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MRSK
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U.S. DEPARTMENT OF THE INTERIOR · GEOLOGICAL SURVEY

MH 86-1
R/V MARSH Hawk
#3-5 SEPT. 86
ELIZABETH RIVER, NORFOLK, VA

86019crv

7530-00-274-5494
FEDERAL SUPPLY SERVICE
(GPO)

ELIZABETH RIVER - NORFOLK, VA
2 - SEPT. 1986

Hi-Resolution Seismic Survey

Jeff Williams - USGS - AMG
Ron Circé " "
Rob Weitz " PMG

Equipment List

HP 8 track recorder 3968A instrument recorder
ORE Geopulse Receiver 5210A
DATum Time Code Generator MDL 9300
EPC 312 Record Annotator
100 kHz Klein Side Scan Sonar
- fish, cable & recorder - system
ORE Geopulse boomer, power supply
Benthos 10 element hydrophone
EPC 1901S & 3200 recorders
Raytheon DE-718C Fathometer

Elizabeth River - LORAN calibration pts
(pts taken from 1:20000 NAV Chart - Norfolk Harbor & Elizabeth River)

Pt. 1: FR & FG markers at end of Tidewater Marina
Lat. 36° 50.50
Long. 76° 17.88

Pt. 2: Overhead pwr cables just past Bascule Br. on Eastern Branch
LAT: 36° 50.36
Long: 76° 16.42

PT. 3: Swing Bridge on Eastern Branch
LAT: 36° 50.18
LONG: 76° 14.66

Pt. 4: N & P.B.L RR Lift Bridge - Southern Branch
LAT: 36° 48.68
LONG: 76° 17.45

Pt. 5: N & W RR Lift Bridge. Southern Branch
LAT: 36° 47.81
LONG: 76° 17.60

Pt. 6: Fl R 5M "7" Western BRAnch
LAT: 36° 51.55
LONG. 76° 20.05

Pt. 7: [redacted] G "11" Western Branch
LAT: 36° 51.15
LONG: 76° 21.38

ELIZABETH River

~~May~~ Sept 2, 1980

1325 Lv. Tidewater Yacht
R/V Marsh Hawk
Woody Hobbs - VIMS
Todd Augustin USGS WRD
Dave Wolf " NMD
Jeff Williams " GD
Rob Weatz " GD
Ron Cinel

running around to check LORAN
and get an overview of river

LORAN -

Pt 1 TD's 27236.9 LAT 36° 50.24
41180.1 LONG 76° 15.83

Pt 2 - Bacula Bridge N&W 5 ch. 13
TD's 27228.5 LAT 36° 50.42
41180.3 LONG 76° 16.20
OVHD PWR LINES immediately east of bridge

Pt. 3 Swing bridge
TD's 27223.0 LAT 36° 50.24
41180.7 LONG 76° 15.83

bridge - 3 hr notice required for draw
446-5486

Pt 8. Lafayette Creek
Red Day Marker "2"
TD's 27247.3 LAT 36° 53.61
41211.9 LONG 76° 19.40

Pt 9. Lafayette Creek FL "11"
TD's 27246.9 LAT 36° 54.49
41223.1 LONG 76° 18.87

PT. 10 Hampton Blvd Bridge - Lafayette Creek
TD's 27244.4 LAT 36° 54.36
41222.8 LONG 76° 18.28

Pt 11. Hwy Bridge over Western Branch
TD's 27248.6 LAT 36° 51.46
41184.2 LONG 76° 20.79

Pt 4 Southern Br.
N & PBL Lift Bridge
TD's 27230.7 LAT 36° 48.73
41158.1 LONG 76° 17.54

Tidewater TD's 27235.3
41178.1
LAT 36° 50.51 LONG 76° 17.85

Sept 3, 1986

1330 lv. Tidewater
gear checkout

1345 ORE in H_2O
test run

trying run @ 1200 rpm
spd ~ 4.2 kts

1600 @ dock

all gear working fine -

4 Sept 86

forgot to change all the bells
& whistles

301/250-0568 - Ken's brother
[illegible] OC. Mark

4 Sept '86

0917 Mark N 36
~49' depth
SOL 1 0917

0926 36° 50', 50
76° 17 .19

0932 36° 50.37
76° 16.43 NEW 5 RR BRIDGE

0937 36° 50.44 CAMPOSTELLA BR.
76° 15.88

0948 36° 50.26 @ END OF PIER
76° 14.81 DOWNSTRM OF NEW SWING BRIDGE E. BRANCH ELIZR.

EOL-1

36° 46.00
76° 17.93

36° 45.77
17.85

45.30
17.70

36° 47.63
76° 17.76

36° 47.50
76° 18.00

36° 47.05
76° 18.25

36° 46.80
76° 18.57

36° 46.64
76° 18.38

36° 46.61
76° 17.74

36° 46.44
76° 17.67

SOL. 2 BOUND FOR SOUTHERN BRANCH

1036 HRS 36°50'.84 BUOY 36
76°17'.93

1052 36°49'59 @ OPPOSITE CRANE, PORTSMOUTH NAVY SHIPYARD
76° 17'51

1102
36° 48'.73 RR BRIDGE FURTHEST DOWNSTREAM
76° 17'.57

immediately after 1102, throttle back to allow barge to pass, up to speed at:

1105 36° 48'.53 JORDAN BRIDGE
76° 17.41

1114 36° 47.83 N&W LIFT BR
76° 17.56

1116 → BEGIN TAPE RECORDING ON LINE 2.

~1500 RPM's

Basic @ [illegible]

1142 46 50
17 50

Navigation
Northstar 6000

2 / - - - slaves
- - 4 / - - -

→ SNR's ~ 700
- - → SNR's ~ 900

[illegible] [illegible]

[illegible] 50

[illegible] 74

1206 EOL 2

Line 2 - Southern Branch - up river to the swing bridge about Millville
geology getting very poor

pulled gear and hdg for Tidewater to fuel gen. & grab snacks -

Rob - pilot for most of line 2 and back to Tidewater

re-fueled @ Tidewater
1350 - gear streamed and hdg for N "36" to begin line 3

1357 SOL 3 N "36"
1400 start tape
1402 N "34"
1410 N "32
1417 N "30"
1418 hdg for N "27"

line 3 - ram up to.

DM13 36° 50.33 76° 21.90
US 17 Bridge 36° 50.4p 76° 21.70

1428 Bouy #23
getting some choppy sea

1434 End of roll on SS
1438 new roll on SS

→ off line - repositioning to
Bouy #21

1442 back on line @ bouy # 21
#19 36° 54.00 76° 20.26
1453 #17 36° 54.51 76° 20.30
1459 #15 36° 55.10 76° 20.32
500 chg paper on fathometer

1527 #7 EOL 3
36° 57.74 76° 20.17
[illegible]

1641 SOL 4 Western Branch
1649 DM 12 36° 50.82 76° 21.60
1654 DM 11 36° 51.16 76° 21.38
1651 DM 9 36° 51.33 76° 21.20
1701 Western Freeway Bridge 36° 51.42 / 76° 20.90
1708 DM 8 36° 51.52 76° 20.27

36°51.62

1711 DM 6 ~~36°51.58~~ 3 76°19.97

1714 DM 4 36°51.80 76°19.80

1717 R 30 36°52.04 76°19.73

1720 R 29 EOL 4 36°52.20 76°19.75

SOL 5 1722 @ R 29

1727 CAN 31 36°51.92 76°19.35

EOL 5 @ 1731
36° 51. 75
76° 19. 07

SOL 6 @ 1731
36°51.75
76° 19.07

C "3" 1733 Portsmouth Terminal

EOL 6 @ 1735
36°51.55
76°19. 36

1742 gear pulled

1748 gear in - hdg for Tidewater

1800 @ dock 27235.6 670 SNK
36°50.52 41178.2 950 "
76°17.94

EPC on 1/4 sec swip
1/2 sec delay
300-3K filter
280j

5 SEPT 86

TD's @ Gas dock @ Tidewater
27235.4 36°50.50
41178.1 76°17.85
SnR ~560
960

0830 Fueled up generator
steaming up Southern Branch
to Deep Creek Lock

0950 @ DEEP CREEK Lock
36°44'.84 SOL 7
76°20.~~28~~31

1000 36°45.02
76°20.05

1002 36°45'09
76°20'00

1004 36°45:14
76°19:86

1006 36°45:18
76 19:80

1008 36°45'23
76°17'71

DEEP CREEK (cont'd)

1010 HRS 36° 45.30'
76° 19.61'

1012 36° 45.37'
76° 19.55'

1014 36° 45.40'
76° 19.46'

1016 36° 45.39'
76° 19.37'

1018 36° 45.36'
76° 19.26'

1020 36° 45.41'
76° 19.13'

1022 36° 45.46'
76° 19.07'

1024 36° 45.44'
76° 18.95'

→1025 SIDESCAN BROUGHT ON LINE

1026 36° 45.42'
76° 18.85'

1028 36° 45.46'
76° 18.77'

DEEP CREEK (cont'd)

1030 HRS	36° 45'.49	
	76° 18'.66	
1032	36° 45'.49	
	76° 18'.55	
1034	36° 45'.48	
	76° 18'.44	
1036	36° 45'.48	
	76° 18'.31	
1038	36° 45'.46	
	76° 18.19	
1040	36° 45.44	
	76° 18.07	
1042	36° 45'.42	
	76° 17'.98	
1045	36° 45'.39	→ ON LINE BETWEEN
	76° 17'.85	DAYMARKS "1" & "2"
1048	EOL 7	

150
4 | 600
4
20

150 m

possibly that in TVG amplitude →
gain resonator - the one marked
TVG-AGR-1 which connects to
- resilifier playback unit -
~~[illegible]~~

5 Sept Deep Creek

- prob. w/ Klein - no std print - both outgoing & receiving signals ok on scope - Troubleshooting part of manual referred to no such problem - checked all sections as best I could - finally pulled the Helix board and plugged it right back in - everything working fine. Have no idea what the problem was

- around 1028 noticed roller on 3200 EPC looked like it was made of Duct Seal - paper was rolling itself around the "rubber roller" this caused much drawing as we were in an area & getting some of the best records

- pulled gear and hdg to Tidewater to replace 3200 - either roller or w/ the 1902

1130 @ dock replaced 3200 w/ 1901S recorder
also put cassette player on
- should have put it on yesterday
1230 depart dock hdg for Lafayette River - going upriver to as far as possible then run down

DM 19 36°54.10 76° 17.49
DM 17 36° 54.24 76° 17.68

36°52.85 76°20.83

1308 SOC 8 Lafayette River
Granby St. Bridge
36° 53.32 76 16.84
1314 DM 24 36° 53.46 76° 17.03
1316 DM 24 36° 53.46 76° 17.46
1320 DM 22 36° 53.62 76° 17.58

- stbd SS seems too dark - tried playing w/ all the bells & whistles but not much difference

1325 DM 20 36° 54.00 76° 17.44
1329 DM 16 36° 54.30 76° 17.84
1334 Hampton Blvd Bridge 36° 54.34 76° 18.28
1335 DM 14 36° 54.38 76° 18.46
1338 DM 13 36° 54.44 76° 18.72
1337 DM 11 EOC 8 36° 54.46 76° 18.90
1339 SOC 9 DM 9 36° 54.45 76° 18.92
1343 DM 6 36° 54.13 76° 19.12
1346 DM 4 36° 53.92 76° 19.26
1350 DM 2 36° 53.59 76° 19.49

1400 change spd on HP to 3 3/4
working very sporadically
1400 B23 36° 53.00 76° 20.08
1406 EC #2 36° 52.80 76° 20.60
1408 #4 across from Coast Guard Station
1410 EOC 9 #6 36° 52.97 76° 20.93

Note: be sure to annotate analog tape box - get SOL & EOL from log book

Note
HP very sluggish

Note:
EPC 1901S event Mark switch very loose - [illegible] tightening from underneath - also, belt wheels click quite a bit

1475 pulled gear - hdg for Hampton Roads for long line N of Cranny Is.

Alarm - cover - on Power Supply - cover switch sticking & 1 of the top plugs loose - - fixed & under way

1510 SOL 10
running down 36°56.00 line in Hampton Roads - hdg ~270°

1515 36°55.99
76° 21.01

1520 36° 55.99
76° 21.44

1525 36° 56.00
76° 21.87

1530 36° 55.98
76° 22.27

1535 36° 55.98
76° 22.61

1540 36° 56.00
76° 23.02

1545 36° 55.99
76° 23.41

1550 36° 55.96
76° 23.80

1555 36° 55.92
76° 24.24

1556 36° 55.88 EOL 10
76° 24.30

1558 36° 55.96 SOL 11
76° 24.24

1600 36° 56.07
76° 24.08

1605 36° 56.41
76° 23.58

1608 36° 56.70 Newport News Middle Ground Light
76° 23.33

1610 36° 56.84
76° 23.22

1615 36° 57.26
76° 23.44

1615 36° 57.27 EOL 11
76° 23.49

1616 36° 57.24 SOL 12
76° 23.47

1620 36° 57.13
76° 22.99

1625 36° 56.92
76° 22.35

1630 36° 56.78
76° 21.77

1641 EOL 12
EO Day
EO Project
36° 56.61 W "N" 1
76° 20.33

1645 gear in T-Storms coming
running for dock

1700 @ Tidewater
1900 demobbed - all gear in Ranchar gear
w/ sled tied to roof
fueled up Marsh Hawk - 86.5 gals
11 pints of oil -
Woody hdg for Hamptons - will meet 9/6 @ VIMS

6 SEPT '86

- closed acc't @ Tidewater Yacht Marina

Asterion

2 days - 16 hrs x 55
880
32 hrs x 65
$3K ea. way

$600/day

$650/day weekend

NAVIGATION TABLE

WP 0	41	31.9281	-70	39.0635
WP 1	28	30.0000	-89	45.0000
WP 2	0	0.0000	0	0.0000
WP 3	0	0.0000	0	0.0000
WP 4	0	0.0000	0	0.0000
WP 5	35	30.0000	-86	30.0000
WP 6	0	0.0000	0	0.0000
WP 7	0	0.0000	0	0.0000
WP 8	0	0.0000	0	0.0000
WP 9	0	0.0000	0	0.0000
WP 10	40	55.9866	-69	56.0000
WP 11	0	0.0000	0	0.0000
WP 12	28	0.0000	-91	20.0000
WP 13	0	0.0000	0	0.0000
WP 14	0	0.0000	0	0.0000
WP 15	0	0.0000	0	0.0000
WP 16	0	0.0000	0	0.0000
WP 17	0	0.0000	0	0.0000
WP 18	0	0.0000	0	0.0000
WP 19	0	0.0000	0	0.0000
WP 20	0	0.0000	0	0.0000

HIT KEY F10 for next SCREEN

NAVIGATION TABLE

WP 0	41	31.9281	-70	39.0635
WP 1	28	30.0000	-89	45.0000
WP 2	0	0.0000	0	0.0000
WP 3	0	0.0000	0	0.0000
WP 4	0	0.0000	0	0.0000
WP 5	35	30.0000	-86	30.0000
WP 6	0	0.0000	0	0.0000
WP 7	0	0.0000	0	0.0000
WP 8	0	0.0000	0	0.0000
WP 9	0	0.0000	0	0.0000
WP 10	40	55.9866	-69	56.0000
WP 11	0	0.0000	0	0.0000
WP 12	28	0.0000	-91	20.0000
WP 13	0	0.0000	0	0.0000
WP 14	0	0.0000	0	0.0000
WP 15	0	0.0000	0	0.0000
WP 16	0	0.0000	0	0.0000
WP 17	0	0.0000	0	0.0000

e @ dock

WP 0	41	31.9281	-70	39.0635
WP 1	28	30.0000	-89	45.0000
WP 2	0	0.0000	0	0.0000
WP 3	0	0.0000	0	0.0000
WP 4	0	0.0000	0	0.0000
WP 5	35	30.0000	-86	30.0000
WP 6	0	0.0000	0	0.0000
WP 7	0	0.0000	0	0.0000
WP 8	0	0.0000	0	0.0000
WP 9	0	0.0000	0	0.0000
WP 10	40	55.9866	-69	56.0000
WP 11	0	0.0000	0	0.0000
WP 12	28	0.0000	-91	20.0000
WP 13	0	0.0000	0	0.0000
WP 14	0	0.0000	0	0.0000
WP 15	0	0.0000	0	0.0000
WP 16	0	0.0000	0	0.0000
WP 17	0	0.0000	0	0.0000
WP 18	0	0.0000	0	0.0000
WP 19	0	0.0000	0	0.0000
WP 20	0	0.0000	0	0.0000

HIT KEY F10 for next SCREEN

iopen = 0 opened file &

RECN # - counter new disc up to 7600
buffer - writes only
7 or 8 times

K6 - not writing to disc
or writing to disc

filter settings - 5,25

DISC NOT INITIALIZED -- HIT KEY F7 FIRST iopen= 0 opf= 0 printer off

counter will be set for 10 seconds

M-North

m-East

08:49:26 0 -0.92 -0.22 287

WP

35 30.0000 86 30.0000

41 31.9394 -70 39.0607

rbrng 829.32 %1535900.9 brg 244.2
arcrg 827.58 %1532684.3 brg 249.3

NM m

azm at SENACA= 102.33

99600.02 +06 08
25422.06 2.90 +08 08 spd= 0.08 KTS 0.0
43953.19 1.80 +00 08 trk= 93.40

DOFF 0.010L VOFF 0.055L
DON -0.007 -13.54 0
RNG 48.443 BRG 137.6
LINE 0 from 0 to 10

NM m

shot pt

ASF corrections

SNR in dB

status code for LORAN-PS 2-13

based from Senaca, NY

velocity off line (left or right)

distance off line (left or right)

89702.27 137.63 318.11

KEY F10 for HELP SCREEN