of two shoal areas which are located in the survey limits. Sounding agreements were excellent with the majority of soundings within ± 0.5 fathoms. See Section L of this report for details and recommendations concerning a least depth within a 5-fathom depth curve.

L. COMPARISONS WITH THE CHART

Comparisons were made with Chart No. 25641, 18th Edition, November 28, 1981, at a scale of 1:100,000 and Chart No. 25644, 8th Edition, May 6, 1978, at a scale of 1:20,000.

Comparisons with Chart No. 25641 revealed good agreements with soundings less than 20 fathoms within ± 1 fathom. General agreement for depth ranging from 20 - 100 fathoms were within ± 5 fathoms. There were few meaningful depth comparisons for soundings greater than 100 fathoms, however, general agreements were within ± 5 fathoms. Depth curves appear to follow the trend of the charted depth curve with no noticeable variations.

Comparisons with Chart No. 25644 were good with 100% of the sounding comparisons for depths less than 20 fathoms within ± 1 fathom. General agreement for depths greater than 20 fathoms were within ± 5 fathoms. Most of the major discrepancies were noted

in the area of the steep continental slope that runs along the southwestern limits of the survey. Despite these differences, comparisons with the charted depth curves reveal favorable agreements.

A 5-fathom depth curve located at approximately 17°39'30" N, 064°52'30"W incorporates a survey least depth of 4.3 fathoms. The chart reveals a least depth of 3.6 fathoms. This charted depth was probably taken from prior survey H-4653A which indicates a least depth of 3.8 fathoms in that vicinity. This area was developed at 50 meter spacing resulting in less than 100% of sounding coverage. The bottom topography in this area includes numerous coral heads rising three or more feet off the bottom but of quite small lateral dimensions, often not more than twice the height. The existence of any specific coral development cannot be disproven with anything less than 100% sounding coverage. Therefore, it is recommended that the least depth from prior survey H-4653A be retained in this particular area for charting purposes. concur

A 5-fathom depth curve located approximately 17°39'36"N, 064°52'12" reveals a survey least depth of 4.1 fathom. The chart indicates a shoaler depth of 3.2 fathom in that area. This area was developed at 90 meter spacing resulting in less than 100% coverage. A development in that area from prior survey H-4653C reveals a least depth of 3.1 fathoms. Since the existence of any specific coral development cannot be disproven with anything less than 100% coverage, it is recommended that the least depth from prior Survey H-4653C in this area be retained for charting purposes. concur

Also, carried bottom charac. from prior survey.

Four developments were conducted during this survey. The individual development and subsequent recommendations are as follows:

Development	Lat/Long (Approx)	Dev. Positions	Remarks
"A"	17°40'00"N 64°54'24"W	5290 - 5297	Development to delineate depth curves located directly off Southwest Cape.
"B"	17°38'42"N 64°54'30"W	5298 - 5318	Development to delineate a 10-fathom curve and an investigation of a shoal area to determine least depth. Least depth found: 6.8 fathoms. Recommend supersede chart. corrected 6.6 fm. least depth
"C"	17°39'30"N 64°52'30"W	523 - 537	Development to delineate 5-fathom depth curve. Least depth found: 4.1 fathoms. Recommend supersede chart. with 3.8 fath. depth added.
"D"	17°39'42"N 64°54'06"W	702 - 711	Investigation of 1.7 fathom sounding located on photo-bathymetry sheet. Investigation inadequate. Least depth found: 2.4 fathoms. Recommend remain as charted.

TP-00086 shows sunken rocks, chart as shown on pres. survey.

All survey depth curves follow the trend of the charted depth curves with exception of the 10-fathom curve. The 10-fathom curve is better defined on this survey whereas its complexity is not revealed on the chart.

M. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supersede the common portions of all prior surveys for charting purposes with exception of specific items mentioned in Section K and Section L of this report. and the Eval. Rpt.

Concur

N. AIDS TO NAVIGATIONS

There is one fixed aid and three floating aids to navigation within the survey area. The fixed aid is Southwest Cape Light. Three other buoys are located within the survey limit. One buoy, Southwest Cape Shoal Buoy (RN "2"), is maintained by the U. S. Coast Guard and is described as a red nun buoy. Southwest Cape Shoal Buoy aids in marking the shoal area directly off Southwest Cape. The two other buoys are privately maintained by the Texaco Company. The buoys were located while Launch 1009 and Launch 1012 were conducting sounding lines. All geographic positions were computed via Program RK 300.

Concur

Comparisons with Chart 25644, scale 1:20,000 indicate that the privately maintained Texaco Channel Buoys have been moved. Buoy (C "1") has been moved about 1290 meters east northeast of the charted position of that buoy. Buoy (N "2") has been moved about 550 meters northwest of the charted position. These buoys were probably moved to mark the 5-fathom shoal areas. Comparisons from Local Notices to Mariners, District 7, June 10, 1981, confirm computed positions obtained during this survey, however, Local Notices to Mariners indicates that N "2" is located approximately 340 meters due east of the computed position of the same buoy. It is recommended that the chart be revised to indicate the new positions of the Texaco Channel Buoys. Listed below are comparisons between published positions and observed positions of all aids to navigation located within the survey limits.

Aid to Navigation	Chart 25644	June 10, 1982 LNM, District 7	List of Lights	Computed
Southwest Cape ~~Light~~ LT, 1980	17°40'48"N 64°54'00"W	-------- --------	17°41'00"N 64°54'00"W	17°40'47" 64°54'01"
Texaco Channel Buoy Red Nun #2	17°39'18"N 64°51'54"W	17°39'30"N 64°51'54"W	-------- --------	17°39'31"N 64°52'06"W
Texaco Channel Buoy Black Can #1	17°39'18"N 64°52'54"W	17°39'36"N 64°52'06"W	-------- --------	17°39'35"N 64°52'12"W
Southwest Cape Shoal Buoy 2	17°39'42"N 64°54'30"W	17°39'42"N 64°54'30"W	-------- --------	17°39'41"N 64°54'30"W

Dum

O. STATISTICS

Category	Vesno 2832	Vesno 2839	Total
Total Number of Positions	730	312	1037
Nautical Miles of Sounding Lines	99.0	51.5	150.5
Square Nautical Miles of Hydrography	9.9	5.1	15.0
TDC Cast	1	0	1
Bottom Samples	47	7	54
Tide Stations	--	--	3
Vertical Cast	--	--	0
Settlement & Squat	1	1	2
Nansen Cast Used (MT. MITCHELL)	--	--	1

Note: Total number of positions does not include rejected and omitted positions.

P. MISCELLANEOUS

Fifty-four bottom samples were taken during this survey; a copy of the Oceanographic Log Sheet "M" is included in Appendix H of this report. Bottom samples were submitted to Chief, Operations Division for shipment to Smithsonian Institution.

Log Sheet "M" inserted in survey records

Q. RECOMMENDATION

It is recommended that data compiled for this survey supersede the common coverage portions of all charts and prior surveys for charting. Specific recommendations regarding charted features and bottom topography were made in Sections K and L of this report.

Concur

R. AUTOMATED DATA PROCESSING

The following programs were used in acquiring and processing data for this survey.

PROGRAM	PROGRAM NAME	VERSION
RK 112	Hyperbolic R/R Hydroplot	08/04/81
RK 201	Grid, Signal, Lattice Plot	04/18/75
RK 211	Range/Range Non-Real Time Plot	02/02/81
RK 212	Visual Station Table Load	04/01/74
RK 216	Range/Azimuth Non-Real Time Plot	02/09/81

RK 300	Utility Computations	10/02/80
RK 330	Reformat and Data Check	05/04/76
RK 360	Electronic Corrector Abstract	02/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Correction for Velocity	05/10/76
RK 561	H/R Geodetic Calibration	02/19/75
AM 602	Elinore-Extended Line Oriented Editor	05/20/75
AM 606	Tape Duplicator	08/22/74
RK 612	Line Printer List	03/22/78

S. REFERENCES TO REPORTS

The ship's personnel installed three tide stations on St. Croix Island. See field tide note in Appendix B of this report. This report, leveling records, and monthly tide records have been submitted to Tides and Water Levels Branch, Rockville, Maryland.

Horizontal control reports are available at the Operations Division, Atlantic Marine Center or the National Geodetic Survey, Rockville, Maryland. Corrections to echo soundings will be submitted to the Atlantic Marine Center.

Respectfully submitted,

Roslyn B. Harris

Roslyn B. Harris, ENS, NOAA

APPROVAL SHEET
H-9938

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and the final field sheet have been closely reviewed. This survey is incomplete. Within the area of coverage and in conjunction with the photobathymetry, this survey is adequate to supersede all prior surveys for charting purposes.

Donald E. Nortrup
Commander, NOAA
Commanding Officer
NOAA Ship PEIRCE S-328

PROGRESS SKETCH

OPR-1149

SAINT CROIX, VIRGIN ISLANDS

18 MAR thru 23 APR, 1981

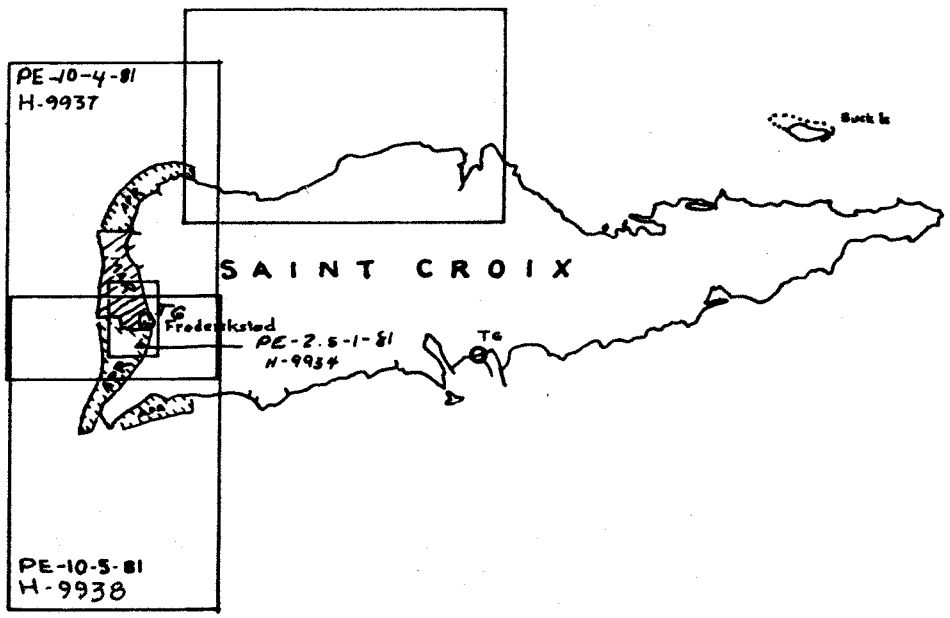
NOAA Ship PEIRCE

DONALD E. NORTRUP, CDR NOAA

COMD'G

From Chart 25640

65°00'
18°00'



65°00'
17°30'

MAR	APR	
3.0	13.0	SQ N M SOUNDING
27.6	59.7	L N M MISC DISTANCE
1.0	19.8	L N M DIST TO AND FROM
81.0	173.3	L N M SOUNDING LINE
10	61	BOTTOM SAMPLES (GRAB)
—	0	WATER SAMPLES ANALYZED (SALINITY)
—	1	CONTROL STATIONS
—	0	NANSEN CAST
1	1	TIDE GAGE

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): Ship PEIRCE S-328
STATE: Virgin Islands
LOCALITY: St. Croix
DATE: 4/29/81

The following objects HAVE [ ] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.: OPR-I149
JOB NUMBER:
SURVEY NUMBER: H-9938
DATUM: Puerto Rico

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° / // D.M. Meters	POSITION LONGITUDE ° / // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
Light	Southwest Cape Light	17 40 46.82	64 54 01.03		L-1-6 11-8-	25644 25641
Light	Frederiksted Harbor Light	17 42 55.66	64 53 20.65		L-2-6 4/23/81	25644 25641
	Use Form 76-40 from 1981 survey. This is duplicate data. ~DVM					

1-302(82)
1-660(82)
1-1141(85)

RESPONSIBLE PERSONNEL		
	NAME	ORIGINATOR
		☐ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FOR ALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-665-073/1030 Region 6

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [ ] TO BE CHARTED
- [ ] TO BE REVISED
- [X] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Ship PEIRCE(S328)	Virgin Island	St. Croix	4/29/81

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-I149		H-9934, H9937 PE-10-5-81	Puerto Rican

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
Old Mill	Smithfield Mill	17 42	09.57	64 52	54.39		NOT FOUND	25644 25641
	nc L-1134(86)							

DATE: November 15, 1982

S/ Tides in H-9935 folder

Entered in PFILE 1/3/83

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): 975-1401 Limetree Bay, V.I.
975-1584 Fredericksted, V.I.

Period: February 8-March 28, 1982

HYDROGRAPHIC SHEET: H-9938

OPR: I-149

Locality: Southwest Coast of St. Croix, Virgin Islands

Plane of reference (mean lower low water): 975-1401 = 2.27 ft.
975-1584 = 4.93 ft.

Height of Mean High Water above Plane of Reference is 975-1401 = 0.72 ft.
975-1584 = 0.77 ft.

REMARKS: Recommended Zoning:

1. South of latitude 17°40.5'
   a. East of longitude 64°54' zone direct on 975-1401
   b. West of longitude 64°54' zone direct on 975-1584

2. From 17°40.5' north to 17°41.3'
   a. East of 64°54' zone direct on 975-1401
   b. West of 64°54' zone direct on 975-1584

3. North of 17°41.3'
   Zone direct on 975-1584

*This supersedes Tide Note of July 9, 1982.

for Donald D Carrier
Chief, Tidal Datums and Information Branch

September 23, 1981

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): 975-1584 Frederiksted, VI.

Period: April 8 -18, 1981

HYDROGRAPHIC SHEET: H-9938

OPR: I-149

Locality: West End of St. Croix, VI

Plane of reference (mean lower low water): 2.23 ft.

Height of Mean High Water above Plane of Reference is 0.77 ft.

REMARKS: Recommended Zoning:

Zone Direct.

NOTE: I DONT HAVE ORIGINAL OF THIS NOTE
L.C. Crain
11Feb86

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-9938

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	
CARIBBEAN SEA										1
FREDERIKSTED										2
SAINT CROIX										3
SANDY POINT										4
SOUTHWEST CAPE										5
U.S. VIRGIN ISLANDS (title)										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
				Approved:						18
										19
				Charles E. Harrington						20
				Chief Geographer - W/CG2x5						21
				MAR 6 1986						22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-9938

Number of positions	1359
Number of soundings	6831
Number of control stations	4

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	25	19 JUL 82
Verification of Field Data	367	10 FEB 86
Quality Control Checks	53	
Evaluation and Analysis	30	11 MAR 86
Final Inspection	6	18 MAR 86
TOTAL TIME	481	
Marine Center Approval		23 MAR 86

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

MOA23-118-86

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL

☒ REGISTERED MAIL ☐ EXPRESS

☐ GBL *(Give number)* _____

TO:

Chief, Data Control Branch, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
Rockville, MD 20852

DATE FORWARDED

9 October 1986

NUMBER OF PACKAGES

two (2)

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

H-9938 (PE-10-5-81)
OPR-I149-MI/PE-81--U. S. Virgin Islands

Pkg 1: (tube)
- 1 Smooth Sheet
- 1 Position Overlay
- 2 Excess Overlays (Levels 1/3 and 2&3/3)
- 1 Original Descriptive Report

Pkg 2: (box)
- 1 Cahier-Position Printout/Control Listing
- 1 Cahier-Sounding Printout/L-File Listing
- 1 Package of material removed from Original Descriptive Report (to be filed with original survey records)

FROM: *(Signature)*

Robert C. Roberson

Return receipted copy to:

Chief, Hydrographic Surveys Branch,
N/MOA23
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

RECEIVED THE ABOVE
(Name, Division, Date)

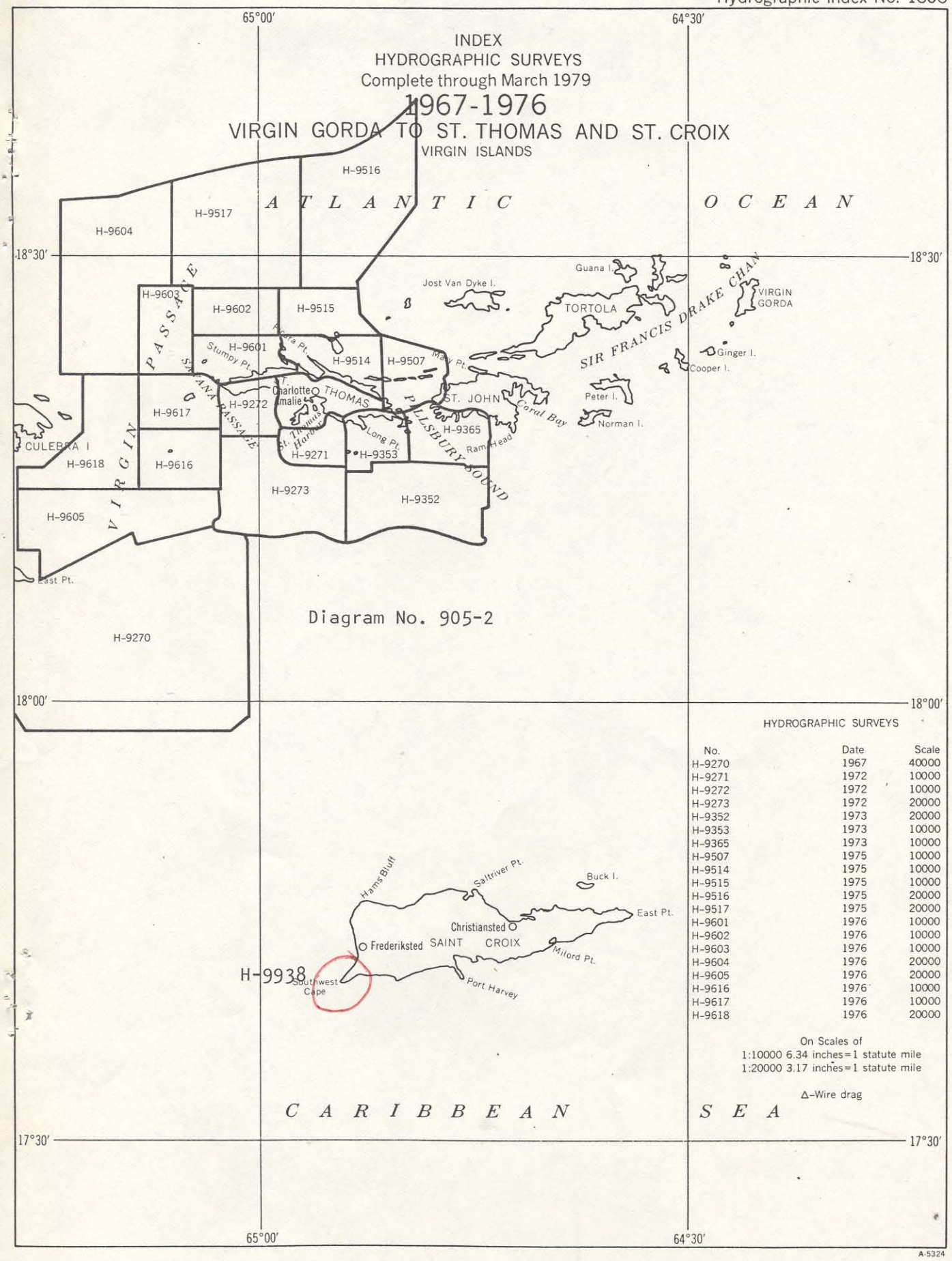
Dwayne S. Clark
N/CG243
Oct. 15, 1986

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

☆ U.S. G.P.O. 1981-564-008/1048

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Washington, D.C.

Hydrographic Index No. 180C



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-9270	1967	40000
H-9271	1972	10000
H-9272	1972	10000
H-9273	1972	20000
H-9352	1973	20000
H-9353	1973	10000
H-9365	1973	10000
H-9507	1975	10000
H-9514	1975	10000
H-9515	1975	10000
H-9516	1975	20000
H-9517	1975	20000
H-9601	1976	10000
H-9602	1976	10000
H-9603	1976	10000
H-9604	1976	20000
H-9605	1976	20000
H-9616	1976	10000
H-9617	1976	10000
H-9618	1976	20000

On Scales of
1:10000 6.34 inches=1 statute mile
1:20000 3.17 inches=1 statute mile

Δ–Wire drag

A-5324

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9938

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
25632	12/5/86	H. Church	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 1
25641	12/5/86	H. Church	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 31
25640	12/5/86	H. Church	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 35
25644	12/5/86	H. Church	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 13
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.