Oxford.

COMPOSITIONS

WATCHSTANDER LOG

EV0404

EVENTS WITH EXPLANATION

JD 142-153

142 - 0824 - Gun 20 out of water - fishing Hook
1052 - Gun 20 back on line

142 1207 MMO powerdown due to dolphins inside the safty radius

142 1213 MMO shutdown due to dolphins sighted within safty radius - if flying bridge makes no further sightings can begin ramp up at 1228

142 1228 notified by MMO's that ramp up may begin at 1238

142 1230 notified by flying bridge that ramp up may begin

142 1231 gun 5 back on - beginning of ramp up

142 1239 2 guns on - (5, 20 back on)

142 1242 4 guns on (guns 5, 9-10, 20 on)

142 1247 7 guns on (guns 3,5,9-12,20 on)

142 1251 12 guns on (guns 2-5, 9-12, 17-20 on)

142 1251 13 guns on (guns 2-5, 9-12, 14, 17-20 on)

142 1256 17 guns on (guns 2-7, 9-12, 14-20)

142 1301 19 guns on (guns 2-20)

142 1307 gun 1 is working, but is not showing shots on the gun control screen

142 1317 all guns show that they are working on the gun control screen

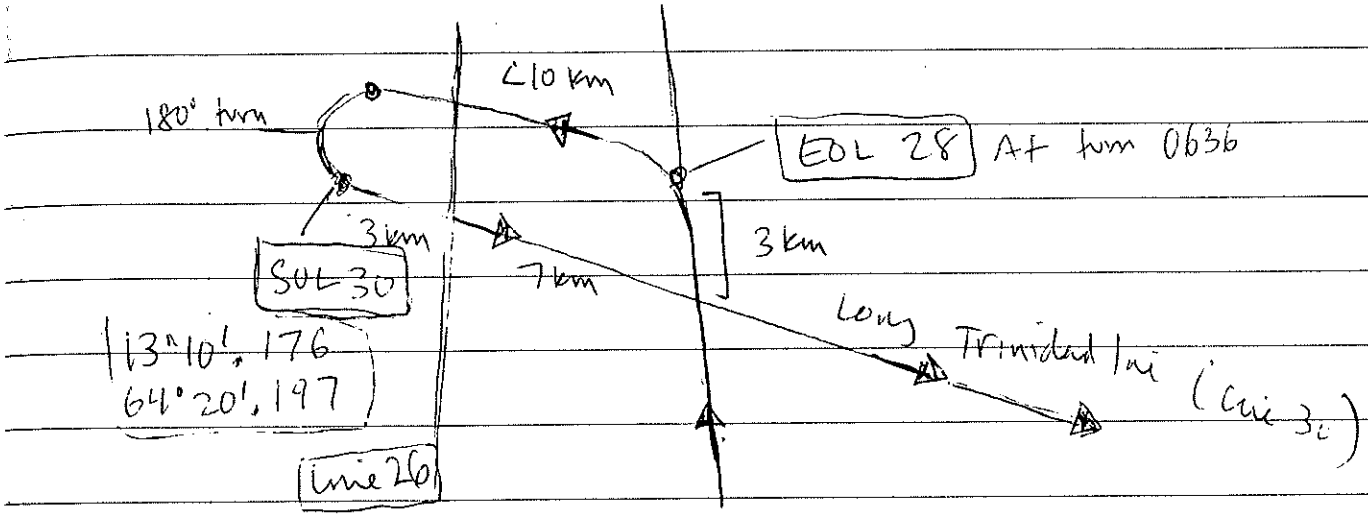
142 1917 → Maggie is working !!

1942 → Maggie off for 5 mins.

1947 → Maggie back on

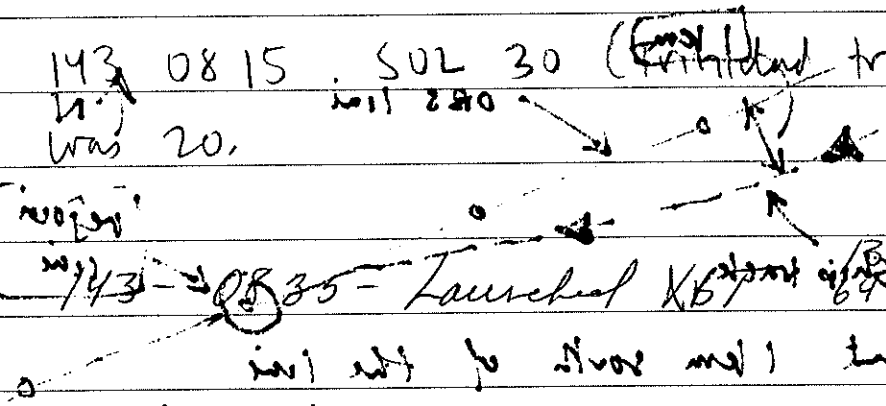
143) 439 → Hydrosaveep has been collecting bad data due to a bad sound velocity for ~3 hrs

143 0636 Ending line 28 at start of turn to west



The long turn is intended to tie lines 26 & 28.

143 0815 SOL 30 (Trinidad transect) first shot was 20.



144 0000 problem with GPS location

143 ~0000 - problem with atlantek stack job involving tapes

704-711 - missing data gaps and repeated data appear in the stack - restarting atlantek job at tape 704

144 0100 - gun 8 turned off

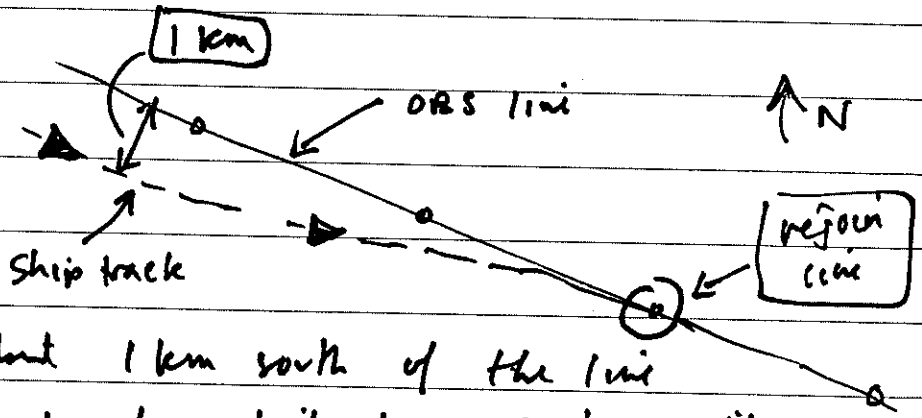
144 0154 - gun 8 back on - all 20 guns on

144 0330 - problem with GPS 01 fixed

144 0351 - problem with GPS 01 - Ted working on it
- GPS 01 not reading anything

144 0352 - problem with GPS01 fixed -

144 0606



We were traveling about 1 km south of the line depicted by cruise track along which the OBS's will be laid. At this time, we have rejoined the line.

144 0606 #1 Gun trigger source is not firing - #1 is offline.

144 - 0815 - Reel 724 had incorrect shot/file #'s
Correct = Shots 3972 — 4075
files 24952 — 25055

144 - 1002 - Gun 9/17 off line

144 1205 - guns 2-4 off due to MMO ~~shutdown~~ powerdown

144 1206 - ~~gun~~ 18 guns off due to MMO powerdown
- whale spotted inside the safty radius
- guns 5,14 still on

144 1225 - if not notified between now and 1246
that power down must be extended we
have been notified that ramp up
may begin at 1246

144 1228 - ~~the~~ time for ramp up has been changed
to 1236 as reported by MMO's

144 1236 - MMO's have given permission to ramp
up

144 1238 guns 5, 20 on - ramp up begins
2 guns in the water

144 1243 guns 1, 5, 9, 20 on
4 ~~guns on~~ - 100% -

144 1247 guns 1, 3, 5, 9-12, 20 on
8 guns on total

144 1254 guns 1-5, 9-12, 17-20 on
13 guns total

144 1255 guns 1-5, 9-12, 14, 17-20 on
14 guns total

144 1300 guns 1-7, 9-12, 14-20 on
18 guns total

144 1303 all 20 guns on - ramp up finished

DDS

14 1720 Tape error message on tape writing to ~~OBT~~
"unknown error status = 1" - Both Anthony and Richard called and told. Steffen thought it best to restarting system.

1730 Steffen cleaning drive rmt/1 which was flashing that it needed to be cleaned.

1736 The drive ate the tape so Steffen is backing up the data and will restarting system

1744 Tape was restarted. Five tapes are being recopied.
735-740 tapes are these being recopied.

1901 Tape 743 spit out early with only 100 shots recorded due to a bad file at the end of the tape. The last shot on this tape may be a bad shot.

2134 - Tailbuoy approx 3Km N. off line
2344 - Tail back over line

145 0039 - gun 13 was pulled in order to put a float on it because for the past hour it has been to deep

145 0049 gun 13 back on and in the water

145 0110 shot # 7067 file # 280047 due to tape error, tape ended prematurly

145 0121 file # 280062 last file # written to 3490's

- no data is currently being recorded right now - shot # 7067 was last shot recorded to tape
- Dietmar has taken the tapes offline in order to restart the system and fix the problem

Summary:

- Starting at 0110 Tape drive 0 reported an error and prematurly ended recording to 3490 Tape # 753 (only 82 shots were recorded to tape 753) at approx 0121 Tape drive 1 reported an error and also prematurly stoped recording (only 19 shots were recorded to tape 754) at this point

neither tape jobs were recording
and approx 28 shots were
lost while the problem was
being fixed. Starting with tape #755
shot # 7115 file # 26100.

145 0131 SOT 755 after tape drives crashed
1st shot 7115 1st file 26100
- recording data began at
this point

145 0154 when compairing what the tape lablel
said to what heezen reported
reading off the tape there was
a one shot difference on tape 753
last shot on 753 according to labl 7067
last shot on 753 according to heezen 7066
according to heeze the first shot recorded
to tape 754 was shot number 7068
- so shot 7067 was never recorded

145 0214 tape drive 0 is reporting the same error as before at 0110 - last shot recorded to tape 755 was shot # 7204 last ~~file~~ file # 28189 - so far there has been no lose of data because tape drive 1 kicked in and began recording - 89 shots/files were written to tape 755

145 0235 when compaining the label for tape 754 with heezen we found that heezen said last shot number was #7081 meaning that shot gap is now approx. 34 shots long

145 0243 when comparing the label for tape 755 to what heezen said was on that tape found that there was a 1 shot difference - resulting in a 1 shot gap where shot # 7204 was

not recorded

145 0350 problem with tape drive 0
~ 85 shots written to tape 757
before tape drive error and
SOT 758

145 0643 "Err PDV A0 03" on TD3610 drive 0.
One shot was lost. Dietman notified. Tape was
unloaded.
- 0803 - Tape 763 - Shot 7975

145 1404 tension on streamer up to around 1305

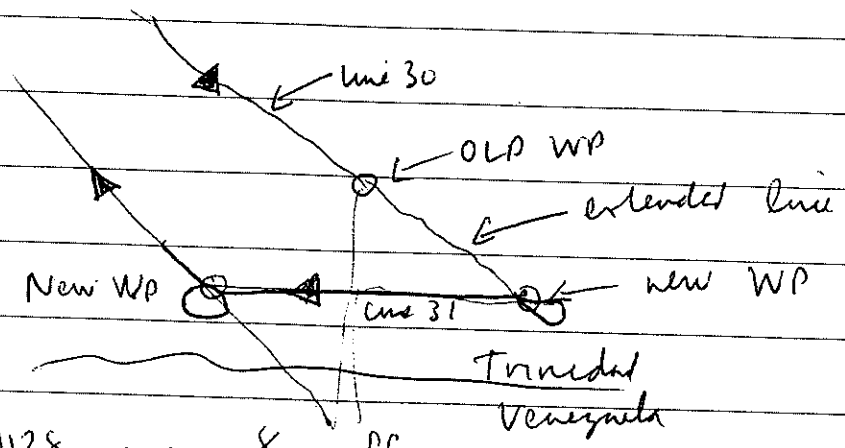
~1600 Maggie taken out of water due
to shallow water

145 - 2237 - Maggie Back in Water

146 ———

0914 - 21 = XBT's dropped - Starboard Boom

1450500 Entered new Spectra data for extending line 30 because old WP was start of southward line into Venezuela for which we have not received permission



146 1128 gun 8 off

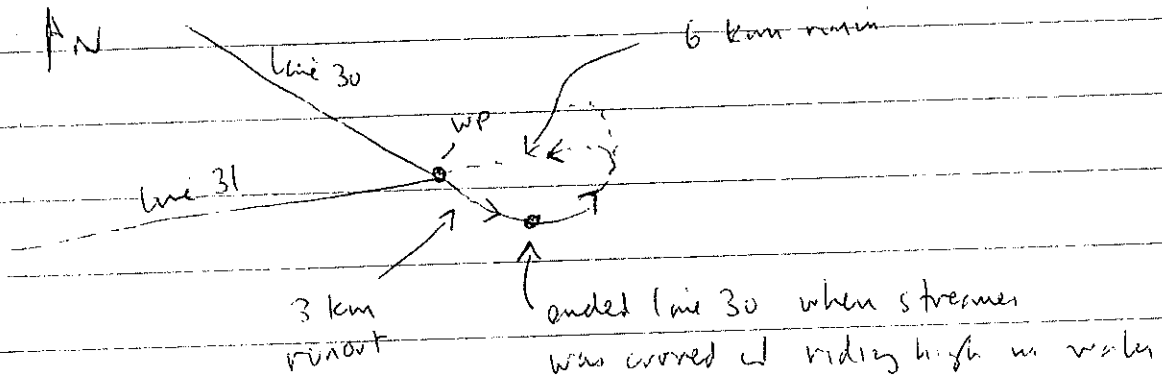
146 - 1131 - Tape 804 shut down @ shot 12081/33066
lost shot 12082/33067
Now Tape drive 1 is Not right

146 1139 gun 7 turned off (2 guns out)
146 1144 gun 7 back on (19 guns total)
146 1214 gun 8 back on (all guns back in)

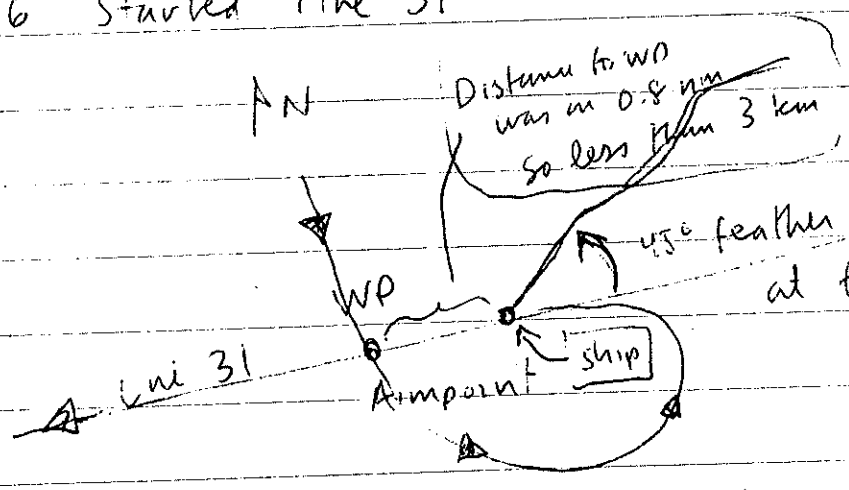
146 1403 middle of streamer is high
affecting channels ~220-320

146 1528 streamer back in green for approx 20 min

146 1718 Ended line 30



146 1916 Started line 31



First shot is 215, file number is 34,000. Run in doesn't appear to have been long enough to insure that the streamer was straight at SOL 31.

146 1929 Crossed WP marking SOL 31. Streamer not very straight - needed longer run in

147 0123 there is alot of ~~noise~~ noise
in the streamer affecting
alot of the channels - the
streamer has been noisy
for ~ 1 hr 30 min ~~and is st~~

147 0459 Starting turn after run out at end of
Line 31

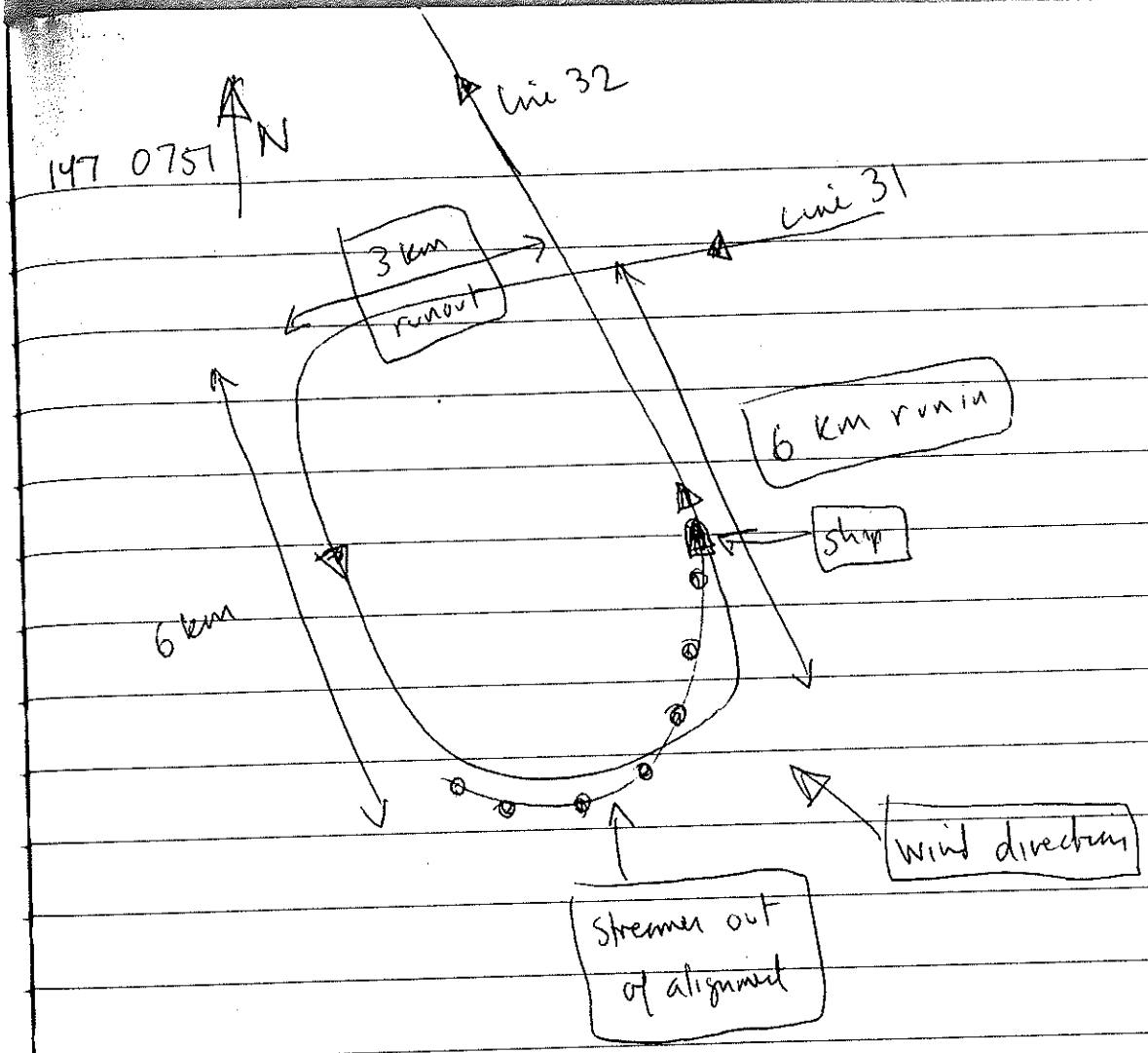
147 0508 End of line 31. Last shot was 829.
Strong swell, noisy data.

147 0512 We are not cycle shooting

147 0514 Guns firing but at too fast a rate. Gun
were not firing for about 3 mins.

147 0515 Richard has no explanation of why we
didnt start cycle shooting at the begining of this line

147 0727 Finished turn and coming on line but
streamer not in good alignment so delaying SOL 32



147 0754 Starting Line 32 First shot was 252
(file number was 36,000)

147 1420 starting with shot # 1525 an
air compressor was lost - approx
2 ~~shots were lost (1525 - 1525)~~
~~where~~ were none of the guns were working
- starting with shot #1528 ~16 guns
were ~~working~~ working (total
number was changing almost every shot)

- at shot # 1540 all 20 guns were on because 2nd compressor brought online ~~but~~ but guns were being fired at low pressure (1700-1800)

147 1429 back up to normal pressure (2000)

147 1450 first third of the streamer is low - not affecting the channels still getting a clean signal

147 1507 all bricks back in green

~~2103~~

147 2103 Magnetics systems turn off.

2224 - Starting turn to line 30/33

147 22:33 End of line BOL-32
Guns 10, 11 & 12 off. Shot 3135/3888.3

147 0043 Gun 13 back on after turn

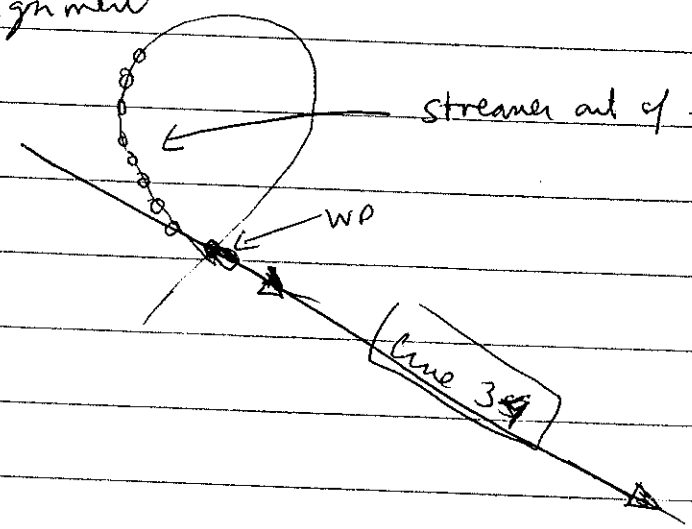
147 0046 Gun 11, 12 back on after turn
all 20 guns back on

148 0411 Realized that the script used to read
3490 tapes and write segy files to disk
and to tape was not passed the "new line"
BOL 33 argument. So, on DDS tape
BOL 32.29.segy → BOL 32.32.segy should read
BOL 33.1.segy → BOL 33.4.segy.
Disk files have been renamed appropriately.

148 0545 The streamer was coming up there are noise in
The sections

148 0625 Ended line 33 - last shot was 1025
(file # 39910)

148 0734 SOL 34 ~~West~~ east of Tobago. First shot 12:
(file number 40,000). Streamer is not in good
alignment



148 08:39 Bol-34.

Most of the back section of the streamer is on the surface and birds are trying to get it down.
It looks like is a consequence of the sharp turn.
Data is very noisy

148 8:57 Streamer is looking better and getting on proper depth.
Also, tension went down a bit and is ~4000.

Drive #0 having problems
Dietmar came to give a look to it.

48 09:05.
More serious problems with the shot recording.
It seems that we are not getting enough header.

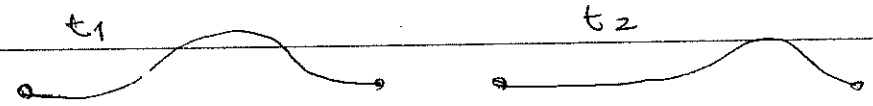
We found the problem @.
shot # 348 – 372. D.f. 24
File # 40221 – 40245. " 24

We didn't base any shot.
Tape # 870

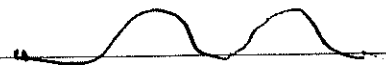
148 09:15

It seems to be a gun problem:
Autofile: One gun is shooting out of time probably due to a mechanical problem: Checking it out,
Dietmar and John checking it.
the notice came by MMO's hearing at the MMO's streamer . . . .

148 9:30 Streamer is struggling again
It seems like a wavefied, moving from the front to the back.



148 9:54 Streamer is still struggling and now has two bumps



Suspecting something stuck on it (

148 - 1018 - Tape drive Ø failing @ End of tape
- Major Robs w/ Buds - Said 20-18 staying
at surface - Much Noise -

- 1040 - Power failure of Ship -
All Systems Down

- 1043 - Power Back ON
Lat 11° 02'30Ø Long Ø6Ø° 24'Ø8A

- 1056 - Master switch of Guns back on -
Ramping up 1 Gun

- 1116 - Still ~~No~~ firing 1 Gun

- 1154 - Ramp up will begin AT 1200

- Returning to point ~~was~~ of Pwr failure
Lat 11 04 1/Lon 60 26.8 - Line 34A

- 1202 - Beginning Ramp Up

148 1204 - 2 guns on - ramp up begins
guns (5, 20)

148 1206 - 4 guns back on - guns 1, 5, 9, 20

148 - 1213 - 7 guns on - guns 1-5, 9, 19, 20

148 1218 - 5 guns on - guns 1-2, 9, 19-20
- guns 3-5 were tangled and were pulled

148 1219 4 guns on - guns 1-2, 19, 20

148 1221 11 guns on - guns 1-5, 15-20

148 1227 - 14 guns on - guns 1-8, 15-20
- alternate shots are being missed

148 1231 16 guns on - guns 1-10, 15-20
still missing alternate shots

148 1231 12 guns on - guns 1-2, 7-10, 15-20
still missing alternate shots

148 1233 10 guns on - guns 1-2, 9-10, 15-20
every shot is being made right now

148 1241 Richard decided to create new line 34A to recover the lost data and

complete the line BOL 34

148 1316 11 guns on - guns 1-2, 5, 9-10, 15-20

148 1325 12 guns on - guns 2, 5-6, 8-10, 15-20

148 1332 11 guns on - guns 5-6, 8-10, 15-20

148 1347 12 guns on - guns 2, 5-6, 8-10, 15-20

148 1351 14 guns on - guns 1-2, 4-6, 8-10, 15-20

148 1400 15 guns on - guns 1-2, 4-10, 15-20

148 1404 16 guns on - guns 1-2, 4-10, 13, 15-20

148 1409 17 guns on - guns 1-2, 4-10, 13-20

148 1414 19 guns on - guns 1-2, 4-20

148 1417 SOL BOL 34A - last 3/4 of streamer high due to a meter malfunction in bird 20 - all bird depths set to

8 meters in attempt to bring the streamer back down

14r 1450 all ~~[illegible]~~ guns back in the water, streamer starting to come down

148 1514 streamer back down and channels clean. streamer still low - Dale made decision to keep depth set to 8 meters to aid in keeping the streamer in range

148 1745 Logging screen and Hydrosweep screens are both frozen — reported to Anthony, seismic recording is still operating. Cause is not known.

148 1804 Richard and Anthony both looking into problem of logging and Hydrosweep not updating. The options are to stop shooting for several minutes to reset it or to continue shooting without the screen updating. My preference is to keep shooting since we would produce a data gap

148 1825 All screens restored by Richard (logging + hydrosweep)

2246 - Streamer coming up - Winds have increased
Bridge called - they are Maxed - Birds
trying to adjust

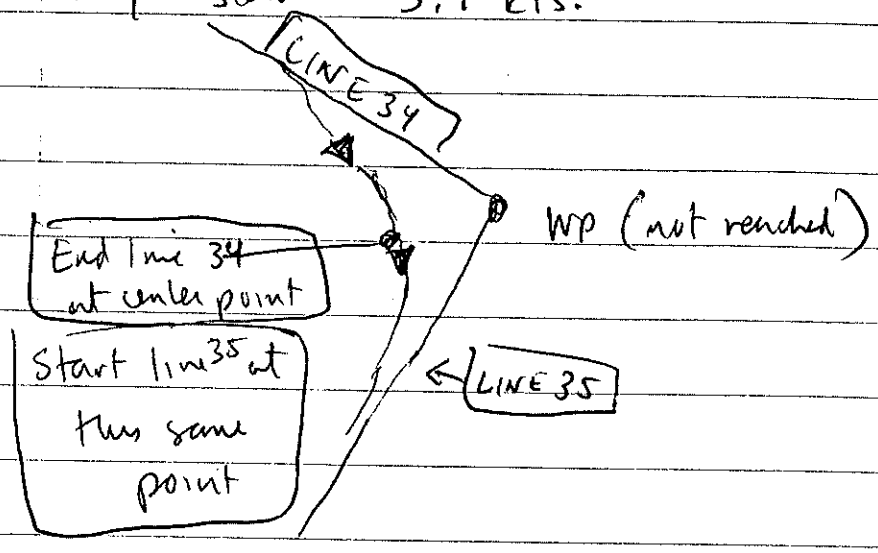
2319 - Streamer back w/in limits - but 19/20
still working

149 0202 approx 1/4 of streamer out
of green and running
shallow - affecting channels
220-330

149 0321 streamer back in green
channels clear, but it looks like
the streamer may be coming back
up

149 0348 Bridge informed us of another seismic vessel, "Western Patriot", shooting in a NW direction along our main transect. Their position is: 10°26 N, 60.00W. They are towing six streamers. We thought it best not to contact them since neither ship may be willing to pass for the other.

149 @603 Started trim. This is an "unused
SMG is very slow - 3.1 kts.



149 0615 Ending Line 34 Last Shot 2714 (File # 43179)

149 0620 Starting Line 35. First shot number 494, reel number 43501, Streamer is flat in wake on turn.

149 0646 Incorrect SOL 35 was entered in Spectra. line was stopped, to change it. Line name stays the same. - "Line 35".
- 185 was first shot on the restarted Line 35.
-

149 0652 Missed shot 194. Spectra track and ship track are still divergent.

149 0655 At shots 201 and 501 there were a double fire
Will skip from 201 to 206. due to changing the lat/long of the SOL 35.

Problem that happened: Wrong lat/long was entered into Spectra for SOL 35 - Incorrect value - 10° 39.000 59° 27.2000

Correct value entered: 10° 32.000 59° 34.000 Confirmed with bridge as the value they had entered.

Changing this caused the Spectra line and Ship track to converge.

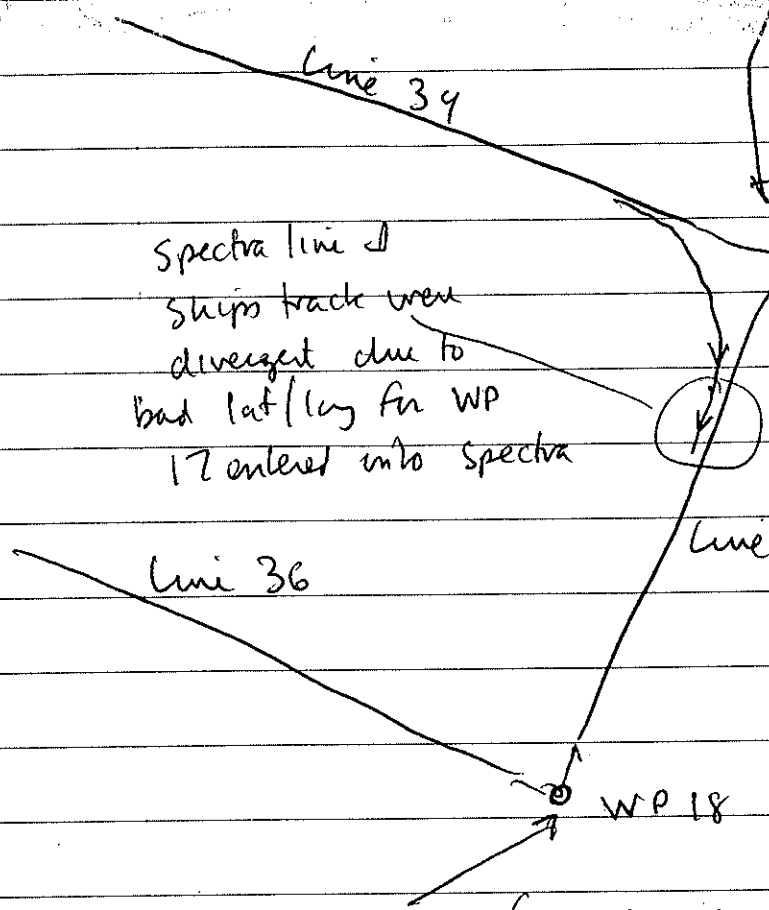
149 0655

Incorrect value entered

10'39.000
59'27.7.000

correct

10'32.000
59'34.000



correct (confirmed with bridge):

10'16.666
59'43.920

1149 08:52.

Things that happen from the previous shift (Paul's) and were not logged.

Started line BOL 35 but coordinates were wrong. and we ~~Few minutes after~~ ~~there was~~ shooting it for a while. Few minutes after, the coordinates were fixed and the line BOL-35 was restarted.

The first SP is # 185
File #
in tape # 897

Shots from the bad "BOL-35" (wrong coordinates) were recorded in tape # 896
Shots # 494-541 File# —
Do not use this tape.

149 - 0950 - Tape 900 - Numbers of Shots files
Not Matching - 1c/ SOT-483-4384
EOT - 577-4393

149 - 10:36. Tape problems
Not recording, tape drive problems
Last shot recorded # 681

Problem fix
Next recorded shot # 689
File # 44100
Reel # 902

Lost ~8 shots. 682 - 688 SP.

1109 - Gun 3 off - 769 / 44180
1111 - Gun 3 on
1144 - Starting turn to line 3b - Guns 11/12 off

149 - 1149 - End of Bol 35 shot 863/12274

149 1241 16 guns in the water
- guns 11-13 & 20 out

149 1320 gun 12 back in the water
- 17 guns total

149 1323 gun 11 back on, 18 guns total

149 1331 gun 13 back in the water,
19 guns total

149 1336 gun 20 back in the water
all guns back in the water

149 1426 Changed setting of all birds
from 8m to 7meters.
They were running well but Dale
wanted to return to the original
planned depth - They seem to
be making the transition smoothly

149 1527 - The Western Patriot is 18 mi away
and moving north - may become
a problem in ~4 hrs

149 1747 Recent faults in in 3.5 KHZ record.
Location is 10°31.477, 60°07.122 Area is SE of
the Darwin Ridge. Faults extend to the station.

149 1835 → The tapes unloaded + stopped
We lost several shots from 389 - 375
This problem continued + we had to
restart the lines several times
+ unload/reload several tapes
so new tapes # is 912.
We lost two tapes 909 + 910
Tape # 908 has shots 286-389
Tape # 909 has shots 390-393
911 has shot 394 (bad)
no tape 910
Tape # 912 starts on shot 396 -
all shots are good on this tape

shots 390-392 are bad

shot 393 may still be good

149 2215 - Maggie Cable is on board - Maggie AWOL!

149 2233 - ~~Sho~~ Shot #620-21-22 - No tape 914
Error unload

2255 - 915 - Tape Lost shots

150 632 → Dual unload so tape 923
has 1 bad shot + that is
it. We are missing shots
1109 - 1111 due to this problem.
Tapes 922 + 924 are normal
tapes from drive 1.

1011 - Tape 927 - Not Exist Lost shots 1339 - 1341

1640 - Serious problems with unloading/loading
the tapes. When doing the tape online/
offline procedure Dietmar instructed
the watchstanders to do in case
of dual unload,
the scuzzy bus could not read the T

tape drives + was not coming back on. After missing several shots + not being able to fix it, we changed out drive Ø with the drive directly below, the other drive Ø. Due to this, we missed numerous shots + the tape #s have been adjusted.

Shots 1695 - 1717 are missing

~~[illegible]~~
Shot point 1718 is the first good shot + is on tape 934

151 19:46 End of the line, but continuing Recording for 40 m

151 20:22 End of line BO'

tape drives & was not coming back on. After missing several shots & not being able to fix it, we changed out drive Ø with the drive directly below, the other drive Ø. Due to this, we missed numerous shots & the tape #s have been adjusted.
Shots 1695 - 1717 are missing

~~[illegible]~~
Shot point 1718 is the first good shot & is on tape 934

151 19:46 End of the line, but continuing Recording for 40 min

151 20:22 End of line BOL-36

151 21:22 Start of line BOL-37

The last line ——
Finally . . . . .

2127 – Shot 23-28 – 175 shot Cycle
2128 – Reset to 50 m

2129 – Fuse #42

Important !!

Forgot to change shot spacing.
Stop and restarted line again.
BOL – 37
First shot : 12
First Files : 47006.

Shots : 23-28 Are wrong shots.
Do not use them
File# : 47000 – 47005.

152 0654 Bridge called to say that there is a discrepancy in two GPS systems. The system he is using on the bridge to navigate is the Trimble. The discrepancy between the two systems is 0.3 nm. Richard was told this afternoon about the problem.

1525? 15A Hydrosweep was reset by Richard

152 1613 Rick on bridge called to say that at 11 20 am L the two GPS systems started to give the same result. Need to notify Richard of this. Previously there was a 0.5 nm difference

2157 – file 50433 – first shot # incorrect is Not 3463 (Should be 3438)

153 0423 Gun shop has requested that the guns go on cycle timer at 15 second interval. after shutdown at 12:30 pm L.

153 0430 End of line 37. Turned off seismic recording. last shot 4208. (file # 51202). On cycle timer for gun testing by Seismic group.

Cruise EW[illegible]04-04 JD 110 R/V Maurice Ewing Science Watch Log Page 1

Time	Latitude	Longitude	Cse	Spd	Log	Depth	
1900	[illegible] 05.978	069.29.981	209.8	11.2	329.54	3926.3	Start [illegible] watch Anthony Many, Sandy
1930	[illegible] 00.844N	069.32.802	210.7	10.8	335.04	3961.9	
2000	1[illegible] 56.029	69 35.679	210.3	11.3	340.59	4002.6	
2030	1[illegible] 51.450	069.38.567	209.6	11.2	346.25	4024.0	
2100	[illegible] 46.895	069.41.476	214.0	11.1	351.73	4039.3	
2130	[illegible] 42.440	069 44.296	216.4	11.0	357.27	4059.6	
2200	[illegible] 37.957	069 47.149	211.0	11.2	362.84	4048.5	
2230	[illegible] 33.651	069 49.884	208.3	11.0	368.39	4142.1	
2300	[illegible] 29.243 N	069°52.693W	209	11.3	374.08	4211.4	
2330	[illegible]°24.871 N	069 55.461 W	205.2	11.5	379.70	4268	
0000	14° 20.499 N	069°58.310W	207.0	11.2	385.27	4292.9	Change the duty. Chief: Mr. Dale
0030	14° 16.048N	070° 01.052W	207.0	11.4	390.79	4368.2	
0100	14° 11.726N	070° 03.785W	203.2	10.9	396.26	4376.3	
0130	14° 07.332N	070° 06.548W	204.1	11.5	401.84	4189.3	
0200	14. 03.038N	070° 09.269W	206.7	11.2	407.32	4321.6	
0230	13. 58.528N	070° 12.124W	211.6	11.1	413.03	4328.3	
0300	1[illegible] 53.036N	070° 15.044W	207.4	11.0	418.70	4343.7	
0330	1[illegible] 49.146N	070° 18.060W	206.6	11.0	424.12	4647.3	Change The duty. Chief: Mr. Paul
0400	1[illegible] 44.539N	070° 20.978W	208.1	11.1	429.79	4830.5	
0430	1[illegible] 39.731	070 23.992	209.7	10.9	435.15	4800.4	
0500	13 34.841	070 27.100	209.0	11.1	440.77	4015.6	
0530	13. 30.046	070 30.133	209.2	11.2	446.36	3346.2	
0600	13 25.256	070 33.148	208.5	11.1	451.80	3354.3	
0630	13 20.399	070 36.210	210.3	11.0	457.38	2571.9	
0700	13 15.463	7039.324	209.1	11.0	462.97	2139.1	
0730	13 10.546	7042.425	208.7	11.2	468.48	1537.9	
0800	13 05.541	70 45.579	208.8	11.0	474.04	1125.6	change the duty chief Escalona.
0630	13 00.430	70 48.785	211.3	11.0	479.70	856.81	
0900	12 55.423	70 51.941	210.5	11.2	485.30	704.91	

Cruise EW 1-04 JD 111 R/V Maurice Ewing Science Watch Log Page 2

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0930	12.50.651	070.54.960	206.0	10.8	490.75	647.21	—
1000	12.45.662	070.58.085	207.8	11.3	496.36	758.61	—
1030	12 42.850	070 .59.642	107.3	1.11	499.70	81.51	On Station - prep for deploy of streamers
1039	1242.832	070 59.444	89.6	3.81	500.02	83.81	Streamer in
11:00	12 42.841	070 58.270	80.3	3.81	501.38	83.41	Deploying mammal streamer.
11:30	12 42.863	070 56.601	86.2	4.01	503.33	275.0	Deploying and Testing mammal streamer
12:00	~~12~~ 12.42.841	070.54.905	85.6	~~5.05~~ 4.01	505.32	84.41	Redeploying MMO Streamer to Boom
1230	12°.42.899 N	070° 53.245W	86.9	4.31	507.26	86.51	—
1300	12°.42.861 N	070°51.700W	94.6	4.11	509.17	89.11	—
1330	12° 42.893 N	070.50.080	83.1	3.81	511.17	92.71	still steaming with MMO streamer
1400	12° 43.189 N	070°.48.984W	85.3	3.71	512.80	94.41	Starboard boom swinging out
1430	12. 43.578N	070° 47.486W	89.5	3.71	514.85	99.21	
1500	12°.43.964 N	070° 46.026W	81.4	4.11	516.83	95.11	
1530	12° 44.392N	070° 44.592W	82.0	3.91	518.78	94.61	
1600	12° 44.815 N	070° 43.189W	79.2	3.91	520.68	99.311	Change of Duty: Chief: Alejandro
1618	12°44.980	070 42.235					Ship speed at 4.31 - streamer deploy OK
1630	12°44.929	070 41.650	102	4.31	522.76	105.21	Bird 13 deployed OK.
1644	12°44.834	070.40.856					Reducing speed from 4.3 to 4.0 kts - tension tightening
1700	12 44.725	070 40.088	107.2	3.61	524.88	196.41	
1706	12 44.671	070 39.764					Repaired bird #9 riding high - speed at 3.8
1730	12 44.432	070 38.386	100.6	4.71	527.14	239.0	
1741	12 44.311	070 37.622					Ship speed slowed down to 4 kts.
1800	12 44.187	070 36.915	96.9	3.81	529.20	281.81	Ship back to 4 kts
1830	12 43.908	070 35.525	99.9	3.71	531.21	329.81	Streamer having difficulty - shallow
1838							Informed gunshop to fire sw airgun at 20:00Z
1900	12 45.057	070 34.721	331.3	4.91	533.33	389.81	Streamer 17-21 now in green, but shallow
1922							Changed out streamer section

Cruise EW .04 JD 111-112 R/V Maurice Ewing Science Watch Log Page 3

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
20.00	12 45 737	070. 37.330	260.1	3.71	531.23	249.51	Resumed Streamer Deployment
20 30	12·45·639	070·42-359	259.4	3.61	539.17	169.51	Test firing 1 gun full PSI - Streamer deployed
2100	12 45. 566	070 44.759	261.2	3.71	541.04	97.1	1 gun test
2130	12 45. 519	070 46.102	255.2	3.31	542.14	97.31	Hearing dolphins
2130	12·45·466	070·47-080	254.2	3.81	542.88	96.61	
2200	12 45.349	070 49.421	257.5	3.71	544.74	94.81	
2250	12 45. 247	070 51.821	264.7	3.81	546.61	96.91	
2350	12 45. 019	070 54 590	258.0	4.71	548.84	445.71	
2320	12 44995	070 57.419	269.3	4.81	551.00	544.71	Approx 30min to ramp-up of Guns
0000	JUD 112						
0000	1245233	07100.684	280.0	5.01	553.85	473.11	
00 30	12 45.536 N	071.03.410	277.2	4.31	556.14	531.81	starting the turn to line up for pt line
01.00	1244 040	071.04.834	149.2	4.61	558.49	413.41	
01.30	12 43.163	071.02.980	96.7	4.51	560.92	445.01	
0200	12°42,775N	071°00,956W	98.5	4.51	563.16	171.71	
02:30	12°42.383N	070°58,907W	99.30	4.91	565.53	81.11	
03:00	12°42 017N	070.56,998W	101.9	4.81	567.96	81.01	
03:30	12°41.666N	070°55.147W	100.0	4.61	570.32	82.91	
0400	12 41.317	070 53.334	95.1	5.01	572.61	83.81	Changed Watch
0430	12 40.988	070 51.621	98.4	4.41	574.95	85.31	
0500	12 40 619	070 49.654	97.99	4.61	577.39	90.51	
0530	12 40 267	070 47 333	105.5	4.41	[illegible]	89.31	
0600	12 39. 912	070 46.532	100.3	4.51	583.76	87.21	
0630	12 39.551	070 44 122	98.12	4.51	584.15	90.01	
0700	12 39.191	070 42 240	98.58	4.61	586.50	86.71	
0730	12 38 816	070.40.318	99.1	4.81	588.90	85.11	
0800	12 · 38 · 452	070 · 38 457	92.5	4.61	591.24	85.21	Watch Change
0830	12 · 38 · 091	070. 36. 591	95.0	4.71	593.70	87.81	

Cruise EW .04 JD 112 R/V Maurice Ewing Science Watch Log Page 4

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0900	12 37750	070 34761	90.9	5.01	595.98	88.71	Hydrosweep over capacity – called Tech
0930	12 37415	070 33.007	95.6	4.71	598.4	92.71	Gun 6 steel out of sing / Streamer still drift 1Km North
1000	12 37.072	070 31.241	103.8	5.01	600.82	93.42	
1030	12 36.747	070. 29.530	103.0	4.31	603.10	98.01	
1100	12 36 601	070 .36 396	103.0	4.81	605.42	109.21	
1130	12 35.995	070 25.644	103	4.51	607.85	153.21	
1200	12 35.648	070 23.802	106.8	4.91	610.05	201.81	Change the duty.
1230	12° 35.253 N	070° 21.730	110.5	4.91	612.74	127.01	
1300	12° 34.093 N	070° 19.784	94.8	5.21	615.27	100.51	
1330	12° 33.535 N	070° 17.955 W	57.8	4.41	617.61	101.41	
1400	12° 37.348 N	070° 16.646 W	53.6	4.11	619.79	315.51	
1430	12° 39.265 N	070° 15.230 W	59.9	5.01	622.02	359.01	
1500	12° 40.824 N	070° 14.111 W	52.7	5.11	624.38	386.11	
1530	12° 42.126 N	070° 13.148 W	45.5	4.81	626.61	401.91	
1600	12° 43.499 N	070° 12.159 W	58.5	4.71	628.72	409.11	Change the duty
1630	12 44.40	070 11.073	49.8	4.61	63082	428.91	
1700	12 46.026	070 09.471	96.5	4.31	632.94	505.11	
1730	12 46.136	070 07.582	95.7	4.51	635.10	541.21	
1800	12 46.268	070 05.625	86.9	4.61	637.43	612.21	
1830	12 46.388	070 03.720	87.9	4.91	639.71	711.51	
1900	12 46.517	070 01.720	88.8	4.71	642.07	839.01	
1930	12 46.646	069 59.789	89.0	4.51	644.51	905.41	End of Line Bol 1
2000	12 46.326	069 57.945	123.0	5.01	646.83	956.01	
2030	12 44.987	069 56.435	130.0	4.71	649.24	979.91	Begin Line 2 Bol 2 @ 2019 – Shooting – Gun (6447) 17
2033	12 44 837	069 56 277	133.2	4.91	649.50	985.	Gun 17 in water – 15 out for untangle
2033	12 44 556	069 56.966	130.1	4.71	650.08	941.71	All guns in water
2100	12 43.610	069 54.985	132.6	5.11	651.65	1018.5	
2130	12 42 268	069 53.564	127.1	4.61	654.1	1036.4	

Cruise EW .04 JD 112-113 R/V Maurice Ewing Science Watch Log Page 5

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2200	12 40 988	069 52 201	133.2	5.11	656.49	1087.9	
2230	12 39 310 N	069° 50 834	138.2	4.71	658.97	1088.2	
2300	12 38 493	069 49 558	127.4	4.71	661.27	1102.9	All Systems Normal
2330	12 37.2[illegible]	[illegible]	[illegible]	5.11	663.78	1135.5	Gun 13 is off? (dark green) back on at 2332
2400	12 35.948	069 46.867	139.6	4.71	666.21	1131.6	Changing watch
0030	12° 34.632N	069° 45.468W	134.2	5.31	668.80	1113.7	
0100	12° 34 947 N	069° 43.683W	39.8	4.81	671.29	1216.9	Begin line Bd 3 ✱
0130	12° 37.499N	069° 43.883W	12.4	4.11	673.46	1288.5	
0200	12° 39.475N	069° 44.162W	1.4	3.81	675.45	1303.3	
0230	12° 42.469 N	069° 44.455W	359.6	4.11	677.50	1311.3	
0300	12 45.075N	069° 44.766W	2.4	4.11	679.58	1308.3	
0330	12 47.555N	069° 45.063W	1.4	3.91	681.61	1319.2	
0400	12° 50 056 N	069° 45.354W	1.8	4.31	683.59	1383.7	Change the duty. (good look)
0430	12 52.516	069 45.654	2.4	4.21	685.72	1484.1	
0500	12 54 955	069 45 938	0.4	4.01	687.79	1539.9	
0530	12 57 400	069 46.234	0.3	4.11	689.88	1556.8	
0600	12 59 739	069 46 526	7.8	4.01	691.90	1550.0	
0630	13 02 173	069 46 813	4.0	4.21	694.09	1513.0	
0700	13 04 485	069 47 091	[illegible]°	4.61	696.18	1604.6	
0730	13 07 041	069 47 410	10.2	4.21	698.35	1966.0	
0800	13 09 663	069 47 705	12.4	4.21	700.49	2416.0	Change Watch
0830	13 12 288	69 48 025	4.7	4.11	702.63	3015.8	Spd land - 5.3 - No effect on Guns - 17 min Interval
0900	13 14 941	69 48 345	9.3	4.21	704.66	3010.7	
0930	13 17.479	69 48.651	5.6	4.31	706.74	3041.3	
1000	13 19.957	69 48.944	0.3	4.31	708.89	3175.1	
1030	13 22.411	69 49.235	358.1	4.01	710.91	3238.6	
1100	13 24 746	69 49 518	357.2	4.21	712.9	3329.9	All Birds flying w/in Normal level
1130	13 27.181	69 49 816	358.2	3.91	360 715.04	3599.4	All Birds w/in limits

Cruise EW .04 JD 113 R/V Maurice Ewing Science Watch Log Page 6

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1200	13 29 438	69 50 085	357.9	4.11	717.03	3650.3	- All Birds w/in limits
1230	13° 31.895 N	069° 50.388 W	357.8	4.41	719.25	3763.9	
1300	13° 34.255 N	069° 50.668 W	1.0	4.51	721.35	4166.6	
1330	13° 36.687 N	069° 50.956 W	1.3	4.41	723.52	4862.5	
1400	13° 39.042 N	069° 51.249 W	356.4	4.11	725.66	4954.2	End of Line 3
1430	13° 41.409 N	069° 51.530 W	357.7	4.21	727.87	4933.4	End line 3
1500	13° 43.853 N	069° 51.815 W	353.6	4.61	730.09	4929.3	Dealing with Med Emergency
1530	13° 46.089 N	069° 51.755 W	58.9	3.51	732.14	4922.3	Recovering Streamer.
1600	13° 46.834 N	069° 50.935 W	51.3	1.01	733.21	4895.7	
1630	13 47.305	069 50.523	96.1	0.81	733.76	4888.6	Recovering Streamer
1700	13 47.760	069 50.109	54.1	1.01	734.37	4888.6	"
1722	13 47760	069 48.799	67.0	1.31	732.68	4876.6	End
1730	13 48.280	069 49.691	294.5	5.11	735.03	4893.7	
1800	13 49.432	069 50.581	253.7	4.11	737.99	4887.6	
1830	13 46.651	069 51.097	215.5	1.41	741.10	4846.8	
1900	13 45.922	069 51.442	193.4	5.41	742.58	4901.0	Going to Aruba
1930	13 41.541	069 50.020	161.1	10.9	747.15	4932.4	
2000	13 37.500	069 48.126	162.2	10.4	751.90	4956.8	
2030	13 31.748	69 46 286	160.1	10.6	758.19	3954.8	
2100	13 30 437	69 45 653	101.7	4.61	760.91	3852.8	-
2130	13 26.163	69 44.255	162.9	10.4	765.76	3359.3	trying to resolve steering problem
2200	13 21.343	69 42.653	161.2	10.6	770.99	3325.9	
2230	13 16 632	69 40.868	151.8	10.4	776.27	2930.9	
2300	13 11 995	69 39.063	143.1	10.1	781.46	3085.6	
2330	13 07 693	69 36.444	156.2	11.1	786.78	2551.7	
2400	13.03.246	69 34.26	155.0	10.6	791.89	1896.0	
[illegible]	12 58 533	69 31 854	155.7	10.2	797.29	1284.4	
0030							

Cruise EW_ .04 JD 114 R/V Maurice Ewing Science Watch Log Page 7

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0100	12° 53.401 N	69° 29.498 W	158	10.5	803.05	1531	Rendezvoyed with SJ II going to Curacao
0130	12° 48.968 N	69 27.814 W	166	10.1	807.86	1841	
0200	12°44.052	69 26.165 W	161	10.5	813.08	1906	Trevor Leaves Z-Folding!
0230	12 38.878	69 24 .005	156	10.3	818.77	1746.2	Trevor completes Z-folding course!
0300	12° 34.393	69° 22.245	157	10.1	823.54	1507	Ewing en route to Curacao
0330	12° 29.437	69° 20.274	156	10.4	828.81	1376	
0400	12° 24.530	69° 18.057	156	10.7	834.11	1325	
0430	12°19,581	69° 15.997	157	10.7	839.46	1239	
0500	12°14.838	69 13.927	140	10.5	844.7	1245	
0530	12°10,605	69°10,711	137	11.0	850.07	1232	
0600	12°07,115	69°06.935	118	10.4	855.43	1174	Ewing approaching Curacao
0630	12°04,198	69°02.856	128	10.5	860.73	1100	
0700	12°03.043	69°02,121	135	7.20	864.1	1139	near Curacao
0730	12°01,805	68°59.545	307	0.30	867.4	847	Weighing anchor near Curacao
0745	12°01,828	68°59.577	103	1.00	867.7	849	Arrived in Curaco
0800	12°01,813	68 59.583	137.6	1.30	867.93	856	
0830	1201.793	68 59.592	96.18	1.20	868.47	853.81	
0900	1201.846	68 59.606	131.0	1.50	869.02	852.91	Maneuvering next to Curaçao
0930	1201.755	68 59.564	103.5	1.30	869.62	858.81	Waiting in front of Curaçao
10:00	1201.801	68 59.561	97.8	1.30	~~869.91~~ 870.18	849.91	
10:30	1201.898	68 59.911	107.1	1.1	870.84	773.51	
11:00	1202.1855	68 58.862	61.5	6.0	872.93	615.14	Moving Ewing to Port - Curacao
1130	1203.203	68 57.638	97.5	0	607.11	873.85	- All Stop
1200	03.210	57.703	149.0	1.3	874.29	602	
1230	12° 05.547N	068° 56.717 W	46.8	1.80	876.74	436.31	
1300	12°06.359 N	068° 56.116 W	36.9	4.20	878.03	22.01	
1300	12°06.586 N	068° 55.997 W	357.0	0	878.32	5.51	Close the operations.
							Maurice Ewing in Port of Curacao for reparations of (timon) rudder.

Cruise EW[illegible]04 JD [illegible] R/V Maurice Ewing Science Watch Log Page 8

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2000	1205.400	068 57.252	76.4	9.30	873.53	431.71	Testing rudder, going to Corner
2030	1203.289	068 55.420	150.6	10.5	~~873.53~~	640.01	Log = 894.57, not working on display
2100	1159.093	068 58.351	228.0	10.8	—	1189.2	Transit to line #6 - Deploy stream
2130	1155.314	069.03.114	224.5	11.4	905.75	1346.8	Transit to line 6 -
2200	11°51'756 N	067.07.503	225	10.8	911	1329.1	Transit to line #6.
2230	11°49.287 N	069° 18' 408 W	215	4.50	915	986.8	waiting to start deploying streamer (marine mammals 1/2 hrs observation period).
-	--	--	-	-	-	-	
2258	1148.916	069 12.436	258.5	4.03	916.85	878.71	1 gun shooting (smaller sized gun)
2300	1148.905	069 12.502	255.3	4.43	916.91	888.61	
2330	1148.544	069 15.094	256.4	4.93	919.10	716.11	deploying streamer
2400	1148.084	069 17.888	259.3	4.83	921.51	689.31	change Sh. ft - bad 9 in
0030	11°47.427 N	069°20.555 W	204.3	4.33	923.95	447.81	
0100	11°45.884 N	069°20.144 W	112.4	5.23	926.23	353.21	
0130	11 45 538	069 18 125	98.5	5.03	928.70	441.61	
0200	11°45.397 N	069°16.070 W	97.5	4.93	931.20	560.91	
0230	11 45 259	069 14 035	93.8	4.73	933.68	710.81	
0300	11°45.028 N	069°12.015 W	100.1	5.13	936.16	529.61	streamer deployed
0330	11°44.763 N	069°10.087 W	98.5	4.63	938.53	495.01	
0400	11 44.514	069 08.324	89.5	4.33	940.14	470.31	Shift Change
0430	11 44.392	069 06.312	96.2	5.13	943.22	481.71	
0500	11 44.213	069 04.337	91.5	5.03	945.70	635.91	
0530	11 44.071	069 02.322	93.7	5.03	948.20	798.01	
0600	11 43.931	069 00.534	102.0	4.93	950.59	831.01	
0630	11 43.751	068 58.855	101.1	4.93	950.97	922.81	
0700	11.43.606	068 57.086	101.4	4.93	955.43	957.51	
0730	11 43.432	068 55.002	100.4	5.13	957.93	967.41	
0750	11 43.282	068 53.619	22.2	4.03	959.54	957.91	Starting turn onto line
0800	11 43.445	068 52.941	47.7	4.83	960.93	907.01	Turning to line 6, ramping up guns

Cruise EW0404 JD 119 R/V Maurice Ewing Science Watch Log Page 9

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
818	11 45.038	068 52.913	331	4.63	961.92	1027.4	First shot - 6000
820	11 45.501	068 53.342	311	4.83	962.45	1037.4	Problems with spectra, not recording header
830	11 45.743	063 53.612	311	5.03	962.77	1041.3	Problem persists
835	11 46.300	068 54.186	310.9	4.63	963.43	1045.3	Stop line 6069
840	11 46.412	068 54.304	316.8	4.33	963.56	1049.3	Back on line 6074
0900	11 47.540	068.55.496	315.7	4.23	964.91	1089.2	Gun 20 - Offline - Still completing Turn
0910	11 48.263	068.56.240	317.3	4.43	965.47	1123.1	Gun 20 Back on line
0930	11.49.324	068.57.374	315.3	4.33	967.03	1226.9	Mugger out of water - Tail in line - All Guns fire
1000	11.51.074	068.59.235	314.7	4.03	969.12	1345.8	All guns fire - Streamer / Bird Good!
1030	11 52.701	069.00968	313.3	4.13	971.21	1351.8	All guns / Streamer / Bird - Good.
1100	11°54.440	069°02'841	314	4.20	973.39	1348.8	All guns, streamer / Bird - OK.
1130	11 56143	069 04609	317.7	4.43	975.65	1345.8	All guns / Streamer / Bird - Good
1200	11 57.762	069 -06 328	310.0	4.23	977.81	1330.8	All Good.
1230	11° 59.465 N	069° 08.136W	309.3	4.33	980.14	1293.8	
1300	12° 01.091 N	069° 09.858 W	312.7	4.73	982.32	1238.9	
1330	12° 02.769 N	069° 11.630 W	314.1	4.53	984.66	1197.0	
1400	12° 04.411 N	069° 13.373 W	313.1	4.53	986.96	1190.0	
1430	12° 06.095 N	069° 15.159 W	313.5	4.73	989.32	1157.0	
1500	12 07 741	069 16921	311.8	4.73	991.63	1141.1	
1530	12° 09.431 N	069° 18.701 W	311.5	4.63	993.98	1135.1	
1600	12° 11.047 N	069° 20.421 W	313.3	4.43	996.21	1124.1	Change of duty.
1630	12° 12.675 N	069° 22.149 W	306.7	4.53	998.48	1105.2	
1800	12 14 390	069 23969	301.9	4.43	1000.84	1059.3	
1730	12 16 037	069 25714	299.4	4.63	1003.13	1010.5	
1800	12 17 640	069 27 420	301.3	4.63	1005.35	977.61	
1830	12 19 331	069 29 201	304.5	4.43	1007.72	967.61	
1900	12 20.980	069 30.964	305.5	4.83	1010.00	977.61	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1930	12 22 577	069 32 664	309.7	3.83	1012.14	991.51	
2000	12 24 304	069 34 194	312.7	4.13	1014.46	1017.3	Change Stn
2000	12 24 657	069 34 873	318.8	4.43	1014.91	1025.4	Tail drifting to N. of line about 300m
2030	12 25.934	069.36.222	317.1	4.73	1016.95	1050.3	Tail still drifting N - 400m
2039	12 26.479	069.36.801	316.0	4.83	1017.48	1062.3	Bird 27 appears to not be sending - sending but ouvertes
2100	12 27.606	069 37.009	317.	4.43	1019.02	1091.2	Birds at top of limit -
2100	12 27.812	069 38.225	319.8	4.93	1019.38	1094.2	Bird Dead -
2130	12 29.305	069 39.823	309.2	4.53	1021.38	1106.1	All Birds w/in limit
2200	12 31.064	069 41.679	309.7	4.43	1023.59	1113.1	
2230	12 32.750	069 43.460	320.7	4.43	1025.23	1110.1	
2300	12 34 510	069 45 345	322.5	4.23	1027.98	1112.1	- All's well
2330	12 36 236	069 47 212	312	4.13	1030.33	1112.1	- All's well
2345	12 37.234	069 48.239	324.7	4.53	1031.41	1138.1	- Pulling Guns 9-10 out of water
2350	12 37 504	069.48 542	327.5	4.43	1031.78	1116.1	- End of Bolz
2400	12 37.943	069 48.84	324.6	4.13	1032.26	1115.1	Turning to line BOL-4
0000	12 39 513	069 47 786	75.2	4.43	1034.66	1227.9	
0100	12 40 442	069 46 985	78.2	4.83	1037.00	1279.9	
0130	12 40 035	069 44 297	142.0	4.53	1039.39	1299.8	
0137	12 39 [illegible]	069 [illegible]					Over OBS 129
0200	12° 37 [illegible] N	069° 43 [illegible] W	161	[illegible]	1041.13	[illegible]	
0227	12 35.729	069 43.68					Over OBS 130
0230	12 35.654	69 43.647	159.1	4.93	1044.44	1237.9	
0300	12° 33.391 N	069° 43.374 W	171.0	5.03	1046.95	1138.1	
0320	12 31.932	69 43.170	162.0	5.33	1049.56	1098.1	Over OBS 131
0330	12° 31.126 N	069° 43.099 W	166.5	5.23	1049.97	1040.1	
0400	12° 28.834 N	069° 42.818 W	171.0	5.13	1052.07	918.81	Change the duty
0411	12 27.931	069 42.710	171.0	5.33	1052.23	910.2	Over OBS 132

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Cruise EW .04 JD 150 R/V Maurice Ewing Science Watch Log Page 11

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0430	12 26.635 N	069 42.581 W	169.3	5.33	1054.51	818.41	--
0500	12 24.586	069 42.319	170.9	4.93	1056.85	764.11	-
0508	12 23.930	069 42.225	170.3	4.93	1057.64	745.81	over OBS 133
0530	12 22.476	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
0600	12 20.410	069 41.818	175.8	4.63	1061.19	583.61	-
0630	12 19.941	[illegible]	170.6	5.03	[illegible]	[illegible]	over OBS 134
0650	12 18.373	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
0700	12 16.316	069 41.32[illegible]	170.1	4.83	1066.71	461.51	-
0730	12 15.947	069 41.25[illegible]	171.3	[illegible]	[illegible]	[illegible]	over OBS 135
0750	12 14.310	069 41.088	[illegible]	[illegible]	[illegible]	[illegible]	-
0800	12 12.375	069 40.856	165.5	4.73	1071.55	374.91	-
0830	12 11.780	069 40.782	163.5	5.03	1072.34	353.31	over OBS 136
0850	12 10.447	069 40.629	164.5	5.03	1073.94	321.21	-
0900	12 08.479	069 40.394	171.2	4.83	1076.44	312.81	-
0908	12 07.955	069 40.321	170.5	4.83	1077.09	320.71	over OBS 137
0930	12 06.551	069 40.161	172	4.93	1078.94	319.81	-
1000	12 04.573	069 39.923	171.6	4.93	1081.51	294.91	-
1009	12 03.958	069 39.848	172.0	4.93	1082.29	289.81	over OBS 138
1030	12°02'572 N	069°39'688 W	172.0	4.93	1084.04	269.72	-
1100	12°00'478 N	069°39'481 W	170.0	5.43	1086.0	[illegible]	-
1103	11 59.962	[illegible]	164.1	5.13	[illegible]	[illegible]	over OBS 139
1130	11 58.589	069 39.217	164.7	5.43	1089.23	221.81	
1200	11 56.478	069 38.359	163.7	5.33	1091.86	196.81	
1209	11 55.966	069 38.876	171.0	5.63	1092.93	194.41	over OBS 140
1230	11° 54.469 N	069°38.716 W	166.5	5.13	1094.68	179.61	
1300	11° 52.447 N	069°38.479 W	170.1	5.03	1097.21	150.21	
1307	11 51.959 N	069 38.415	168.6	5.13	1097.87	143.11	over OBS 141
1330	11° 50.379 N	069° 38.229 W	168.8	5.33	1099.82	79.51	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1400	11°48.170 N	069°37.972W	166.8	5.13	1102.3	46.91	.
1403	11°47.972	069° 37.946W	166.0	5.33	1102.6	40.01	Over OBS 142
1430	11°45.915 N	069° 37.696 W	166.2	4.63	1104.9	28.21	.
1454	11°43.964 N	069°37.465W	170.1	4.10	1106.9	26.31	Over OBS 143
1500	11°43.561 N	069°37.413W	172.9	4.43	1107.3	26.21	.
1530	11°41.159 N	069 37.127W	169.2	4.33	1109.2	25.31	.
1540	11° 39.981 N	069°36.992W	166.1	5.13	1110.3	31.01	Over OBS 144
1600	11° 38.754 N	069°36.835 W	172.3	4.43	1111.5	26.81	Change of duty
1630	11 36.350 N	069 36.457W	146.9	4.43	1113.75	22.21	.
1635	11 36.116 N	069 36.[illegible]	[illegible]	[illegible]	1114.01	[illegible]	over OBS 145 shot 3174
1700	11°36.791 N	069 [illegible]	[illegible]	[illegible]	1115.73	[illegible]	.
1730	11°38.911	069 35.251	[illegible]	4.83	1116.[illegible]	[illegible]	.
1740	11°39.880	069 32.065	312.3	[illegible]	1117.4	29.41	completed Turning, SOT Bol-3
1800	11°40.816	069 37.104	98.7	4.53	1120.47	29.41	
1830	11°43 289	069 37 385	357.8	3.73	112254	25 51	Streamer behind ship again - straight
1835	11° 43 976						Over OBS 143 18:35
1900	11°45.625 N	069 37.657W	18	3.43	1124.25	27.41	--
1927	11 47.972 N	069 37.929	355.9	4.33	1126.18	46.51	Over OBS 142
1930	11 48.115 N	69 37.949	349.4	4.33	112631	46.41	.
2000	11°50.582 N	069° 38.250	359.0	0.13	1128.39	102.01	–
2018	11 51 968	069 · 38 420	354.1	4.13	1129.54	144.01	over OBS 141
2030	11 52 982	069 38.537	357.3	4.33	1130 39	166.11	.
2105	11 55 418	069 38837	6.1	4.13	1132.35	189.91	– Found Bol 3, All birds wire lowered
2109	11 55 969	069 38896	20.1	4.23	113284	194.91	over OBS 140
2130	11°57' 877	069°39 117	358	4.20	1134.91	216.31	
2143	11 59 962	069 · 39 249	2.4	3.53	1135.25	227.71	over OBS 139
2200	12 00 390	069 39 417	358.4	4.03	1136.38	243.7	birds 25–29 flying below level
2214	12 01 646	069 39 567	11.8	4.93	1137.36	258.51	Tail lifting down to W of line birds 25 - 28 still below level

Cruise EW .04 JD 120 - 121 R/V Maurice Ewing Science Watch Log Page 13 (13)

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2230	12 02.988	69 39.731	357	4.33	1138.39	279.51	Tail steel 1500 W of line. Birds trying to recover
2231	12 03.983	69 39.849	354.7	3.83	1139.4	290.11	over OBS - 138 & Seismic power event
2233	12 04.112	69 39.862	354.3	4.13	1139.26	290.61	Streamer at level Bol 34 Fo Type 2.03
2300	12° 05'.534	069° 40'.321	352	3.73	1140	310.40	
2329	12 07.975	069° 40.319	355.5	3.53	1142.2	320.71	Over OBS 137
2330	12° 08.071	069° 40.330	356.9	3.73	1142.2	319.21	
2338	12 08.799	069 40.417	352.3	4.13	1142.82	305.91	Bird 23-28 - below level
2348	12 09.643	069 40.526	359.3	4.13	1143.4	315.01	Birds Back on level - 420 steel below
2400	12 10.596	069 40.636	355.81	4.23	1144.15	324.0	Birds 24 - 28 below level
0000	12 11.968	069 40.803	356.4	3.63	1145.23	364.51	Over OBS 136
0030	12° 13.585	069° 40.942	354.1	3.53	1146.25	376.11	Birds 23-28 and birds 11+12 are below level
0100	12 15.743	069 41.252	352.8	3.43	1148.16	441.31	birds 8-15 high, birds 25-28 below level
0100	12 15.953	069 41.283	356.0	4.23	1148.31	446.01	over OBS 135
0130	12° 18.311 N	069° 41.565W	358.3	4.23	1150.21	527.21	
0145	12 19.955	069 41.753	357.3	3.93	1151.55	572.11	over OBS 134
0200	12 20.841	069 41.861	359.8	3.63	1152.27	608.41	
0230	12° 23.418 N	069° 42.173W	1.6	3.83	1154.4	732.01	
~~0230~~	~~12° 23.418N~~	~~069° 42.173W~~	~~1.6~~	~~3.83~~	~~1154.4~~	~~732.01~~	~~OVER OBS 133~~
0238	12 23.940	069 42.238	347.5	3.73	1154.86	751.21	over OBS 133
0300	12° 25.903N	069° 42.456W	355.2	3.53	1156.49	796.51	
0324	12° 27.937N	069° 42.707W	357.6	3.53	1158.22	881.01	OVER OBS 132
0330	12° 28.379N	069° 42.764W	1.9	3.83	1158.60	902.91	
0400	12° 30.762 N	069° 43.057W	4.6	4.03	1160.68	1024.04	Change of duty
0414	12 31.960	069 43.202	359.7	4.23	1161.88	1115.4	over OBS 131
0430	12° 33.204	069° 43.348	356.2	4.53	1162.2	1145.1	
0500	12° 35.594	069 43.640	5.5	4.83	1164.96	1239.9	
0504	12 35.932	069 43.613	7.6	4.33	1165.26	1248.9	over OBS 130

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Cruise EW 04 JD 121 - R/V Maurice Ewing Science Watch Log Page 14

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0500	12° 31.545	069 43.877	2.7	3.73	1166.66	1281.4	Gun 11 back on
0530	12 37 989	069 43 916	6.7	4.43	1167.01	1284.9	
0553	12 39 766	069 44 129	3.2	4.43	1168.49	1300.0	Line Change 4A & OBS 129
0600	12 40 321	069 44 181	0.7	4.43	1169.10	1308.8	
0630	12 42 760	069 44 484	5.1	4.83	1171.24	1355	
0644	12 43 942	069 44 629	1.2	3.83	1172.25	1300.3	OBS 128
0700	12 45 [illegible]	069 44 768	5.5	4.23	1173.22	1300.5	
0730	12 47 481	069 45 157	4.4	4.43	1175.28	1318.8	
0735	12 47 916	069 45					OBS 127
0800	12 49 757	069 45 333	3.8	4.83	1177.25	1375.8	Change of Shift
0825	12 51 912	069 45 553	5.9	4.13	1179.13	1459.9	OBS 126
0830	12 52 363	069 45 624	3.0	4.13	1179.92	1474.9	
0900	12 54 677	069 45 913	3.0	4.63	1181.55	1538	
0915	12 55 909	069 46.063	358.4	4.83	1182.64	1549	OBS 125
0930	12 57 008	069 46.196	2.2	4.63	1183.62	1560	
1000	12 59 373	069 46.478	357.7	4.23	1185.80	1556	
1005	12 59 909	069 46.553	6.6	4.43	1186.27	1545	OBS 124
1030	1301 804	069 46 756	15.6	4.03	1187.84	1519	- All Birds w in limits
1053	1303 900	69 47.021	4.8	4.83	1189.95	1557	OBS 123
1100	1304 109	6947 041	1.7	4.63	1190.13	1568.1	All Birds w/in limits
1130	1306 537	6947.343	6.2	4.73	1192.40	1876	
1147	1307 896	6947.505	2.81	3.33	1193.64	2086	OBS 122
1200	1308.884	69 47.624	10.6	4.33	1194.57	2257	
1237	13° 11.891 N	069° 47.978 W	359.5	4.43	1197.6	2950.3	OVER OBS 121
1230	13° 11.295 N	069° 47.908 W	6.4	4.53	1196.83	2832.7	
1300	13° 13.705 N	069° 48.205 W	4.8	4.33	1199.1	3096.7	
1327	13° 15.884 N	069° 48.458 W	1.5	4.53	1201.19	2965.3	OVER OBS 120
1330	13° 16.072 N	069° 48.489 W	5.2	4.83	1201.37	2955.2	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1400	13 18 545	069 48.787	3.2	4.43	1203.74	3177.6	
1430	13 19 895	069 48 936	7.1	4.73	1205.01	3139.7	over OBS 119
1500	13°20.889.N	069° 49.066W	353.5	4.13	1205.95	3191.7	
1530	13 23 246	069 49 338	4.1	4.73	1208.09	3288.7	
1600	13 23 8841	069 49 429	2.1	4.13	1208.66	3318.3	over OBS 118
1630	13 25 640	069 49 640	8.4	4.53	1210.27	3413.6	
1700	13 27 882	069 49 903	5.9	4.33	1212.27	3701.3	over OBS 117
1730	13 27 997	069 49 917	4.6	4.55	1212.38	3738.3	change Shift
1800	13 30 408	069 50 206	35.4	5.03	1214.58	3795.5	
1830	13 31 810	069 50 348	14.5	4.03	121591	3781.4	over OBS 116
1900	13 32.792	069 50 503	7.8	4.83	1216.77	3959.2	
1930	13 35.202	069 50.786	3.5	4.53	1218.95	4345.6	
1939	13 35.866	069 50864	5.0	4.03	1219.56	4673.2	over OBS 115
1800	13 37 53	069 51.067	462	2.83	1221.02	4992.0	
1830	13 38.944	069 51 349	356.7	3.93	1223.18	4985.6	over OBS 114
1900	13 42.199	069 51616 W	7.2	4.13	1225.12	4973.3	
1920	13 43987	069 51.833	5.2	4.73	1226.64	4946.1	over OBS 113
1930	13 44.648	069 51919	4.2	4.33	1227.25	4938.8	
2000	12° 47'361	069° 52'172	358	4.12	1229.3	4903	
2003	13°47'855	069'52'305	358	4.3	1229.9	4932	over OBS 112
2030	13 49.521	069.52 504	1.97	4.03	123137	4927.4	
2058	13 51 848	069 52 778	51.2	4.63	1233.29	4638.7	- over OBS 111
2100	13 51 941	069 52 786	1.6	4.03	1233.36	4634.7	- Birds 24-28 struggling to maintain level
2130	13 54.377	069 53 086	5.2	4.73	1235.95	4565.3	Streamer having hard time close to ship
2148	13 55 848	069 53 268	7.2	4.23	1236.66	4594.1	over OBS-110
2200	13 56 687	069 53 366	0.4	3.43	1237.45	4578.7	- Birds Maintaining
2217	13°58 561	069° 53'531	358	4.12	1238.12	4592.2	Birds 22 - 27 flying below level
2230	13 59 062	069 53 652	355.5	4.43	1239.38	4450.2	

Cruise EW .04 JD 121-122 R/V Maurice Ewing Science Watch Log Page 16

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2240	13 59.839	69 53.737	354.4	4.33	1240	4384	OBS 109
2300	14 01.504	69 53.941	359.9	4.63	1241	4373	
2320	14 03.834	69 54.221	358	4.53	1243	4478	OBS 108
2340	14 03.894	69 54.231	355	4.53	1243	4486	
2400	14 06.272	69 54.529	5.7	4.33	1245	4481	Shift Change
0000	14°07.831 N	069°54.711 W	359.5	4.53	1247.33	4462.7	OBS 107
0020	14°08.657 N	069°54.804 W	357.0	4.43	1248.05	4422.0	
0100	14 11 052	069 55 091	1.6	4.43	1250.20	4353.1	
0120	14 11 844	069 55 203	6.1	4.13	1250.88	4321.1	OBS 106
0130	14 13 449	069 55 382	2.2	4.03	1252.27	4270.6	
0150	14 15 837	069 55 674	351.8	4.63	1254.35	4276.0	OBS 105
0200	14 15 880	069 55 679	352.7	4.03	1254.40	4275.8	
0230	14 18 222	069 55 965	358.6	4.53	1256.40	4286.1	
0250	14° 19.818 N	069° 56.151 W	6.1	4.23	1257.7	4294.5	Over OBS 104.
0300	14° 20.601 N	069° 56.261 W	358.0	4.23	1258.47	4302.5	
0330	14° 22.965 N	069° 56.531 W	358.2	4.23	1260.50	4305.7	
0340	14° 23.810 N	069° 56.640 W	1.7	3.83	1261.5	4315.7	Over OBS 103
0400	14 25 374	069 56 831	6.0	4.23	1262.56	4312.8	Watch Change
0430	14 27 627	069 57 090	1.2	4.33	1264.51	4302.6	
0430	14 27 827	069 57 111 W					Over OBS 102
0500	14 29.998 N	069 57.381 W	1.3	1.73	1266.61	4283.0	
0522	14 31.800 N	069 57.596 W	358.2	3.23			Over OBS 101 End of the line
							1 hour extension
0530	14 32.373	069 57.672	356.0	4.33	1268.73	4258.4	
0543	14 33.473	069 59.784					All Gun back on
0600	14 34 737	069 57 943	354.7	4.33	1270	4236.5	
0627	14 36 976	069 58 236	344.1	4.43	1272.74	4210.7	Beginning Turn 3B→4B

Cruise EW .04 JD 122 R/V Maurice Ewing Science Watch Log Page 17

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0630	14.37.229	069.58.335	335.3	4.63	1272.98	4207.6	Performing Turn 3B→4B
0700	14.37.443	~~069~~ 070.00.516	196.7	5.43	1275.59	4221.9	Still in turn 3B→4B
0730	14 35.229	70.00.353	152.6	4.43	1278.21	4235.4	" "
0800	14° 34' 861 N	069° 58' 271	123.7	4.73	1280.0	4236.2	Still in turn 3B→4B.
0830	14 32 003	069 57 714	169.1	5.43	1283.27	4257	Finished turn on way to line 4B
0900	14 31 806	69 57 608	163.4	5.13	1284	4289	start of line 4B
0930	1431 800	69 57 605	169.1	4.83	1284	4280	OBS 101
1000	1431 446	69 57 544	169	5.23	1284	4283	- not shooting, missed shots 2+3+4
1030	1431 082	69 57 515	169	5.03	1285	4285	start shooting at shot 9 on tape 146
1100	1430 618	69 57 458	168.3	5.13	1285.78	4279	-
1130	14 28 389	69 57 191	170.1	5.13	1288.31	4295	-
1200	14 27 800	069 57 122	172.4	4.93	1288.99	4310.9	over OBS 102
1230	14° 26' 217	069° 56' 271	165	5.00	1290.0	4.017.3	-
1300	14 23.893	069 56 648	168.2	4.73	1293.39	4330.6	~~over OBS 103~~
1331	14 238	069 56 641	168.6	4.73	1293.48	4317.1	over OBS 103
1100	1421 676	069 56 383	163.8	4.83	1295.48	4305.6	All Birds w/in limits + Stowaway!
1123	14°19'847 N	069° 56' 155 W	173	5.13	1297.2	4.292	over OBS 104
1130	14° 19' 337 N	069° 56' 055 W	168	5.13	1298.0	4.295	-
1200	14 17.026	069 55 830	165.5	5.13	1300.86	4276.8	- Change of Shift
1215	14 15 815	069 55 674	166.7	5.13	1302.34	4274.9	over OBS 105
1250	14 14 643	069 55 531	166.6	5.33	1303.62	4267.5	
1254	14 12 703	069 55 293	171.6	5.33	1305.15	4291.2	3.5 kHz turned off
1300	14 12 305	069 55 246	174.2	5.33	1306.19	4330.3	
1306	14 11 812	069 55 183	172.3	5.23	1306.72	4334.6	over OBS 106
1330	14 09 910	69 54 959	175.0	4.73	1308.80	4365.7	
1356	14 07 820	69 54 711	169.3	5.23	1311.07	4468.0	over OBS 107
1400	14 07 535	69 54 673	167.7	4.83	1311.38	4472.1	
1430	14 05 143	69 54 385	167.2	4.93	1313.99	4482.6	

Cruise EW 04 JD 122 R/V Maurice Ewing Science Watch Log Page 18

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1446	14 03 818	69 54 226	165.6	5.33	1315.42	4464.9	over OBS 108
1500	14 02 775	69 54 101	168.2	5.23	1316.55	4426.5	
1530	14 00 399	69 53 814	166.9	5.33	1319.08	4345.0	
1536	13 59.838 N	069 53.739	168.2	4.73	1319.7	4382.0	OVER OBS 109
1600	13 58 013	069 53 523	169.1	5.23	1321.64	4506.6	Change Shift
1630	13 55 890	069 53 232	168	5.03	1324.1	4588	over OBS 110
1630	13 55.69	069 53232	168	5.03	1323.8	4589	
1700	13 53 352	069 52959	165.8	5.03	1326.63	4601.5	
1730	13 51 848	069 52 759	162	5.03	1328.32	4661	Over OBS 111
1730	1350.929	069 52.672	166.7	4.83	1332.21	4712.9	
1800	13.48.600	069.52.390	169	5.33	1331.56	4936.8	
1800	13 47.880	069 52.310	166.7	5.23	1332.47	4935.8	over OBS 112
1830	13 46 276	069 52 097	162	5.03	1334.18	4934	
1900	13 43 932	069 51 825	168	5.03	1336.71	4948	OVER OBS 113
1930	13 41650	069 51552	165.2	5.43	1339.19	4985	
2000	13 40 210	069 53 598	298.3	5.63	1342.11	4978	Change Shift
2030	13 42 151	069 55 656	323.5	4.83	1344.56	4971.1	Turning for Bol 60
2100	13 44135	069 55194	77.3	4.43	1346.88	4942.8	Continue Turn to Bol 60
2123	13 43 556	069 53.839	127.9	4.73	1348.79	4960.6	Start line 60, 9 + 10 guns off ~~guns off~~
2125	13 43.421	069 53.686	122.8	4.83	1348.94	4966.9	21 guns on
2130	13 43.234	069 53.486	128.7	4.93	1349.25	4964.0	
2200	13 41.950	069 52.204	126.4	4.63	1351.32	4963.8	All bird w/in limits
2212	13 41 308	69 54471	138.5	4.93	1352.52	4968.0	Pass over Aim point Bol 60
2230	13 40 403	69 50660	133.5	4.33	1353.79	4979.5	All Birds on track
2300	13 38 952	69 49 083	132.3	4.83	1356.37	4989.8	
2330	13 37 503	69 47 580	127.3	4.53	1358.81	5010.5	
2400	13 36 041	69 46090	128.9	4.73	1361.18	4902.3	

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Cruise EW 04 JD 123 R/V Maurice Ewing Science Watch Log Page 19

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0000	13° 34.552 N	069° 44.553 W	130.5	5.03	1363.8	4742.2	
0100	13° 33.083 N	069° 43.054 W	129.2	4.83	1366.1	4558.9	
0130	13° 31.625 N	069° 41.543 W	130.9	5.03	1368.56	4092.8	
0200	13° 30.180 N	069° 40.059 W	139.9	4.93	1371.1	3891.3	
0230	13° 28.777 N	069° 38.614 W	135.0	4.83	1373.1	3726.1	
0300	13° 27.382 N	069° 37.178 W	136.0	4.93	1375.8	3500.0	
0330	13° 25.970 N	069° 35.718 W	142.6	4.63	1378.7	3604.0	
0400	13° 24.537 N	069° 34.251 W	134.3	4.63	1380.6	3671.0	Shift Change
0430	13° 23.121	069° 32.788	138.1	4.83	1383.01	3411.4	
0500	13° 21.693	069° 31.316	132.8	4.63	1385.41	3336.2	
0530	13 20.280	069 29.864	131.8	4.93	1387.78	3361.2	
0600	13 18.933	069 28.479	124.5	4.33	1390.03	3111.7	
0630	13 17.452	069 26.955	134.5	4.63	1392.5	3024.4	
0700	13 16.035	069 25.501	137.0	4.23	1394.89	3354	
0730	13° 14.630	069° 24.048	130.4	4.73	1397.24	2768.0	
0800	13 13.218	069° 22.590	131.5	4.73	1399.57	2676	Shift Change
0830	13° 11.722 N	069° 21.061 W	134	5.23	1.402	2.337	-
0900	13 10.325	069 19.636	131	4.93	1404.44	2979	
0930	13 08.980	069 18.220	130.7	4.63	1406.83	2881.9	- GPS-4 needed to be reset
1000	13 07.454	069 16.683	131.2	4.83	1409.34	2657.9	
1030	13 06.109	069 15.289	129.9	5.33	1411.60	2464.8	All Birds in line
1100	13 04.637	069 13.776	130.5	4.93	1414.13	2297.9	
1130	13 03.284	069 12.395	134.5	4.93	1416.43	2125.2	
1200	13 01.85	069 10.917	125.7	4.63	1418.82	1982.1	End of Shift
1230	13° 00.345 N	069° 09.407	123.7	5.03	1421.17	1977.2	
1300	12 58.946	69 07.936	133.8	5.13	1423.69	1924.7	
1330	12 57.482	69 06.433	127.1	4.83	1426.13	1932.8	
1400	12° 55.989 N	069° 04.898 W	130.1	4.93	1428.8	1987.1	

Cruise EW[illegible]4 JD 123-124 R/V Maurice Ewin[illegible] Science Watch Log Page 220 (20)

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1430	12° 54.500 N	069° 03.369 W	132.4	4.93	1431.03	2075.8	
15:00	12° 53.068 N	069° 01.896 W	127.3	4.83	1433.5	2171.6	
15:30	12° 51.609 N	069° 00.404 W	128.8	4.83	1435.91	2211.0	
16:00	12° 50.214 N	068° 58.955 W	128.3	4.73	1438.26	2281.8	Change Shift
1612	12 49 574	68 58 310	128.3	4.83	1439.30	2320.1	Maggie is in the water
1630	12 48.737	68 57.454	125.8	4.83	1440.69	2352.5	
1700	12.47.335	68.55.996	126.5	4.93	1443.03	2421.3	
1715	12.46.513	68.55.168					Maggie back out for repairs
1730	12.45.900	68.54.536	124.0	4.73	1445.40	2482.1	
1800	12.44.536	68.53.133	124.6	4.73	1447.73	2536.8	
1830	12 43.156	68 51.718	127.6	4.93	1450.12	2576.3	
1900	12.41.770	68.50.294	131.5	4.63	1452.52	2600.6	
1930	12.40.404	68.48.892	127.8	5.03	1454.83	2594	
2000	12° 39.032	68° 47.495 W	125.5	4.73	1457.32	2644.2	change shift
2030	12 37625	68 46052	128.10	5.03	1459.79	2715.2	
2100	12 36240	68 44.631	126.9	4.83	1462.22	2717.3	
2130	12 34 906	68 43 265	122.8	4.73	1465.57	2727.5	
2200	12 33453	68 41 773	134.1	5.03	1467.06	2733.5	
2230	12 32031	68 40 314	128.2	5.03	1469.53	2726.4	
2300	12 30671	68 38906	128.7	4.73	1471.84	2714.3	
2330	12 29200	68 37 403	128.1	5.03	1474.32	2669.6	
2400	12 27690	68 35 861	129.7	4.73	1476.73	2607.7	Change of Shift
00:30	12° 26.194 N	068 34.342 W	125.5	4.93	1499.22	2662.7	
01:00	12° 24.547 N	068° 32.811 W	149.5	5.13	1481.75	2509.3	
0130	12 22 154	68 33.593	204.1	4.63	1484.30	2381.8	
02:00	12° 21.521 N	068° 35.401 W	316.2	5.33	1486.3	2110.2	
02:30	12° 23.426 N	068° 35.531 W	46.5	4.93	1489.08	2399.9	
03:00	12° 25.243 N	068° 34.483 W	35.5	5.33	1491.41	2559.0	

Cruise EWU 4 JD 124 R/V Maurice Ewing Science Watch Log Page 121

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0330	12° 27 244 N	068° 33 681 W	36.3	5.13	1493.73	2718.4	
0400	12° 29.266 N	068° 32.855 W	31.2	5.03	1496.17	2739.4	Change the Duty
0430	12.31.346	068.32.007	32.2	5.13	1498.63	2807.6	
0500	12.33 369	068.31 187	33.9	4.93	1500.97	3093.7	
0530	12.35.405	068 30 363	31.0	5.13	1503.27	3228.4	
0600	12.37.458	068.29.530	34.0	5.43	1505.63	3282.6	
0630	12 39.586	068 28.658	30.7	4.43	1508.09	3290.7	
0700	12.41.606	068.27.837	27.8	4.73	1510.36	3179.4	
0730	12° 43.723	068.26.965	32.4	4.83	1512.77	2964.4	
0800	12° 45.722	068 26.148	22.2	4.63	1515.13	2645.3	Change the Duty
0830	12 47.650	068.25 368	26.4	4.73	1517.44	2432.4	
0900	12° 49 397	068° 24 510	26,2	4,53	1519,2	2.214,3	
0930	12°51'753	068°23'631	26,4	4,73	1522,3	2.026,2	
1000	12°53'130	068°22'865	31,2	4,43	1524,2	1.972,3	
1010	12.55.099	068 22 321	37.7	4.53	1526.08	2015.3	Birds 13–17 on Surface
1030	12 55 824	068 22 031	29.1	4.83	1526.88	2030.4	Birds 5 – 7 out of limits
1045	12 56 916	068 21 585	22.6	4.23	1528.19	2083.9	Birds Back w/in limits
1100	12 57 742	068 21230	27.7	5.03	1529.17	2077.8	Birds wking hard to stay level
1130	12° 59'321	068° 20' 464'	28.5	5.03	1531.2	2.292,3	
1132	12°59'321	068°20'464'	28,5	5.03	1531.2	2.292,5	Birds 16 – 19 out of limits.
1200	13.01 720	068 19 625	25.1	4.63	1533.88	2759.9	End of Shift – Birds Back on line
1230	13 03 884	68 18 734	28.0	5.03	1536.41	3280.0	
13:00	13° 05 928 N	068°17.906 W	34.0	4.53	1538.8	3548.6	
13:30	13° 08.043 N	068°17.040 W	28.9	4.93	1541.21	3475.9	
14:00	13° 08.729 N	068° 15.202 W	117.7	4.63	1543,6	3572,6	
1430	13 06 691	68 14 723	198.7	5.33	1546.08	3530.1	
1500	13° 04.380 N	068° 15.634 W	195.4	5.23	1548.40	3405.2	
1530	13 02 080	68 16 569	194.4	4.23	1550.84	2946.1	

Cruise EWU 4 JD 124 R/V Maurice Ewing Science Watch Log Page 22

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1600	12 59 833	68 17 500	197.1	4.61	1563.07	2313.1	end of shift
1630	12.57.648	068.18.373	203.3	4.63	1555 20	1942.8	
1700	12.55.455	68.19.271	197.4	4.83	1557.43	1841.2	
1730	12.53.214	68.20.201	201.3	4.63	1559.78	1863.3	
1800	12.51.014	68.21.106	198.7	4.63	1561.95	1959.0	
1830	12.48.787	68.22.034	193.5	4.53	1564.27	2198.9	
1900	12.46.580	68.22.922	196.4	4.93	1566.47	2451.8	
1930	12.44.370	68.23.823	200.1	4.53	1568.69	2764.1	
2000	12 41 977	68 24 815	206.5	4.33	1571.15	3104.1	- end of shift
2030	12 39 830	68 25 718	196.9	4.73	1573.52	3312.3	
2100	12 37 718	68 26 575	195.4	4.83	1575.69	3327.6	
2130	12° 35' 316	068° 27' 527	195	4.73	1578	3257	
2200	12 59 120	068 28.405	195.1	4.53	1580.34	3045	
2230	12 30 909	068 29 358	191.9	4.73	1582.71	2714.2	
2300	12° 28' 659 N	068° 30' 272	196.2	4.8	1585.2	2447.3	
2330	12 26 512	068 31.149	191.3	4.83	1587.32	2416.2	
2400	12 24 398	068 32.005	195.3	5.23	1589.60	2416.2	End of Shift - "A Team!"
0030	12° 22.039 N	068° 32.908 N	194.7	5.13	1592.6	2544.6	
0100	12 19.893 N	68° 33.846 W	195.7	4.33	1594.15	1975.0	
0130	12 17 719	68 34 730	202.6	4.93	1596.44	1688.5	
0200	12 15 536	68 35 625	202.2	5.03	1598.91	1602.2	
0230	12° 13.414 N	068° 36.501 W	202.7	4.73	1601.40	1534.2	
0300	12° 11.362 N	068° 37.339 W	194.2	5.33	1603.88	1556.1	
0330	12° 09.323 N	068° 38.173 W	207.1	4.63	1606.41	1505.0	
0400	12.07, 207	068.39.037	201.4	4.93	1609.02	1494.0	Change Shift
0430	12 05.38	068 39.794	204.7	4.93	161139	1427.9	
0500	12 03294	068 40638	201.3	4.93	1613.91	559.91	

Cruise EWC 4 JD 125 R/V Maurice Ewing Science Watch Log Page 373

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0514	1202.130	68.41.114	200.6	5.03	1615.33	541.30	Hydrosweep shut down, Anthony restart it
0530	12.01.313	68.41.445	199.1	4.83	1616.32	514.51	
0600	11.59.315	68.42.261	199.5	4.83	1618.8	561.11	
0630	11.57.157	68.43.137	194.2	5.03	1621.3	944.01	
0700	11.54.815	68.44.106	193.0	4.73	1624.0	1206.0	
0730	11.52.665	68.44.964	194.2	5.03	1626.4	1316.2	
0800	11.50.536	68.45.841	193.3	4.73	1628.4	1319.2	Change Watch
0830	11 48.238	68 46 795	197.4	4.93	1631.34	1168.3	
0900	11° 46' 214	068° 47' 615	189.2	5.03	1633.2	1032.3	
0930	11 44 144	068 48.461	190.7	5.13	1636	903.51	Gun 15 is off
0930	11 43 906	68 48 561	188.1	4.93	1636.26	897.51	
1000	11 41 659	68 49 480	191.1	5.13	1638.69	812.21	Gun 15 is off
1023	1139.897	68 50 198	189.9	4.93	1640.78	745.71	Gun 15 on line
1030	1134 495	68 50 369	186.6	5.03	1641.23	727.81	
1100	1137 344	68 51 237	186.8	4.63	1643.11	548.11	
1110	1136464	68 51604	188.5	5.03	1644.63	454.91	End of Bolt - Begin Runout Shots
1118	1135874	68 51950	188.5	5.03	1644.58	459.01	Gun 10 out
1124	1135370	68 50050	188.5	5.03	1645.88	353.61	Gun 9 - out
1130	1135089	68 52 161	184.0	5.23	1646.12	336.61	
1136	1134867	68 52 260	184.0	5.23	1647.60	330.50	End of Runout Shot Bolt
1200	1134415	68 54 610	299.8	4.93	1648.86	298.41	Change Watch -
1230	11 36 585	68 56 620	8.2	4.93	1651.26	290.81	
13:00	11° 37.814 N	068° 55.117 W	89.1	5.13	1653.73	418.11	
13:30	11° 37.230 N	068° 53.470 W	116.5	5.13	1656.17	447.21	on line BOL 62
14:00	11° 36.481 N	068° 51.791 W	115.9	4.83	1658.80	455.01	
1430	11 35 740	68 50 141	115.9	4.63	1661.08	451.01	
1500	11 34 998	68 48 482	117.5	4.93	1663.53	440.41	
1530	11 34 236	68 46 775	113.9	5.03	1666.02	425.51	

Cruise EW0004 JD 125,126 R/V Maurice Ewing Science Watch Log Page 124 (24)

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1600	11°33.495N	068°45.098W	116.2	4.83	1668.4	415.6	Change Shift
1630	11.32.743	068.43.434	115.9	4.83	1670.78	405.51	
1700	11.32.014	68.41.803	116.9	4.63	1673.18	400.01	
1730	11.31.259	68.40.127	116.6	4.73	1675.59	401.61	
1800	11.30.477	68.38.369	115.3	4.53	1678.09	395.61	
1830	11.29.678	68.36.581	114.3	4.93	1680.53	395.01	
1900	11.28.886	68.34.800	114.4	4.43	1682.9	387.11	
1930	11.28.068	68.33.983	115.1	4.73	1685.3	381.91	
2000	11.27.255	68.31.19	116.2	4.73	1687.77	376.41	Change Shift
2030	11.26.438	68.29.387	112.7	4.73	1690.01	384.01	
2060	11 25 666	68 27 642	114.5	4.93	1692.40	393.11	Crossing over intersect Bol 63
2100	11 25 630	68 27 569	113.9	4.93	1692.55	391.11	
2123	11 24 987	68 26 115	111.5	5.03	1694.58	394.61	- End of Bol 62
2124	11 24 987	68 26 115	111.5	5.03	1694.58	394.61	Starting turn to Bol 63 guns 9/10 off
2130	11 24 652	68 25 800	145.1	5.03	1695.15	387.61	
2200	11 22 609	68 26 599	211.7	5.13	1697.71	265.71	
2230	11 21 554	68 28 947	291.1	5.03	1700.28	130.10	
2254	11 23 299	68 29 646	56.8	4.63	1702.20	205.31	#5 shot - start line 63, fl 31,000
2300	11 23 598	68 29 330	56.3	5.33	1702.67	234.41	
2300	"					"	Stopping line problem with spectra shot # 31,021
2309	11 23.831	68 29.102	49.4	5.13	1703.02	258.91	restart line 31024, shot # 29
2305	11 24106	68 28 888	45.1	5.13	1703.36	279.41	All Guns in water
2330	11 25 303	68 27 912	48.5	5.13	1705.14	373.31	
2335	11 25 648	68 27 645	50.4	5.03	1705.56	389.41	Crossing Jumpoint Bol-63 - Start
2400	11 27 187	68.26 601	44.1	4.83	1707.33	498.41	Change of Watch
0030	11 29 087	68 25 277	45.3	5.13	1709.88	630.61	
0100	11 30 993	68 23 970	38.3	5.43	1712.35	746.31	
0130	11 32 880	68 22 673	41.2	4.83	1714.80	1031.4	

Guns off

Cruise EW0..4 JD 126 R/V Maurice Ewin Science Watch Log Page 25

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
02:00	11 34 809	68 21 342	41.2	4.93	1717.29	1375.8	
02:30	11° 36.710 N	068° 20.033 W	36.9	4.53	1719.77	1580.2	
03:00	11° 38.514 N	068° 18.789 W	34.0	4.83	1722.7	1833.2	
03:30	11° 40.371 N	068° 17.510 W	32.8	4.93	1724.6	1873.0	
04:00	11° 42.153 N	068° 16.283 W	34.9	5.03	1729.3	1839.0	Shift Change
04:30	11.41.073	068.14.959	37.1	5.23	1729.6	1779.1	
05:00	11.45.903	068.13.698	32.0	5.03	1732.01	1662.4	
05:30	11.47.661	068.12.477	33.3	5.13	1734.44	1550.8	
06:00	11.49.473	068.11.240	30.7	4.93	1736.99	1304.0	
06:30	11.51.255	068.10.001	32.5	4.93	1739.57	1031.4	
07:00	11.53.165	068.08.686	29.2	4.53	1742.18	820.11	
07:30	11.54.744	068 07.602	30.8	4.93	1744.36	720.01	
08:00	11.56.457	068.06.429	30.2	4.63	1746.8	877.71	Shift Change
330	11 58 258	68 05 180	33.7	4.73	1749.25	868.81	
0900	11 59 910	68 04 28	35.0	5.13	1751.44	1119.7	
0930	12 01 684	68 02 808	28.9	5.13	1753.93	1711.2	
1000	12 03 681	68 01 436	27.7	4.63	1756.57	1863.2	
1030	12 05 444	68 00 226	34.1	4.93	1758.85	2073.0	
1100	12 07 394	67 58 875	28.9	4.83	1761.47	2317.6	
1130	12 09 336	67 57 537	30.3	4.93	1764.03	2296.3	
1134	12 09 608	67 75356	33.8	4.93	1764.38	2268.4	Guns 11/12 off
1148	12 10 504	67 56 721	16.4	5.23	176603	2275.4	End of Bot 63
1200	12 11 392	67 58 501	355.4	5.23	1766.42	2348.6	End of "A-Team" Shift
1230	12° 12.606	067° 58.540	290.0	4.83	1769.2	2260.4	
1300	12 12 219	67 57 738	209.4	4.43	1771.69	1927.0	
1330	12° 10.368 N	067° 57.501 W	115.8	4.83	1774.13	2193.6	
14:00	12° 09.041 N	067° 57.337 W	118.2	4.83	1776.3	2199.2	
14:30	12° 07.686 N	067° 55.305 W	118.5	4.73	1778.71	1810.0	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1500	12° 06 382 N	067° 53 288 W	125.2	4.63	1780.96	1719.2	
1530	12° 05.074 N	067° 51.267 W	119.0	4.63	1783.25	1519.0	
1600	12° 03.746 N	067° 49.206 W	119.1	4.43	1785.8	1272.5	Change Shift
1630	12.02.249	067.47.150	123.5	4.73	1787.9	1252.7	
1700	12.01.065	067.45.053	124.5	4.93	1790.38	1003.6	Beginning Turn 8 to 9 Last shot 677
1730	12.01.770	067.43.287	353	4.70	1792.86	922.3	Isias de las Aves
1800	12.04.347	067.43.424	359	4.83	1795.5	397.01	
1830	12.06.104	067.44.333	276	4.93	1797.7	505.81	
1900	12 04.444	067 45.698	190.8	473	1800	779.91	
1930	12.02.171	067.46.133	190.1	4.53	1802.35	1192.1	Streamer straight again
2000	11.59.719	067.46.600	191.0	4.63	1804.77	1804.44	Change Shift
2030	11 57 391	067 47 053	188.4	4.63	1807.12	891.61	Whales sighted outside Safety area
2100	11 55 186	067 47 470	192.0	4.53	1809.35	1164.4	
2130	11 52 685	67 47 961	193.1	4.53	1811.93	1488.2	
2200	11 50 334	67 48 421	191.1	4.83	1814.36	1538.9	
2230	11 47 985	67 48 855	193.7	4.73	1816.73	1566.7	
2300	11 45 555	67 49 316	190.6	4.73	1819.13	1593.6	
2330	11 43 220	67 49.755	191.9	4.43	1821.34	1623.5	
2400	11 40 887	67 50 210	189.8	4.53	1823.45	1687.3	End Shift - Birds 25-28 below level
0030	11° 38.362 N	067° 50.900 W	192.2	4.13	1825.7	1761.9	
0100	11 36 049	67 51143	193.9	4.53	1828.01	1821.0	
0103	11 35.710	67 51.209	194.9	4.63	1828.37	1825.0	We are not recording.
—	—	—	—	—	—	—	System test last shot ~~#1697~~
—	—	—	—	—	—	—	File Number 35974 1081
0130	11° 33.698 N	067° 51.594 W	194.1	4.33	1830.3	1878.0	
0200	11 31 412	67 61 441	123.7	4.73	1832.68	1913.0	
0230	11° 31.216 N	067° 49.418 W	85.7	3.53	1834.6	1926.0	
0300	11° 31.235 N	067° 47.748 W	87.5	3.53	1836.2	1934.0	

Cruise EWU 4 JD 127 R/V Maurice Ewing Science Watch Log Page 27

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0300	11° 31.219 N	067° 46.260 W	94.5	2.23	1837.6	1936.0	
0400	11° 31.140 N	067° 45.160 W	82.5	2.33	1838.6	1936.0	
0400	11 31.030	067 43.841	105.1	2.13	1839.86	1935.0	
0500	11.30.921	67.42.509	87	2.83	1841.1	1939	Streamer still out of water - thought fix
0530	11.30.829	67.40.618	94.6	3.53	1842.91	1942.0	Changed out streamer section
0600	1130746	67.38.587	87.6	4.43	1844.88	1914.0	
0630	11 30.707	67.36.419	84.7	3.93	1846.88	1905.0	
0700	11 30.633	67.34.501	93.8	3.73	1848.75	1922.0	
0730	11 30.519	67.32.413	83.3	3.53	1850.65	1929.0	
0800	11.30.375	67.30.150	86.7	4.13	1852.67	1930	Change Shift
0817	11 30 296	67 28.814	87.0	4.43	1853.91	1932	Bird 23 set
0830	11 30 269	67 28.003	90.0	4.03	1854.65	1936	
0900	11 30 237	67 25.918	91.9	3.43	1856.52	1946	
0930	11 30 246	67 23.981	93.8	3.43	1858.28	1952	
1000	11 30 276	67 22.163	81.6	3.33	1859.96	1949	
1030	11 30 376	67 20.117	88.8	4.83	1861.88	1952	
1100	11° 29' 019 N	067° 19' 031	204°	5.03	1864.15	1952.0	
1130	11 26 978	67 20 460	220.4	4.83	1866.62	1948.0	Continue turn to line 11
1200	11° 25' 068	068° 21' 785	225	5.2	1869.3	1927.	
1230	11 23 154	67 23 217	214.8	4.83	1871.56	1908.0	
1300	11 21 207	67 24 633	219.7	5.03	1873.99	1877.0	
1330	11 19 212	67 26 042	216.8	4.53	1876.42	1852.0	
1400	11° 17.227 N	067° 27.426 W	218.4	4.93	1878.2	1819.0	
1430	11 15 300	67 28 826	212.6	4.73	1881.20	1798.1	
1500	11° 13.421 N	067° 30.223 W	215.2	4.93	1883.97	1775.1	
1530	11 11 409	67 31 652	217.9	5.33	1886.66	1746.2	
1600	11° 10.977 N	067° 33.547 W	309.6	4.73	1888.56	1721.2	
1600	11 12998	067 33460 N	166	4.83	1890.89	1780.2	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1700	11 15.218	67 32.682	16.4	4.53	1893	1797.1	
1730	11.17.450	67.31.912	12.9	4.33	1895.38	1827.0	
1800	11.19.~~[illegible]~~	67.31.155	14.8	4.93	1897.56	1851.0	
1830	11.21.770	67.30.389	19.3	4.63	1899.8	1876.0	
1900	11.24.086	67.29.575	16.9	4.83	1902.22	1901.0	
1930	11.26.320	67.28.795	13.3	4.83	1904.56	1929.0	
2000	11.28.555	67.28.020	1.4	5.43	1906.96	1936.0	Change Shift
2030	11 30 875	67 27 200	10.7	5.33	1909.57	1934.0	
2100	11 33 075	67 26 425	16.2	5.13	1911.99	1871.0	
2105	11 33 885	67 26 155	3.7	5.03	1912.91	1826.0	End of Bol 11 - Turnery Bol 12A
2130	11° 35' 601	067° 25' 939	279	5.13	1914.3	1974.3	
2158	11 33 507	67 28 272	188.0	4.63	1916.85	1884.0	Start of line Bol 12A
2200	11 33 355	67 28 291	189.2	4.73	1917.02	1885.7	
2230	11 31 030	67 28 091	176.9	4.23	1919.08	1936	
2300	11 28 685	67 27 895	177.1	4.33	1921.26	1934	
2302	11 28 548	67 27 878	183.1	4.53	1921.39	1941.0	over OBS 232
2330	11 26 360	67 27 682	174.3	4.23	1923.20	1920	
2400	11 24 010	67 27 475	~~[illegible]~~ 178	4.43	1925.59	1894.0	End of Shift
0000	11 23 460	67 27 424	175.1	4.73	1926.17	1886.0	over OBS 233
0030	11 21 585	67 27 253	177.4	4.43	1927.99	1866.0	
0100	11 19 223	67 27 043	179.2	4.63	1930.31	1850.0	
0110	11 18 384	67 26 966	179.9	4.63	1931.17	1828.0	over OBS 234
0130	11 16 862	67 26 828	177.5	4.73	1932.67	1810.0	
0200	11° 14.956 N	067° 26.610 W	175.3	4.73	1935.3	1787.8	
0230	11 13 293	67 26 510	175.5	4.83	1936.16	1775.1	over OBS 235
0230	11° 12.079 N	067° 26.399 W	174.8	4.43	1937.37	1759.6	
0300	11 09 628	67 26 185	181.0	4.53	1939.84	1724.2	
0318	11 08 226	67 26 055	171.6	4.63	1941.18	1708.2	over OBS 236

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0330	11 07 255	67 25 970	177.0	4.63	1942.11	1699.3	
04:00	11°04.866 N	067°25.754W	174.0	4.53	1944	1597.2	Change the duty
04:27	11.03.150	067.25.596	178.8	4.63	1945.88	1426.5	OBS 237
04:30	11.02.475	067.25.537	176.0	4.83	194651	1373.8	
05:00	11.00.031	067.25.320	175.4	4.53	1948.87	1203.0	
05:27	10.58.074	067.25.118	176.3	4.53	1950.9	1081.0	OBS 238
05:30	10.57.670	067.25.101	177.8	4.53	1951.11	1073.1	
06:00	10.55.323	067.24.814	174.2	4.53	1953.36	973.91	
06:30	10.52.889	067.24.681	174.0	4.63	1955.69	874.71	
06:30	10.52.889	067.24.681	-	-	-	-	OBS 239
07:00	10.50.541	067.24.470	175.4	4.63	1957.94	736.31	
07:30	10.48.087	067.24.245	173.5	4.83	1960.28	770.51	
07:32	10.47.910	067.24.229	-	-	-	768.51	OBS 240
08:00	10.45.762	067.24.043	174.2	4.73	1962.48	1008.6	Change Shift
830	10 43 417	67 23 832	172.2	4.73	1964.92	883.61	
838	10 42 834	67 23 781	173.1	4.83	1965.48	879.71	OBS 241
0900	10°41'204 N	067°23'634 W	170.0	4.53	1967.02	895.32	
0930	10 38 574	67 23 403	172.7	4.63	1969.58	890.61	
0945	10.37 752	67 23 318	170.2	4.73	1970.43	871.71	~~End of line 12A~~ - over OBS 242
0940	10 37 192	67 23 062	133.2	4.53	1970.99	857.81	End of 12A
1000	10 36 556	67 22 349	136.8	4.93	1971.97	826.11	
1030	10° 34' 970 N	067° 23' 269	275	5.0	1974.3	725.42	
1100	10° 36' 210 N	067° 23' 851	030°	5.2	1976.2	833.25	
1113	10°37'245 N	067° 23'365W	000	4.7	1977.2	872.3	Begin line 13 Shot 18
1118	10 37 921	067 23.328	1.2	4.6	1978.73	880.71	~ close to OBS 242 (a little after)
1530	10 38 825	067 23 427	349.4	4.83	1979.20	892.61	
1200	10 40 080	67 23 623	352.0	4.83	1981.56	~~1981.56~~ 891.61	- End of Shift
12.21	10.42.834	067.23.778	355.8	4.83	1983.7	877.1	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
12:30	10°43.525 N	067° 23.843W	353.3	4.93	1984.6	889.61	
13:00	10 45.887	67 24.054	356	5.13	1986.58	942	
13:25	10.47.910 N	067°24.351W	354.1	5.03	1988.2	770.51	Over OBS 240
13:30	10°48 292 N	067°24.272 W	358.3	4.73	1989.09	767.51	
1400	10 50 650	67 24470	352.7	5.13	1991.52	801.31	
1430	10 53 012	67 24683	351.0	5.13	1993.95	880.71	over OBS 239
1450	10 53 058	67 24688	356.3	4.73	1994.00	884.61	
15:00	10°55.371 N	067°24.895 W	357.5	4.93	1996.43	979.81	
15:30	10°57.828 N	067°25.164W	351.8	5.13	1998.94	1086.0	
15:45	10 58.075	67 25 135	351.3	4.93	1999.20	1094.9	over OBS 238
16:00	11°00.163 N	067°25.321W	351.9	5.03	2001.36	1230.8	Change of duty
1630	11 2.590	067 25639	350.2	4.93	2003.91	1389.7	
1637	11 03.190	067 25596	350.6	4.73	2004.55	1439.4	Over OBS 237
1700	11 04969	067 25749	350.2	4.93	2006.34	1626.5	
1730	11.07.339	067.25.971	350.5	4.73	2008.76	1700.3	
17:41	11.08.232	067.26.048	352.2	4.73	2009.6	1701.3	OBS 236
1800	11 09.647	067 26.171	356.6	4.83	2011.11	1725.2	
1830	11° 12.175	067° 26.397	359.5	4.43	2013.61	1768.1	
1845	11° 13.314	067° 26.930	359.5	4.63	2014.90	1775.2	Over OBS ~~234~~ 235
1900	11° 14.570	067° 26.612	359.6	4.33	2015.89	1792.1	
1930	11° 16.961	067° 268.22	347	4.63	201817	1817.0	
1949	11 18.390	067 26.993	357.9	4.63	2019.49	1831.0	over OBS ~~235~~ 234
2000	11.19.243	067.27.032	346.8	4.33	2020.4	1848.0	Change Shift
2030	11 21591	067 27236	353.9	4.73	2022.71	1868.0	
2053	11 23 403	067 27405	353.4	4.83	2024.63	1889	over OBS ~~234~~ 233
2100	11 23 875	07 27422	355.5	4.73	2025.01	1894.0	
2130	11° 26'329 N	067°27'625	353	4.79	2027.3	1922.2	
2159 ~~2200~~	11.28.548	67 27 867	353.3	4.93	2029.4	1935.0	over OBS 232

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2200	11 28 564	67 27 870	355.0	4.83	2030	1934	
2230	11 30 941	67 28 072	354 3	4 83	2032	1934	
2300	11 33 233	67 28 276	351.1	4.83	2034	1880	
2305	11 33 630	67 28 312	353.0	4.93	2035.0	1870	over OBS 231
2330	11 35 515	67 28 489	354.	4.53	2037.17	1780	
2400	11 37 724	67 28 686	355	4.93	2039.9	1654.4	End of Water -
0010	11 38 713	67 28 768	353.7	4.63	2040.47	1611.6	over OBS 230
0030	11 40 274	67 28 908	0.1	4.73	2042.03	1494.1	
01:00	11°42.909 N	067°29.125 W	355.4	4.53	2044.4	1312.2	
01	11 43 788	67 29 119	358.6	4.83	2045.50	1235.8	over OBS 229
01:30	11°45.068 N	067°29.338 W	358.0	4.43	2046.75	1098.8	
02	11 47 402	67 29 551	358.1	4.83	2049.01	831.11	
02	11 48 870	67 29 671	353.7	4.63	2050.41	534.31	over OBS 228
0230	11 49 812	67 29 770	357.9	4.43	2051.31	501.21	
03:00	11°52.243 N	067°29.977 W	356.6	4.73	2053.5	998.11	
03:2	11° 53.950 N	067°30.104 W	356.9	4.73	2055.6	580.41	Over OBS 227
03:30	11°54.634 N	067°30.190 W	355.9	4.73	2056.0	386.51	
04:00	11°57.015 N	067°30.401 W	354.6	4.83	2058.3	477.11	Change of Duty
04:2	11.59.028	067.30.588	354.2	4.53	2060.2	407.21	OBS 226
04:30	11.59.448	067.30.619	357.7	4.83	2060.57	251.61	
05:00	12.01.772	67.30.833	359	4.73	2062.9	298	
0530	12 04.048	67 31.036	359.8	4.53	2065.17	313.01	over OBS 225
06:00	12 06.341	67.31.241	352.2	4.93	2067.4	337.11	
06:30	12.08 726	67.31.450	353.0	5.03	2069.7	363.91	
06:35	12.09.186	67.31.497	350	4.83	2070.2	367.1	OBS 224
07:00	12 11.118	67 31.681	349.4	4.53	2072.08	388.51	
07:30	12 13.530	67 31.880	353.5	4.73	2074.43	677.21	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0739	12 14.265	067 31.920	355.2	4.63	2075.05	776.21	over OBS 223
0800	12.15.860	067.32.102	355.5	4.73	2076.6	938.21	Change Shift
0830	12° 18'.335 N	067°.32'.317	352	4.73	2078	1356.2	
0845	12° 19' 333 N	067° 32'.407	355	4.73	2079	1.515.1	OVER OBS 222
0900	12° 20' 562 N	067° 32' 509	355	5.0	2080.3	1.862.2	
0930	12 23 063	067 32 733	356.2	4.53	2083.20	2443.1	
0941	12 24 426	067 32 861	1.6	4.93	2084.42	2556.9	OVER OBS 221
1000	12° 25' 690	067° 32' 979	358	4.73	2085.3	4.796 *	
1030	12 28 154	067 33 204	5.0	4.43	2087.81	4678.8 *	
1045	12 29 502	67 33.320	9.2	4.73	2089.08	4687.2 *	over OBS 220
1100	12 30 424	67 33397	1.7	4.13	2089.94	4691.1 *	
1130	12 32 858	67 33 622	4.9	4.53	2092.28	?	
1151	12° 34' 548	067° 33' 771	4.8	4.73	2093.3	4.689.0	Over OBS 219
1152	12° 34' 548	067° 33' 771	4.8	4.73	2093.3	4689.0	Starting Multibeam. (working well)
1200	12 35 100	067 33 825	8.9	4.83	2094.44	4700.2	Chg. Watch
12:30	12°37.641 N	067°34.049 W	9 9	4.63	2097.65	4.681.0	
12:55	12°39.660 N	067°34.231W	7.1	4.43	2099 0	4.505.7	Over OBS 218
13:00	12°40.009 N	067°34.263W	11 9	4.53	2099.41	4513.9.	
1330	12 42 418	67 34 482	10.8	4.43	2101.78	4496.5	
14.00	12°44.763 N	067°34.697W	12.8	4.63	2104.18	4.311.2	over OBS 217 - MMO shut down
14:30	12°46.529 N	069°36:326W	262.1	4.73	2106.5	4.190.2	
15.00	12°44.764 N	069°37.569W	132.1	4.63	2109.2	4.383.1	
15:30	12°42 873 N	069°36522 N	129.3	4.93	2111.1	4.522.1	
16:00	12°47.787 N	067°34.938 W	60.2	4.63	2114.01	4.522.9	Change of duty
16:14	12° 43.831	067° 34.555	7.3	4.63	2115.34	4391.6	SOL 30L 13A
16:20	12 44 742	67 34 741	22.4	4.23	2116.17	4321.3	over OBS 217
16:30	12 44.994	67° 34725	17.9	5.03	2116.44	4306.0	

* Multibeam was not measuring properly.

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
17:00	12.47.392	67.34.927	5.5	4.63	2118.8	3999.5	
1718	12 49.820	67 35.050	12.0	4.73	2120.14	3742.9	over OBS 216
1730	12 49.759	67 35.135	9.0	4.73	2121.14	3502.6	
1800	12 52.235	67° 35.353	5.5	4.83	2123.4	3274.2	
1830	12 54.702	67° 35.504	3.1	4.53	2125.79	3249.6	
1833	12 54.900	67° 35.545	6.3	4.53	2125.85	3238.6	over OBS 215
1900	12 56.950	67° 35.785	12.9	4.53	2127.98	3463.3	
1930	12 59.317	67° 35.994	7.6	4.33	2130.22	3715.4	
1936	12 59.900	67 36.047	6.3	4.53	2130.79	3725.5	over OBS 214
20:00	13.01.735	67.36.210	11.1	4.53	2132.6	3735.2	Change Shift
2030	13 03.900	67 36.404	10.0	4.63	2134.7	3903.3	
2048	13 05.058	67 36.516	13.4	4.73	2135.9	4071.4	over OBS 213
2100	13 06.284	67 36.621	9.59	4.93	2137.2	4128.2	
2130	13 08.649	67 36.829	10.8	4.63	2139.69	3931.4	
2200	13 11.106	67 37.052	8.1	5.03	2142.31	4177.7	
2145	13 10.134	67 36.942	9.5	4.83	2140.	4055.	- over OBS 212
2230	13 13.396	67 37.246	9.7	5.03	2144.6	4382.1	
2253	13 15.216	67 37.398	7.5	4.8	2146.57	4530	over OBS - 211
2300	13 15.725	67 37.455	6.4	5.9	2147.0	4586.3	
2330	13 18.052	67 37.680	8.1	4.93	2149.43	4706.8	
2345	13° 19'.662	067° 37.817	3,8	4,7	2.151,3	4860.2	There is a problem whith Hydroweep.
2355	13° 20'.197	067° 37.872	4,2	4,9	2.151,6	4863,4	OVER OBS - 210
2400	13° 20'.352	067° 37'.887	5,8	4,7	2.151,7	4.847,2	Change of Duty.
0030	13 22.921	67 38.116	7.2	5.03	2154.36	5107.4	
0100	13 25.308	67 38.331	357.2	4.13	2156.73	5106.4	
0100	13 25.374	67 38.339	358.5	5.13	2156.81	5102.3	over OBS - 209
0130	13°27.707 N	067°38.543W	359.4	4.93	2159.15	5104.2	
02:00	13° 30.084 N	067°38.757W	358.7	4.93	2161.55	5091.2	

Cruise EW(4 JD 130 R/V Maurice Ewin Science Watch Log Page 34

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
02:04	13°30.452 N	067°38.795W	3.7	4.83	2161.93	5095.3	Over OBS 208
02:30	13°32.468N	067°38.476W	356.1	4.93	216397	5088.1	
03:00	13°34.828N	067°39.192 W	1.6	5.13	2166.2	5089.1	
03:04	13°35.532N	067°39.258W	5.2	5.03	2167.2	5082.7	Over OBS 207
03:30	13°37.174 N	067°39.403W	3.2	5.03	2168.9	5084.2	
04:00	13°39.366N	067°39.602	6.6	5.03	2171.6	5100.3	Change the duty
04:[illegible]	13.40.608	067.39.711	6.2	5.13	2172.4	5090.1	OBS 206
04:30	13 41.625	067 39.802	4.5	4.73	217391	5092.1	
05:00	13.43.884	067.40.007	4.65	4.93	2176.3	5091.2	
05:24	13. 45.684	067. 40.166	1.9	4.73	2178.2	5095.2	OBS 205
05:30	13.46.092	067.40.206	359.6	4.53	2178.7	5101.	
06:00	13.48.381	067.40.396	359.0	5.13	2181.2	5094	
06:30	13.50.766	067.40.619	359.4	5.03	2183.6	5098.3	OBS ~~206~~ 204
07:00	13.53.010	067.40.832	3.6	4.83	2186.0	5094.2	
07:30	13.55.367	067.41.041	358.1	5.03	2188.6	5099.3	
07:37	13.55.842	067.41.072	-	-	-	-	OBS ~~205~~ ~~204~~ 203
08:00	13.57.637	067.41.248	357.5	4.83	2190.9	5102.3	Change Shift
0830	13 59.946	067 41 458	05.4	5.03	219347	5099.3	
0843	14 00 924	067 41540	357	4.83	2194.54	15 5125.7	OBS ~~204~~ ~~203~~ 202
0900	14 02 141	067 41651	358	5.03	2195.84	5101	
0930	14 04 470	067.41.854	357.	5.03	2198	5106	
0950	14.06.000	067.41.996	355	5.0	2200.11	5099	Over OBS 201 - End line 13 A - Turning to 12B
1000	14.06.711	067 42 367	319	4.93	2200.91	5098.3	Turning to 12B
1030	14° 08.470	067° 44.056	328	4.93	2203.2	5145.2	
1100	14 10 231	67 43 643	68.2	4.73	2205.81	5106.4	
1130	14 08	67 42	176.5	4.43	2207	5107	Start Bol 12B.
1137	14 08.163	67. 42 222	169.1	4.63	2208	5101	Fix shot spacing from 150 to 50 m.
							Beginning of line at 50m shot was shot # 38

Cruise EW(4 JD 130 R/V Maurice Ewin Science Watch Log Page 35

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
12:00	14° 06' 468	067° 42' 053	169	4.13	2.210	5.110	Change of Duty.
12:06	14° 06' 000 N	067° 41.987 W	173.1	4.03	2210.71	5.102	Over OBS 201
12:30	14° 03.950 N	067° 41.818 W	167.7	4.73	2212.3	5.094	
13:00	14° 01.536 N	067° 41.603 W	169.8	4.03	2214.53	5.106.1	
13:09	14° 00.926 N	067° 41.544 W	172.3	4.33	2215.15	5.102.1	Over OBS 202
13:30	13° 59.164 N	067° 41.386 W	179.6	4.23	2216.69	5.102.3	
14:00	13° 56.763 N	067° 41.179 W	180.1	4.03	2218.8	5.108.1	
14:12	13° 55.870 N	067° 41.079 W	170.1	4.13	2219.78	5.100.3	Over OBS 203
14:30	13° 54.434 N	067° 40.962 W	183.1	4.53	2220.2	5103.2	
15:00	13° 52.052 N	067° 40.756 W	172.8	4.13	2223.16	5097.6	
15:16	13° 50.766 N	067° 40.626 W	169.1	4.33	2224.24	5104.4	Over OBS 204
15:30	13° 49.657 N	067° 40.533 W	167.7	4.43	2225.27	5099.3	
16:00	13° 47.266 N	067° 40.310 W	167.2	4.83	2227.6	5093.2	Change of duty
16:20	13.45.684	067.40.167	165.5	3.93	2228	5094.	OBS 205
16:30	13.44.901	067.40.097	169.6	4.53	2229.6	5092.2	
17:00	13.42.581	067.39.886	165.8	4.23	2231.75	5099.3	Sea Turtle sighting. 1 Gun, ~~[illegible]~~
17:26	13.40.608	067.39.720	162.7	4.53	2233.3	5092.2	OBS 206
17:30	13.40.428	067.39.679	165.7	4.73	2233.8	5094.2	
18:00	13.38.060	067.39.483	165.0	4.33	2236.02	5087.1	
18:30	13.35.636	067.39.257	171.8	4.23	2238.3	5083.0	
18:31	13.35.532	067.39.251	167.6	4.53	2238.4	5082.0	OBS 207
19:00	13 33.200	067 39.053	165.6	4.63	2240.50	5098.3	
19:30	13.30.791	067.38.826	166.4	4.53	2242.8	5099.4	
19:34	13.30.450	067.38.902	163.7	4.23	2243.1	5090.1	OBS 208
20:00	13.28.533	067.38.619	169.8	4.43	2244.9	5092.2	Change Shift
20:30	13 26 165	067 38 407	163.8	4.45	2247.22	5099.3	
20:40	13 25 374	067 38 342	162.8	4.33	2247	5112.5	OBS - 209
2100	13 23.750	067 38.201	159.5	4.53	2249	5106.4	

Cruise EW0404 JD 130 R/V Maurice Ewing Science Watch Log Page 36

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2130	13 21 308	67 37 974	164.6	4.83	2251.88	4796.8	~~over OBS~~
2144	13 20.292	67 37 888	162.1	4.63	2252.87	4859.9	Over OBS 210
2200	13 18 977	67 37 769	165.0	4.73	2254.11	4784.0	
2215	13 16 917	67 37.592	157.9	4.13	2256.07	4701.0	Gun 11 is broke, so they have to bring 12+11 in
2230	13 16 544	67 37.552	160	4.43	2256	4677	
2246	13 15 216	67 37.434	157.1	4.53	2257.71	4499.1	Over OBS 211
2300	13 14 162	67 37.334	157.3	5.03	2258.66	4458.6	
2315	13 12 857	67 37.221	161.5	4.43	2259.99	4265.6	Guns 11+12 back in water
2330	13 11 727	67 37 126	162.1	4.73	2261.07	4201.5	
2345	13 10 134	67 36 970	160.3	4.73	2262.62	4028.3	Over OBS 212
2400	13 09 404	67 36 907	164.4	4.63	2263.30	3842.0	
0030	13 06 925	67 36 610	164.3	4.63	2265.69	4110.8	
0045	13°05.058N	067°36.460W	167.2	4.83	2267.66	4099.1	Over OBS 213
0100	13°04.544N	067°36.479W	166.6	4.93	2268.0	4077.1	
0130	13°02.153N	067°36.259W	161.8	4.53	2270.2	3720.9	
0157	12°59.978N	067°36.026W	159.8	4.63	2272.4	3741.4	Over OBS 214
0200	12°59.729N	067°36.055W	156.2	4.73	2272.6	3742.5	
0230	12°59.315N	067°35.824W	159.9	4.83	2274.9	3506.2	
0300	12°54.947N	067°35.604W	166.1	4.83	2277.4	3262.4	
0300	12°54.900N	067°35.604W	166.1	4.83	2277.4	3262.4	Over OBS 215
0330	12 52 621	67 35 402	161.3	4.53	2279.47	3276.6	
0400	12°50.293N	067°35.195W	164.5	4.93	2281.7	3466.3	Change of duty (Hunn)
0403	12 49.818	067 35.112	162.5	4.63			over OBS 216
0430	12° 48.008	067 34.987	160.5	4.93	2283.46	3961.1	
0500	12 45.733	067 34.784	157	4.33	2286.22	4318.0	
0507	12.44.742	67.34.656					OBS 217
0530	12 43.415	67 34.576	158	4.73	2288.61	4503.1	

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Cruise EW0404 JD 130, 131 R/V Maurice Ewing Science Watch Log Page 1-37

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0600	12 11.086	67 34.370	164.9	5.13	2291.12	4564.2	
0612	12.39.600	67.34.656					OBS 218
0630	12 38.733	67 34.150	172.1	4.93	2293.19	4591.1	
0700	12 36.315	67 33.941	173.1	4.63	2295.44	4716.6	
0724	12 34.580	67.33.792	172	4.63	2297.68	4726.0	OBS 219
0730	12.33.914	67.33.719	174.6	4.93	2299.32	4720.8	
0800	12° 31.576	67° 33.519	171.0	4.73	2300.75	4722.9	Change Watch
0826	12 29.502	67 32.832	177.4	4.93	2300.77	4710.5	OBS 220
0830	12 29.075	67 33.290	174	4.53	2303	4714	
0900	12 26.771	67 33.085	175.2	5.13	2305	4025	Hydrosweep gave incorrect values for 3 mins
0930	12 24.357	67 32.871	174.6	4.73	2308.37	2960	
0931	12 24.426	67 32.865	175.0	5.03	2308.38	2895.7	OBS 221
1000	12 21.904	67 32.658	170.7	5.13	2310.67	2229	
1030	12 19.558	67 32.450	173.1	5.13	2313.08	1545.1	
1032	12 19.344	67 32.430	168	5.03	2313.29	1512.0	OBS 222
1043	12 18.459	67 32.388	170.5	4.73	2314.20	1351.8	Gun 8 is off
1100	12°17'.321	067° 32'.210	177	4.83	2315.3	1113.2	
1130	12 14.733	067 32.011	172.8	4.83	2318	819.41	
1146	12 14.268	67 31.976	170.3	4.93	2318.51	749.81	OVER OBS 223
1200	12 12.393	67 31.802	175.1	4.93	2320.42	388.01	
1230	12°09.980 N	067°31.580 W	174.6	4.73	2322.85	375.71	
1240	12 09.098	67 31.506	173.0	4.63	2323.81	367.01	over OBS 224
1300	12°07.515 N	067°31.366 W	171.5	5.03	2325.41	349.1	
1330	12°05.152 N	067°31.146 W	173.8	4.13	2327.9	321.51	
1343	12°04.110 N	067°31.062 W	176.9	4.63	2329.0	315.8	Over OBS 225
1400	12°02.869 N	067°30.994 W	178.5	5.13	2330.2	306.9	
1430	12°30.719 N	067°00.352 W	176.4	5.13	2332.9	353.6	
1500	11 58.027	67 30.516	173.9	4.93	2335.18	667.81	

Cruise EW .04 JD 131 R/V Maurice Ewing Science Watch Log Page 38

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1530	11 55 664	67 30 302	172.5	4.83	2337.70	492.81	
1600	11 53 280	67 30 083	178.0	5.23	2340.18	826.41	Change Shift
1630	11.50.931	67.29.884	179.3	5.03	2342.6	686.41	
1700	11.48.562	67.29.661	177.6	4.73	2345.12	631.41	
1730	11.46.219	67.29.453	173.1	4.83	2347.6	965.5	
1800	11.43.930	67.29.249	177.1	4.73	2349.9	1227.9	
1830	11.41.605	67.29.041	172.3	4.83	2352.3	1410.9	
1900	11.39.220	67.29.826	179.4	4.83	2354.8	1590.2	
1930	11.36.895	67.28.620	176.0	4.73	2357.21	1732.7	
2000	11.34.660	67.28.418	171.3	4.93	2359.5	1834.2	Change Shift
2030	11 32 288	67 28.208	175.8	4.93	2362.1	199.2	
2100	11° 29' 962	067° 28.002	173	5,0	2364.2	1940	
2130	11° 27' 600	067° 27' 778	178	5,0	2367.0	1936	
2153	11 25662	067 27616	176.5	4.73	2369	1917	Evel line 12B Yeah!!!
2230	11° 25' 358	067° 29' 231	340	5,0	2372	1.922	
2300	11° 27' 070	067° 28' 563	33	5,0	2374	1.957	
2304	11° 28' 417	067° 28.417	26	5,0	2374.05	1.955	Start of the line 15
2330	11 29 328	067 27 729	21.7	5.23	2376.82	1942.8	
2400	11 31 535	067 26 972	21.3	4.73	2379.05	1928.7	Gun 12 stuck out of water
0030	11 33 804	67 26 182	16.6	4.43	2381.52	1836.2	
0100	11° 36.066 N	067° 25.394 W	16.6	4.83	2383.9	1700.5	
0130	11° 38.589 N	067° 24.593 W	19.5	4.73	2386.7	1573.1	
0200	11 40 573	67 23 827	21.1	4.53	2388.60	1446.9	
0230	11° 42.928 N	067° 23.005 W	19.4	5.03	2391.0	1331.8	
0300	11° 45.156 N	067° 22.227 W	23.5	4.73	2393.1	1176.0	
0330	11° 47.434 N	067° 21.440 W	20.4	4.53	2395.1	1050.2	
0400	11° 49.784 N	067° 20.652 W	29.1	4.73	2398.1	908.91	Change of duty
0450	11° 51.960 N	067 19860	29.2	5.63	2400.53	797.51	

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Cruise EW .04 JD 132 R/V Maurice Ewing Science Watch Log Page 39

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0500	11.54.212	67-19.076	23.4	4.83	2402.9	728.01	
0530	11.56.489	67-18.288	20.9	5.13	2405.2	449.91	
0600	11.58.934	67.17.439	26.8	4.73	2407.8	252.21	
0630	12 01.260	67.16630	29.7	4.73	2410.17	93.371	
0700	12.03.584	67.15.813	28.0	4.73	2412.5	151.4	
0730	12.05.828	67.15.022	29.4	4.23	2414.7	2411.9	
0800	12.07.930	67.14.275	24.2	4.53	2416.8	3042.6	Shift Change
0828	12 07 862	67 14 320	24.2	4.53	2417.	3043.2	EOL 15 / Start turn
0830	1210 330	67 14190	309	4.83	2419.22	5995.1	Turning to line 16
0900	12° 10' 120	067° 16' 634	238	4.63	2421	2.389.	
0930	12 09 071	67 18 805	209.3	5.03	2424	1698.5	
1000	12° 07' 362 N	067° 18' 721 W	121.2	4.73	2426	1790.	
1010	12 07 282	067 17 164	104.7	4.53	2428	2496	First shot #24 SOL 16
1030	12 07 239	67 16428	98.7	4.93	2428	2432	
1100	12° 07' 219 N	067° 14' 322	97.2	4.73	2431	2.755	
1130	12 07 175	067 12262	91.9	5.23	2433	3987	
1200	12 07 145	067 10 937	95.1	4.73	2435	3519	End of Shift
1210	12 07 115	67 08 492	93.5	4.93	2437.53	5501.8	CBD is approx 2x what it is expected to
							be according to bridge
1230	12 07 107	67 08 230	87.3	4.33	2437.82	3750.2	Richard began work on hydrosweep
1230	12 07 107	67 07 810	87.7	4.33	2438.29	2958.2	problem with hydrosweep apparently fixed
1300	12 07 067	67 05 694	86.8	4.83	2440.65	1760.8	
1330	12° 07.027 N	067° 03.468 W	81.0	4.63	2443.1	1606.2	
1400	12° 06.986 N	067° 01.282 W	83.6	5.23	2445.89	1501.2	
1430	12 06 956	66 59 078	83.4	4.33	2447.85	277.71	
1500	12° 06.920 N	066° 56.829 W	80.8	4.73	2450.18	312.91	
1530	12° 06.881 N	066° 54.481 W	84.0	4.63	2452.6	351.81	
1600	12° 06.834 N	066° 52.088 W	90.8	5.03	2455.0	391.51	Change of Duty

Cruise EW .04 JD 137-133 R/V Maurice Ewing Science Watch Log Page 40

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
16:30	12.06.796	66.49.658	90.1	4.53	2457.3	521.41	
17:00	12.06.755	66.47.236	89.5	4.73	2459.9	497.71	
17:30	12.06.708	66.44.826	84.5	4.83	2462.3	626.9	Gun GC590 is broken
18:00	12.06.661	66.42.335	82.8	4.93	2464.7	686.2	Guns fixed 17:42, Sperm whale Ramp down
18:30	12.06.612	66.39.923	83.2	4.43	2467.2	1081.2	Starting ramp-up
19:00	12.06.576	66.37.447	86.7	4.23	2469.6	985.5	finished rampup - turtle rampdown again
19:30	12.06.527	66.35.023	90.6	4.53	2471.8	989.5	Pos
20:00	12.06.406	66.32.637	109.5	5.03	2474.	1187.1	
20:30	12 05 762	66 30 414	110.1	4.73	2476	1333	
21:00	12 05 108	66 28 158	105.9	4.83	2478	939.71	
21:30	12°04'374	066°25'726	105	4.73	2.481	1625	
22:00	12 03746	66 23 574	108	4.93	2483	2208	
22:30	12°03'069	66°21'340	109	4.73	2486	2403	
23:00	12 02 496	66 19 353	111	4.93	2488.6	2473.9	
23:30	12 01 825	66 17 101	113.8	4.23	2490.9	2362.5	
24:00	12 01 211	66 15 033	108.3	4.63	2493	2082.5	End of Watch
00:30	12°00.553 N	066°12.812 W	112.6	4.33	2495.71	1868.4	
01:00	12°59.888 N	066°10.579 W	106.1	4.53	2498.1	2059.1	
01:30	11°59.225 N	066°08.349 W	101.6	4.33	2500.7	1367.1	
02:00	11°58.542 N	066°06.058 W	103.1	4.63	2502.5	843.21	
02:30	11°57.989 N	066°03.830 W	111.4	4.73	2504.9	90.91	
0300	11 57 234	66 01 451	109.2	5.03	2507.39	46.31	
0330	11 56 595	65 59 494	111.8	4.83	2509.75	745.81	
04:00	11°55.973 N	065°57.315 W	112.2	4.83	2512.6	1045.3	Change of duty
04:30	11.55.362	065.55.311	112.7	4.73	2514.4	1051.3	
05:00	11.54.729	65.53.144	121.7	4.93	2516.8	1155.0	
05:30	11 54 116	65 51 146	123.5	4.53	2519.29	1260.9	

Cruise EW .04 JD 133 R/V Maurice Ewing Science Watch Log Page 41

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0600	11 53.519	065 49.133	115.9	4.93	2521.71	1403.9	
0630	11 52 970	65 47.138	112.7	4.23	2524.08	1552.1	
700	11 52 319	65 45 089	114.9	4.83	2526.43	1729.7	
07:30	11. 51.731	65.43.079	108.3	4.33	2528.7	1990.2	
0800	11° 51' 105	065° 41' 000	106	4.03	2531	2,371	Change of Duty.
0830	11 50 512	065 39 002	101.2	4.53	2533.4	2997	
0900	11 49 906	065 37 994	104.1	4.93	2535.6	3417.6	
0930	11°49' 247	065° 34' 844	113	4.5	2538	3970	End of line 46
1000	11°47' 311	065° 34' 631	105	5.0	2540	3010	
1030	11 45 207	065 36 236	271	4.83	2542	2801	Turning to line 47
1100	11 46 047	65 37 135	31.8	4.83	2545	2831	
1119	11° 48' 228	065° 36' 828	020	4.7	2545	3.268	start of line 47
1130	11° 49' 325	065° 36' 678	028	4.7	2547	3.545	
1200	11 51 494	65 36 396	15.1	4.7	2550	3201	End of Shift
1230	11 53 801	65 36 106	12.9	4.23	2552.73	3043.1	
1300	11°56.091 N	065°35.833 W	15.6	4.73	2555.10	3926.7	
1330	11 58 353	65 35 547	12.4	5.33	2557.61	3960.2	
1400	12°00.659 N	065°35.269 W	17.3	4.93	2560.6	3972.2	
14:30	12°02.868 N	065°34.994 W	14.4	4.33	2562.38	3927.2	
15:00	12°05.143 N	065°34.706 W	13.5	5.23	2564.71	3926.1	
15:30	12°07.485 N	065°34.427 W	17.2	4.93	2567.2	4058.1	
16:00	12°09.771 N	065°34.141 W	16.4	4.33	2569.5	4058.2	Change of Duty
16:30	12 12.107	065 33.852	11.8	4.73	2571.85	4060.1	
1700	12 14.433	065 33.562	15.8	4.83	2574.19	4005.5	
1730	12 16.770	065 33.271	14.1	4.53	2576.51	3860.0	
18:00	12.19.138	65.32.990	5.7	4.73	2578.8	4057.9	
1830	12 21.599	65 32.695	6.1	4.63	2581.24	4052.2	
19:00	12.24.093	65.32.377	6.9	4.63	2583.6	4080.2	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1930	12 26.498	065 32.084	4.21	433	2585.85	4931.7	
2000	12 28.668	65 31.816	120	4.43	2587.90	4943.0	
2030	12° 31'067	65°31'523	005	4.7	2590	4948	
2100	12° 33'442	65°31'240	010	4.7	2592	4950	
2130	12 35 896	65 30 929	15.6	4.5	2594	4932	
2200	12 38 154	65 30 647	13.2	5.3	2596	4917.	
2230	12 40 510	65 30 349	7.6	4.73	2599	4911	
2250	1242 365	65 30 121	6.1	4.95	2601	4911.	Seisnet Down but still recording
2300	12° 42' 832	65°30'067	009	4.7	2601.6	4914	
2301	12° 42' 832	65°30'067	008	4.7	2601.8	4914.	Seisnet System, back on.
2330	12° 45' 160	65° 29'777	010	4.3	2603	4904	
2400	12 47 767	65 29 463	7.6	4.63	2606	4907	End of Watch
0030	12 50 176	65 29 160	8.94	4.73	2608.71	4916.8	
0100	12 52 522	65 28 871	15.0	4.63	2610.96	4868.0	
0130	12 54 893	65 28 588	16.7	5.23	2613.29	4787.0	
0200	12 57 254	65 28 285	11.9	4.63	2615.70	4697.8	
0230	12°59.498N	065°28.015W	14.6	4.73	2618.01	4577.5	
0300	13 01 878	65 27 730	15.8	4.73	2620.46	4435.7	
0330	13 04 198	65 27 436	14.5	4.83	2622.90	4361.3	
0400	13° 06.470 N	065°27.156W	13.9	4.53	2625.2	4265.3	Change of duty
0430	13.08.760	65.26.874	8.9	4.83	2627.6	4200.3	
0500	1311.237	065 26 559	8.52	4.73	2630.09	4132.5.	
0530	13.13.623	65.26.272	9.8	4.73	2632.4	4112.6	
0600	13 16.061	65 25.959	5.7	4.63	2634.79	4055.9	
0622	13 17.703	65 25 142	357.4	4.73	2636.44	4032.3	EOL 47
0700	13 18082	65 27.897	196.4	4.13	2639.64	4073.3	
0730	13 15 820	65 27 533	167.6	5.03	2642.04	4109.5	
0734	13 15 538	65 27 442	166.3	5.03	2642.39	4117.8	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0800	13 13531	65 26902	163.1	4.63	2644.35	4112.0	
0830	13 11 263	65 26 283	160.5	4.53	2646	4121	
0900	13°08'909	65°25'643	157	4.7	2648	4181	
0930	13 06 651	65 25009	157	4.53	2651	4229.1	
1000	13 04 414	65 24402	159	4.83	2653	4239	
1030	13° 02' 085	065°23'761	159	4.9	2656	4321	
1100	12 59 722	65 23125	164	4.5	2658	4368	
1130	12 57 616	65 22 541	157	4.7	2660	4452	
1200	12 55 311	65 21 901	164.1	4.53	2663.20	4552.9	change of watch
1230	12 52 985	65 21 268	157.0	4.73	2665.58	4642.8	
1300	12 50 640	65 20 627	166.0	5.23	2667.98	4702.9	
1330	12°48.366 N	065°20.000W	166.1	4.63	2670.4	4771.5	
1400	12°46.096 N	065°19.382W	169.2	5.03	2672.6	4835.1	
1430	12°43.747 N	065°18.745W	161.5	4.83	2675.4	4840.1	
1500	12 41 596	65 18 143	177.8	4.63	2677.73	4845.2	
1530	12°39.302 N	065°17.610W	163.8	4.83	2680.2	4848.2	
1550	12°37.687	065°17.155 W	172.7	4.52	2681.8	4832.1	Seismic back on
1600	12°37.091 N	065°16.994 W	170.7	4.73	2682.6	4840.2	Change of duty
1630	12 34.838	65 16.373	168.5	4.93	2685.0	4850.4	
1700	12 32.479	65 15.741	163.0	4.93	2687.31	4850.4	
1730	12.30.054	65.15.074	165.3	4.33	2689.73	4851.5	
1800	12 27693	65 14441	164.2	4.53	2692.02	4877.4	
1830	12.25.402	65.13.813	166.0	4.33	2694.2	4877.3	
1900	12 23.296	65 13.246	162.2	4.23	2696.31	4833.5	
1930	12 20.921	65 12.608	159.5	4.63	2698.68	4427.4	
2000	12.18.636	65.11.981	162.4	4.83	2701.	4141.	Change Shift
2030	12 16 38	65 11 379	163.6	4.73	2703	3894	
2100	12 14 079	65 10 738	164	4.73	2705	3662	

Cruise EW 04 JD 134 R/V Maurice Ewing Science Watch Log Page 44 (44)

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
21:30	12 11.693	65 10.102	164.4	5.03	2708.47	3216.0	
2200	12 09 268	65 09 449	164	4.93	2710	2671.6	
2230	12 07 293	65 08 912	166	4.93	2713	2297.5	
2300	12 05 014	65 08 298	161	5.13	2715	2021	
2330	12 02 715	65 07 663	161	4.53	2717	1931	
2400	12 00 483	65 07 050	165	4.73	2720	2024	End of Shift - Seismic Backdor
0003	12 0192	65 06 966	165	4.93	2720	2064	over OBS 501
0030	11 58 106	65 06 402	165.5	5.03	2722.80	2382.8	
0100	11° 55.855 N	065° 05.474 W	160.5	4.83	2725.1	2361.6	
0130	11° 53.585 N	065° 05.156 W	167.8	4.93	2727.5	2270.6	
0200	11° 51.2430 N	065° 04.512 W	167.6	4.73	2730.04	1797.6	
0230	11 48 915	65 03 872	167.3	4.63	2732.36	1396.8	
0300	11° 46.541 N	065° 03.2334 W	172.6	4.33	2734.6	1546.2	
0330	11° 45.859 N	065° 03.024 W	164.7	4.43	2735.57	1901.1	Over OBS 502
0330	11° 44.297	065° 02.605	163.2	4.43	2736.1	2244.6	
0400	11° 42.035 N	065° 01.483 W	168.7	4.73	2739.1	2588.2	Change of duty
4:30	11 39 752	065 01 363	163.8	4.73	2741.64	2582.4	
500	11 37,508	65. 00.736	166.1	4.83	2743.97	3057.3	
530	11 35,274	65 00,131	168.9	473	2746.37	2911.5	
600	11 33.060	64 59.526	169.3	483	2748.76	2290.5	
06:22	11 31.330	64. 59,120	167.3	4 63	2750.46	2269.5	over OBS 503
0630	11 31.004	64 58.965	162.6	483	2751.14	2260.5	
0700	11 28.927	64 58.393	164.5	493	2753.55	2196.9	
0730	11 26.844	64 57.822	157.2	493	2756.04	2068.8	
0800	11 24.734	64 57.247	1659	523	2758.21	1904.06	change of duty
0830	11 22 490	64 56 633	161	4.93	2760	1755	
0900	11 20 28	64 56 025	162	5.33	2763	1545.1	
0930	11 18 115	64 55 436	158	513	2765	1345	

Cruise EWL 4 JD 135 R/V Maurice Ewing Science Watch Log Page 45

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0945	11 17 196	64 55 160	163	5.3	2767	1175	over OBS 504
1000	11 15 967	64 54 844	164	5.4	2768	1048	
1030	11 13 781	64 54 250	167	4.9	2770	799	
1100	11 11 519	64 53 630	159	4.8	2773	485	
1130	11 09 132	64 53 979	166	5.1	2775	272	
1200	11 06 823	64 52 349	159	5.0	2778	139	
1203	11 06 390	64 52 236	158.8	4.93	2779.06	137.91	down to 1 gun due to MMO Power down
1205	11 05 990	64 52 122	155.3	5.05	2779.47	118.21	3.5 kHz turned down
1224	11 04 734	64 51 754	171.0	4.93	2780.76	110.41	ramp up begins
1230	11 04 392	64 51.674	166.0	4.93	2784.13	101.61	
1254	11 02 521	64 51 164	165.6	4.63	2782.99	98.71	over OBS 505
1300	11 02 120	64 51 057	165.6	4.33	2783.38	99.61	
13:30	10° 59.787 N	064° 50.419 W	162.7	4.63	2785.6	130.41	
14:00	10° 57.467 N	064° 49.789 W	166.5	4.63	2788.1	220.1	
1430	10 55 163	64 49 153	168.2	4.43	2790.40	272.01	
15:00	10° 52.916 N	064° 48.531 W	163.2	4.53	2792.66	266.01	
1530	10 50 527	64 47 884	164.8	4.73	2795.01	277.81	
15:56	10° 535.0 N	064° 47.334 W	164.3	4.53	2797.1	338.41	Over OBS 506
16:00	10° 48 282 N	064° 47 273 W	163.1	4.43	2797.3	346.01	Change of duty
16:30	10.45.980	064.46.673	161.5	4.73	2799.8	473.9	
17:00	10.43.717	064.46.019	165.3	4.63	2801.7	538.61	
1730	10 41.387	064 45.384	162.5	4.63	2804.09	536.11	
18:00	10.38.969	64.44.719	164.2	4.73	2806.4	803.11	
18:30	10.36.710	64.44.095	164.2	4.63	2808.7	1102.3	
19:00	10.34.420	64.43.475	167.4	4.63	2811.03	1369.8	
19:03	10.34.200	64.43.421	166.0	4.33	2811.25	1379.8	Over OBS 507
19:30	10.32.214	64.42.876	169.2	4.63	2813.3	1392.8	
20:00	10:30.623	64.42.280	167.9	4.63	2815.5	1380.8	Change Shift

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2030	10 27 660	64 41 640	172	4.83	2817	1331	
2100	10 25 340	64 41 003	166	4.6	2820	980	
2130	10° 23'165 N	064° 40'442	167	4,5	2822	439	
2200	10 20 601	64 39 563	113	4.43	2825	78.11	End of line 19, turning back
2230	10°21'344	064° 37'966	358	4,7	2827	103	to 20, shooting 60 sec.
2300	10 22 796	64 39 335	277	5.57	2829	149.8	Turning to Bol 20-
2322	10 23.765	64 40.571	325.9	4.73	2831.64	834.41	SOL 20, obs shooting space
2330	10 24.391	64 40.785	342.0	4.73	2832.34	912.91	
2400	10° 26'508	064° 41'317	334	4,7	2834	1081	
0030	10°28.780N	064°41.946	342.7	4.53	2836.9	1359.8	
0100	10 31 648	64 42 573	341.1	4.73	2839.31	1384.8	
0130	10° 33.381 N	064°43.201W	346.7	4.93	2841.7	1383.8	
0200	10°35.695 N	064°43.832W	342.2	4.63	2844.21	1213.9	
0230	10°38.015 N	064°44.468W	345.7	4.73	2846.4	899.1	
0300	10° 40.335 N	064°45.097W	347.2	5.03	2849.07	610.8	
0330	10 42 676	64 45 737	344.0	4.83	2851.53	476.91	
0400	10° 44.983 N	064° 46.363W	343.3	4.13	2854.95	507.51	Change of duty
0430	10° 47307	064 46998	347.2	4.93	2856.41	587.41	
0446	10 48.534	064 47.334	349.0	5.03	2857.72	332.71	~~Change of duty~~ Over OBS 506
500	10° 49570	064 47.723	346.6	4.73	2858.82	297.71	
0530	10 51.826	064 48.236	352.6	4.53	2861.18	262.31	
0600	10° 54.198	64 48.888	349.6	4.43	2863.57	250.51	
630	10 56 572	64 49.541	348.8	4.43	2865.90	268.81	
700	10 58 873	64 50 163	348.4	4.83	2868.11	158.61	
730	11 01 318	64 50 840	343.3	4.03	2870.36	99.71	
740	11 02 108	64 51 057	346.5	4.03	2871.08	100.61	Gradual turn to left around fishing boats Guns 9-12 off
751	11 02.868	64 51.447	330.0	4.03	2871.84	106.11	Over OBS 505 - not directly on line
755	1103.157	64 51.680	326.9	4.43	2872.11	106.51	Guns 9-12 off

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0800	1103.395	64 51.834	329.2	4.13	2872.37	106.71	
0830	11°05'409	064°53'236	355	4,7	2874,5	140	
0900	11°07'868	064°53'300	015	4,4	2876,6	174	
0930	11°10'059	064°53'264	353	4,4	2878	341	
1000	11° 12' 213	064°53'821	357	4,1	2880	342	
1030	11° 14'615	064°54'483	345	4,2	2883,3	891	
1100	11 16 856	64 55 087	352	4.1	2885.3	1156	
1103	11 17 196	64 55 158	352	4.1	2885.6	1208	- over OBS 504
1130	11 19 148	64 55 723	351	4.2	2887.5	1465	
1200	11 21 503	64 56 355	350	4.1	2889	1630	End of Watch -
1230	11 23 864	64 57 005	349.7	4.53	2891.94	1850.3	
1300	11°26'230	64°57'656	350	4,5	2894	2042	
1330	11°28.579 N	064°58.306W	349.0	4.43	2896.4	2189.8	
1400	11°30.862 N	064°58.924 W	346.4	4.43	2898.5	2257.5	
1409	11° 31.532N	064°59.090W	347.1	4.53	2899.3	2270.1	OVER OBS 503
14:30	11° 33.155 N	064°58.895W	90.3	4.63	2900.8	2214.1	dead whale sighted by SJII
15:00	11° 33.082 N	064°56.729 W	96.4	4.43	2903.2	1937.8	shut down due to whale sightings
15:30	11° 32.520N	064°54.759 W	150.5	4.93	2905.6	1608.2	
16:00	11° 31.016 N	064°56.165 W	286.1	4.83	2908.01	1971.0	Change of Duty
[illegible]	11° 31497	064° 58.868	272.2	4.53	2910.52	2285.4	
1700	11 31 935	065 01.340	268.9	4.43	2912.75	2665.5	
1730	11 32 363	065 03 785	266.4	4.43	2914.96	2368.7	
1800	11 32 770	065 06 132	267.5	4.43	2917.10	2344.4	
1830	11 33 195	65 08.625	—	—	2919.40	2294.9	
1900	11 33499	65 10 796	254.1	4.13	2921.59	2331.7	
1930	11 33.983	65 13.122	277.4	4.53	2923.95	2292.3	
2000	11 34,390	65 15.453	274.7	4.83	2926.33	2546.5	
2030	11° 34'772	65° 17'666	273	4,7	2928	2452	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2130	11° 35' 622	065° 22' 556	275	4,9	2933	1884	
2200	11° 36' 054	065° 24' 925	275	4,9	2935	2032	
2230	11° 36' 640	065° 27' 360	275	4,7	2938	1764	
2233	11 36 508	65 27 630	277	5.03	2938	1725	All Stop - Watches on hold - TGH
0000	11 37.786	65 39.599	273	4.5	2950	1459	
0130	11° 37.830N	065° 42.322W	271.	4.73	2952.	1350	
0200	11°.37.830N	065° 44.600W	271.5	4.73	2954.2	1353.2	
0230	11° 37,805 N	065° 46.752W	270.5	4.73	2956.9	1223.9	
0300	11° 37,835 N	065° 49,188W	261.9	4.33	2959,2	1045.3	
0330	11° 36,346 N	065° 50,140N	138.0	4.53	2961,2	826,41	
0339	11° 36,123 N	065° 49,533N	94.5	4.33	2962,2	961,91	Birds 25,26,27,28, out of range.
0343	11° 36.138 N	065° 49.197W	93.3	5.03	2962,63	978,61	All Bird in the range
0400	11° 36.182 N	065° 48.104 W	92.9	4.53	2963,83	1300.8	Change of duty
430	11 36.178	065 46 061	92.7	4.23	2966.05	1180.8	
500	11 36.138	065 43.990	93.4	4.53	2968.17	1298.8	
530	11 36.189	065 41.811	92.6	4.33	2970.41	1367.0	
600	11 36 082	065 37.611	83.8	4.23	2974.81	1467.9	
630	11 36 084	065 36.810	84.5	4.33	2975.9	1469.3	
700	11 36 086	065 35.271	85.9	4.43	2977.19	1586.2	
730	11 36 070	065 33.309	89.8	4.53	2979.15	1609.2	
800	11 36.076	065.31.002	87.5	4.53	2981.39	1596.2	
830	11 36.084	065 25.00	90.8	4.53	2903.7	1644.3	
900	11 36.106	065 26.250	92.3	4.43	2985.71	2042.5	
930	11 36 059	65 24 914	91	4.3	2987	1974	
1000	11 36 037	65 21 575	90.5	4.4	2990	1996	
1030	11° 36' 063	65° 19' 142	90°	4,5	2992	2362	
1100	11° 36' 022	65° 16' 762	95°	4,5	2994	2712	
1130	11 35993	65 14459	88.8	4.4	2996	2898	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1200	11 36 342	65 12249	71.3	4.33	2999	3287	
1230	11° 37.251 N	065°09.689 W	68.3	4.53	3001.6	3001.7	
1300	11 38 550	65 07.554	66.3	4.33	3003.8	3475.7	
1330	11°39.523 N	065°05.632 W	77.0	4.03	3005.8	3742.4	
1400	11°40.127 N	065°03.501 W	82.1	4.53	3008.06	3763.4	
1430	11°40.587 N	065°01.297 W	77.5	4.63	3010.39	4094.6	
1500	11°41.017 N	065°59.201 W	78.5	4.33	3012.64	1500.2	
1530	11°41.389 N	065°57.282 W	78.5	4.63	3014.8	1541.1	
1600	11°41.204 N	065°55.503 W	170.4	5.13	3017.4	1516.0	Change of duty
1630	11 38.843	065 54.968	161.9	4.93	3019.55	1424.9	
1700	11 36.551	064 54361	162.0	503	3022.04	1525.0	
1730	11 34334	064 53.780	162.2	4.93	3024.38	1539.1	
1800	11 31.940	64 53.151	160.7	453	3026.85	1646.3	
1830	11 29.592	64 52.52	160.6	5.0	3029.27	1739.7	
1900	11 27.231	64 51.904	161.3	4.93	3031.51	1730.7	
1930	11 24.631	64 51.206	169.4	4.83	3034.08	1626.3	
2000	11 22221	64 50585	166.9	4.53	3036.42	1495	Change of Duty -
2030	11 19 980	64 50 000	170	4.63	3038.7	13248	Turning to Cse 137
2100	11° 19'178	64° 52'157	257	4,7	3042	1366	
2130	11° 19' 173	064°54'576	267	4,7	3043	1447	
2200	11 19 205	64 56 928	296	4.23	3046	1422	
2230	11° 21'119	64° 55'902	032	4,7	3048	1602	
2300	11° 21.610 N	064°55.556 W	20.4	1.33	3049.4	1614.2	
2330	11° 22'446	064°54'824	038	2,13	3050	1600	
2400	11°23'095	064°54'227	040	2,0	3051	1627	
0030	11 23 648	64 53 722	50.9	1.43	3052.29	1655	
0100	11 24 110	64 53 156	52.6	1.33	3053.02	1695.5	
0130	11 24 555	64 52406	47.3	1.63	3053.85	1687.5	

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Cruise EWC 4 JD 138 R/V Maurice Ewing Science Watch Log Page Sc

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0200	11 24 984	64 51 681	47.6	2.13	3054.65	1666.4	
02:30	11°27.497 N	064°52.258 W	343	11.0	3057.5	1758.8	
0231	11 27 762	64 52 360	338.8	10.7	3057.76	1760.8	3.5 kHz turned on
0300	11°32.720 N	064°54.322W	341.6	10.7	3063.6	1564.1	
03:30	11°37.917 N	064°56.028W	347.0	10.5	3068.3	1668.4	
04:00	11°42.923 N	064°57.583W	347.4	11.2	3073.5	1531.0	Change of duty
0500	11°53.957	65°01.059	343.6	11.0	3084.79	2133.4	
0530	11°59.488	65°02.925	341.7	11.1	3090.3	2251.4	Approaching WP A
0545	12°02.264	65°03.641	15.1	9.62	3093.09	2140	Starting Hydrosweep survey
0600	12°04.627	65°03.092	14.6	10.1	3095.33	2188	
0630	12°09.797	65.01.931	14.0	9.51	3100.36	2894.2	
0700	12°14.976	65.00.767	13.9	9.61	3105.38	3627.0	
0730	12°20.168	64°59.610	14.5	9.72	3110.42	4736.2	
0800	12°25.163	64°58.485	15.5	10.4	3115.28	4743.4	Change of watch
0830	12 31.837	64 56.784	121.7	8.72	3121.81	4569.2	
0900	12 30.930	64 53.825	112.5	9.41	3125.14	4484.5.	
0930	12 29.716	64 49.355	107.2	9.8	3130.18	4201.6	
10:00	12 28.506	64 44.928	106.4	10.2	3135.23	4045.	
10:30	12 24.533	64 43.594	174.0	10.2	3140	4443	
11:00	12°19'590	64°43'310	175	10	3145	4294	
1130	12°15'069	64°43'049	170	10	3150	3400	
1200	12 10 391	64 42 785	171.5	9.71	3155.33	3136.6	change of watch
1230	12°06.984	64°41.176	98.4	10.0	3160.25	2388.7	
1300	12° 06.169	64° 36.419	103.9	10.0	3165.33	1388.8	
1330	12° 05.598	64°31.721	21.1	10.2	3170.38	1272.9	
1400	12° 10.620	64°30.841	13.5	9.80	3175.35	2611.6	
14:30	12°15.587 N	064°29.947 W	13.6	10.0	3180.4	3109.2	
15:00	12°20.537 N	064°29.040 W	17.7	10.1	3185.2	3994.5	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
15:31	12°25.121 N	064°27.578 W	98.3	9.51	3190.3	4173.5	
1500	12°24.786 N	064°23.401 W	102.6	9.91	3194.9	4091.9	
1630	12 24 400	064 19 282	169.8	10.0	3200.04	4010.7	
1700	12 20 244	064 19 730	177.2	10.3	3204.86	3411.5	
1730	12 15 572	064 20 288	180.5	10.3	3210.20	3414.4	
1800	12 10 966	064 20 831	180.4	10.8	3215.35	2895.1	
1853	12 10 519	064 29 242	242.9	10.4	3224.29	2319.1	Stopping hydrosweep survey - turning SW
1900	12 09 664	064 30 259	220.3	10.4	3225.53	2242.3	
1930	12 05 231	064 33 875	211.1	11.1	323097	1181.0	
2000	12 01 559	064 37 951	240.5	11.7	3236.38	1734.7	
2030	11 58 611	64 43 426	159.3	11.3	3242	2467	- Steaming to Waypoint for Deploy of Eq.
2100	11 53 211	64 44 920	194.8	10.9	3247	2395	
2130	11 47 910	64 46 352	189	10.9	3253	2178	
2200	11 42 437	64 45 597	193	11	3258	1730	
2230	11 38.199	64 48.643	193.7	4.51	3263	1445.0	- Starting to deploy equipment
2247	11 36.980	64 48.928	190.0	4.31	3264.2	1432.0	One gun in the water shooting
2300	11° 36 392	64° 48.552	110	4.5	3265	1492	Two guns
2330	11 35.48	64 46.111	112	5.51	32678	1688	Deploying streamer
2400	11 34.742	64 44.123	110.1	5.41	3269.98	1658.4	
0030	11°33.780 N	064°41.706 W	116.9	5.11	3272.66	1569.1	
0100	11°32.795 N	064°39.580 W	110.3	4.71	3274.9	1434.1	
0101	11°32.771 N	064° 39.536 W	110.2	4.61	3275.08	1426.1	Finish deploying streamer
0114	11 32638	64 38 418	76.5	4.41	3276.04	1375.6	8 guns 1,2,5,20 on, begining of ramp up
0118	11 32 663	64 38 353	80.9	4.11	3276.30	1366.8	8 guns in the water (1-5, 14, 17, 20)
0126	11 32 732	64 37 743	80.2	4.51	3276.93	1362.8	12 guns in the water (1-7, 14, 17-20)
0130	11 32 763	64 37 457	77.4	4.81	3277.14	1379.8	
0132	11 32 788	64 37 250	79.0	4.51	3277.41	1467.9	15 guns in the water (1-7, 13-20)
0143	11 32 880	64 36 470	80.3	4.81	3278.22	1368.8	16 guns in the water (1-8, 13-20)

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0156	11 32 986	64 35 430	81.6	4.51	3279.31	1473.9	17 guns on (1-8, 10, 13-20)
0200	11 32 990	64 35 211	88.9	4.91	3279.54	1445.9	18 guns on (1-10, 13-20)
0230	11°33.024 N	064°32.865W	90.5	5.11	3282.3	1368.8	
0300	11 33 096	64 30 534	87.7	5.31	3284.47	1239.9	
0330	11 33 207	64 28 170	82.7	4.91	3286.99	1020.4	
0400	11° 33.358 N	064°26.002W	82.2	4.91	3289.3	894.21	Chance of daly
0430	11 33538	064 23 682	89.0	4.61	3291.28	715.11	
0500	11 34 586	064 21.707	85.7	4.61	3294.22	555.51	
0530	11 35.949	064 19833	34.6	4.91	3296.65	238.71	SOL 26
0600	11 38 275	064 19 411	8.2	4.61	3299.04	213.31	
630	11 40725	064 19.364	1.0	4.91	3299.98	194.81	
7:7	11 41 313	064 19 347	12.0	4.71	3302.00	213.01	Seisnet "crashed" shots ~ [redacted] 169
700	11 43 139	064 19 326	4.7	4.81	3303.76	191.21	
730	11 45 552	064 19 301	4.8	4.51	3306	138.31	
800	11 47 980	064 19 267	1.8	4.61	3308	167.21	
0830	11 50 463	064 19 245	7.2	4.3	3310	187	
0900	11 52 763	64 19 208	8.5	4.5	3313	147	
0930	11° 55' 336	064° 19' 164	012	4.5	3316	572	
1000	11° 57' 500	064° 19' 138	013	4.6	3317	845	
1030	12° 00 045	064 19.109	15.5	4.21	3320.1	995.51	
1100	12° 02' 580	064° 19' 082	016	4.5	3322	1189	
1130	12° 05' 155	064° 19' 061	010	4.1	3324	1386	
1200	12 07 585	64 19 009	18.3	4.0	3326	2009	Chg Shift - Seismic steel out
1230	12 10.327	64 18.967	16.4	3.8	3328	4081	
1300	12° 12.836 N	064° 18.938W	20.4	3.81	3330.4	3086.4	
1330	12 15 417	64 18 900	26.0	3.71	3332.37	3676.4	
1400	12° 17.908 N	064° 18.865W	31.9	3.71	3334.31	3749.6	
1430	12 20 599	64 18 813	27.7	3.91	3336.55	3766.9	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1[illegible]	12 23 263	64 18 782	21.8	4.01	3338.38	3495.3	
1530	12 25 867	64 18 748	22.0	4.11	3340.40	3463 3	
1[illegible]	12 28 503	64 18 726	24.5	3.91	3342.31	3571.1	Change of duty
1[illegible]30	12 31.120	64 18677	18.0	421	3344.28	3484.0	
1700	12 33800	64 18643	15.6	431	3346.34	3385.8	
1730	12 36285	64. 18617	17.1	3.61	33 4827	3342.9	
1800	12 38867	64 18567	14.0	3.99	335027	3248.8	
1830	12 41.251	64 18.543	15.0	4.01	335207	3170.3	
1900	12 43.586	64 18.522	11.9	4.01	335425	3146.8.	
1930	12 45.998	64 18.478	13.1	3.91	335656	3166.1	
2000	12 48 424	64 18. 435	7.9	4.31	3358	5176	
2026	12 50 500	64 18 403	2.1	4.31	3360	3184	– Gun 6 out of Water
2030	12 50 932	64 18 412	6.7	4.31	3360.46	3186	
2100	12 53 444	64 18 372	14.0	3.91	3362	3182	
2130	12 55 956	64 18 333	8.1	3.9	3364	3183	–
2143	12 57100	6418 317	8.1	4.11	3365	3197	– Gun 6 Back on line
2200	12 58 551	64 18.314	8.6	4.21	3366	3222	
2230	13 01 037	64 18 274	6.17	3.81	3368.6	3229	
2300	1303 572	64 18 234	8.7	3 61	3370.6	3245.8	
2330	1306 148	64 18 196	7.8	3.81	33 72.5	3237	
2400	1308 695	64 18. 169	3.8	3.71	3374	3259	Change of Duty.
0030	13 11 166	64 18 136	6.3	3.81	3376.56	3283.5	
0100	13 13 776	64 18 095	1.7	3.61	3378.57	3275.4	
0130	13 16 312	64 18 063	11.2	3.91	3380.59	3274.4	
02:00	13°18.704 N	064°18.037 W	5.6	3.91	3382.56	3270.3	
02:30	13°21.196 N	064° 17.999 W	7.2	4.01	3384.6	3255.0	
03:00	13°23.570 N	064°17.939 W	9.6	4.41	3386.5	3239.0	
03:30	13°25.256 N	064°19.766 W	246.8	4.51	3389.00	3264.2	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
04:00	13° 23.615 N	064° 20.372 W	142.5	4.51	3391.28	3283.5	Change of duty.
0430	13° 23.050	064 18559	144.5	4.1	3393.64	3260.1	over OBS 301
0500	13 21 186	064 18 041	166.9	4.41	3396	3258.0	Stopping line 27 b/c no data is recording
0524	13 19668	064 17.693	165	4.99	3397.96	3256.2	Power Down All system
0530	13 19.285	064 17.603	164	5.01	3398.46	3262.1	
0600	13 17.435	064 17185	164.1	4.81	3400.85	3263.2	
0630	13 16342	064 16891	162.1	5.11	3402.48	3257.8	over OBS 302
0630	13 15 363	064 16 712	166.4	4.71	3403	3524.9	
0700	13 13 443	064 16 267	165.5	4.61	3405.88	3249.9	
0730	13 11 685	064 15.823	161.7	5.51	3408.32	3242.7	over OBS 303
0800	13 11503	064 15.820	160.1	5.51	3408.41	3246.8	
0830	13 09 579	064 15.384	162.2	5.01	3410.75	3226.4	
0830	1307 621	64 14 934	162	501	3413	3201	
0839	13 07 027	64 14 790	162	4.81	3414	3197	over OBS 304
0900	13 05 727	64 14 501	163	4.91	3415	3190	
0930	13 03 851	64 14 077	166	4.81	3417	3182	- Recording again / Gun 11 out / No Seismic
0933	13 03645	64 14 029	162	4.91	3418	3177	- Gun 11 Back on line
0953	13 0237	64 13 710	167	4.91	3420	3186	- over OBS 305
0954	13 02 225	64 13 693	165	481	3420	3182	- Ramp down - 1 Gun Whales Okay Bow
1000	13 01929	64 13.632	165	491	3420	3180	-
1030	13 00 098	64 13 215	163	4.6	3422	3171	-
1031	12 59931	64 13 177	163	4.6	3423	3172	- Begin Rampup - Shot 286 / 13254
1100	12 58 109	64 12 756	161	4.9	3425	3165	-
1101	12 57.982	64 12 727	161	4.9	3425	3165	- All Guns firing shot 310 / 13276
1105	12 57-716	64 12 661	166	4.71	3425	3167	- over OBS - 306
1130	12 56 124	64 12 323	166	4.8	3427	3148	
1148	12 54 838	64 12 002	162	4.9	3429	3133	- Ramp down G1 - Dolphins
1200	12 54 104	64 11 854	165	461	3430	3124	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
12:[illegible]	12° 53.053N	064° 11.590W	162.7	4.71	3431.6	3109.0	Over OBS 307
12:30	12° 52.052N	064° 11.372W	162.5	4.61	3432.7	3048.0	
1300	12 50 033	64 10 913	163.7	4.71	3435.15	3086.6	
13:25	12°48.396 N	064°10.502W	161.0	4.31	3437.19	3076.8	Over OBS 308
13:30	12° 48.072 N	064° 10.468 W	158.3	4.61	3437.51	3068.3	
14:00	12°46.054 N	064°10.005 W	159.6	5.01	3439.98	3043.8	
1430	12 44 230	64 09 584	155.4	4.71	3442.39	3038.8	
1433	12 43 739	64 09 463	156.0	5.01	3443.06	3028.6	over OBS 309
15:00	12°42.410 N	064°09.163 W	155.6	4.91	3444.8	3031.5	
15:30	12°40.220 N	064°08.735 W	154.9	4.81	3447.3	3029.5	
1555	12 39 079	64 08 401	155.7	5.11	3449.34	3229.5	over OBS 310
1600	12 38 782	64 08 334	153.0	5.11	3449.74	3247.8	change of duty
1630	12 36 907	64 07 905	157.4	5.01	3452.27	3297.8	
1700	12 35 005	64 07 462	155.3	4.71	3454.73	3324.4	
1709	12 34.4208	64 07 341	155.6	5.21	3455.42	3340.8	over OBS 311
1730	12 33035	64 07 023	153.8	5.01	3457.22	3364.6	
1800	12 30 957	64 06 543	156.1	4.81	3459.05	3298.9	
1818	12 29 762	64 06 271	158.7	4.61	3461.33	3266.2	Over OBS 312
1830	12 29 034	64 06 120	159.4	5.01	3462.26	3356.2	
1900	12 27 155	64 05 682	151.2	5.01	3464.60	3449.1	
1930	12 25.292	64 05257	157.0	4.91	3467.85	3403.2	
1932	12 25.104	64 05.214	161.5	4.61	3467.28	3397.1	over OBS 313
2000	12 23 372	64 04 821	157.4	5.01	3469.51	3459.5	
2030	12 21 360	64 04 365	157.5	4.9	3471	3641	
2041	12 20 44	64 04 09	158	4.7	3473	3594	- OBS 314
2100	12 19 462	64 03 925	158.	4.9	3474	3541	
2125	12 17 81	64 03 492	154	5.41	347[illegible]	3381	
2159	12 15 788	64 03084	154	5.11	3479	3298	over OBS 315

Cruise EW 04____ JD 140-141 R/V Maurice Ewi Science Watch Log Page 56 (56)

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2200	12 15 720	64 03 071	155	5.21	3479	3294	
2230	12 14 149	6402 709	155	5.21	3482	3192	
2300	12 12 577	64 02 358	149	4.61	3484	3151	
2330	12 11.127	64 19 [illegible]	149	5.01	3489	3107	Crossing over OBS 316
23:30	12 11.041	64 02.008	148.1	4.81	3487	3102	
2400	12 09 646	64 01 687	145	5.41	3489	2769	- end of data
0030	12 07 811	64 01 324	146.8	5.41	3492.48	2359.6	
00:53	12° 06.468 N	064° 00.952 W	139.3	5.21	3494.68	2053.6	Over OBS 317
01:00	12° 06.174 N	064° 00.874 W	142.0	5.41	3495.18	1928.7	
0130	12 04 380	64 00 369	150.5	5.51	3497.97	2095.9	
0200	12 02 540	64 00 070	146.4	5.41	3500.63	1557.0	
02[illegible]	12 01 782	63 59 582	147.9	5.21	3501.84	919.81	over OBS 318
02:30	12° 00.781 N	063° 59.664 W	149.9	5.51	3503.31	788.61	
03:00	11° 58.889 N	063° 59.237 W	153.3	5.21	350613	333.91	
~~0314~~	~~11 58 140~~						
0323	11° 57.150 N	063° 58.782 W	152.9	5.21	3508.7	325.41	Over OBS 319
0330	11° 56.914 N	063° 58.776 W	151.2	5.41	3508.9	325.41	
0400	11° 55.024 N	063° 58.341 W	151.5	5.31	3511.7	331.21	Change of duty
0430	11 52 740	63 57.831	157.3	5.41	3514.09	356.21	
0435	11 52 540	63 57 780	160.9	5.31			Over OBS 320
0500	11 50.450	63 57.247	161.4	5.41	3516.97	391.21	
0530	11 48.147	63 56.773	164.3	5.51	3519.62	434.41	
0534	11 47.83	63 56.690	162.5	5.51	3520.01	447.71	over OBS 321
600	11 45.808	63 56 254	164.3	5.31	3522.36	607.81	
0630	11 43.575	63 55.740	164.2	5.01	3525.01	609.61	
0635	11 43 170	63 55 644	160.2	5.01	3525.48	614.31	over OBS 322
0700	11 41 309	063 55 225	165.2	5.11	3527.67	626.91	

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0730	11° 38.988	63 54.688	165.6	5.01	3530.27	594.71	
0735	11 38.514	63 54.585	165.6	5.01	3530.82	571.31	over OBS 323
0800	11 36.566	63 54.136	164.4	5.21	3532.87	399.31	
0830	11 36.382	63 53.635	169.9	5.31	3535	226	
0835	11 33.85	63 54.475	169	5.31	3536	156	- OBS 324
0900	11 31.855	63 53.068	167	4.91	3538	79	
0930	11 29.050	63 52.536	174	5.21	3540	69	
0934	11 29.196	63 52.451	170	5.21	3541	67	- OBS 325
1000	11 27.204	63 52.016	171	4.91	3543	62	
1030	11 24.973	63 51.507	171	5.11	3545	51	
1035	11°24'557	063°51'403	174	5.3	3546	49	- over OBS 326
1036	11°22'893	063°51'023	174	5.3	3548	44	Guns 11 and 12 turn off
1100	**11° 22' 607**	**063° 50' 960**	**170**	**5.3**	**3548.6**	**43**	
1114	11 21.641	63 50.397	114	5.4	3549	40	- Computed turn
1128	11 21.133	63 49.396	122	4.6	3550	36	- All guns back firing
1130	11 21.087	63 49.304	122	4.6	3550	36	
1200	11 20.058	63 47.247	118	4.5	3553	35	- Chg of Watch
1204	11° 19.874 N	063° 50.305 W	121	4.81	3553.9	33	Over OBS 327
1230	11 18.966	63 45.080	122.6	4.41	3555.83	34.21	
1232	11 18.528	63 44.228	119.2	4.81	3557.04	34.31	ramp up following MMO shut down for whales
1300	11° 17.897 N	063° 42.470 W	118.7	5.11	3558.21	34.81	
1301	11 17.847	63 42.470	118.7	5.11	3558.21	34.81	airgun powerdown following whale sighting
1330	11° 16.868 N	063° 40.923 W	123.8	4.61	3560.7	36.01	
1400	11° 15.560 N	063° 39.263 W	112.6	5.11	3563.1	35.11	ramp up begins
1432	11 15.135	63 39.210	176.5	4.91	3565.61	37.41	over OBS 328, power down following whale sighting
1437	11 12.853	63 [illegible]	177	5.0	[illegible]	36.3	whale still with us
1444	11 12.308	63 39.[illegible]	178	4.9	3566.74	34.2	whale deviated course to East.
1500	11 11.046	63 38.966	169	5.2	3568.12	33.0	Strong [illegible] high (5501) Buoy [illegible] Begin Turn to Port

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Cruise EW .04 JD 141 R/V Maurice Ewing Science Watch Log 58 Page 3

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1500	11 10 393	63 38 693	155.8	4.61	3564.00	33.11	over OBS 329
1530	11° 08.469 N	063° 37.436 W	165.6	4.91	3570.6	34.41	
1600	11° 06.675 N	063° 37.758 W	177.4	4.91	3573.07	33.81	Change of duty
1609	11 05890	063 37719	176.5	5.21	357393	33.91	close to OBS 330
1630	11 04 212	63 37680	178.1	4.91	3575.67	33.61	
1700	11 01 836	63 37.537	179.7	5.41	3578.16	33.91	
1707	11 01.234	63 37 512	176.6	5.11	3578.77	34.51	Over OBS 331 (close to)
1720	10 59606	63 37 422	176.4	5.01	358050	34.11	Problem Sunrise 1777 - last shot
1730	10 57.208	63 37.857	181.0	4.81	3583.02	35.81	
1800	10 56.570	63 37.952	190.1	5.01	3583.68	36.41	OBS 332
1830	10 54.711	63 38 392	186.3	4.71	3585.60	40.41	
1900	10 52.444	63 38.879	192.3	4.61	358790	43.91	
1906	10 51913	63 39.021	191.3	4.51	3588.46	42.11	OBS 333
1930	10 50339	63 39.372	193	451	359011	39.41	
2000	10 47 775	63 39 949	191.3	4.81	3592.69	37.21	
2024	10 47 253	63 42 253	188	4.81	3593	37.11	- OBS 334
2030	10° 45' 475	063° 40' 405	190	4.81	3595	33.21	
2042	10 44 502	63 40 322	190	4.91	3596	33.11	- End line 27
2100	10 44087	63 38938	98	4.41	3597	34.4	- Turning to Bol 28
2130	10 45622	63 37728	357	3.51	3599	41.11	
2150	10 47 253	63 42 918	356	4.81	3601	43	- Bol 28A - Start / OBS 334
2200	10 47 960	63 37834	357	4.51	3601	43	
2230	10 50 362	63 37 950	358	4.9	3604	43.5	
2246	10 51 711	63 38 016	358	5.11	3605	42	- Lost Shots
2258	10 52 711	63 38067	353	5.8	3606	44	- 2 guns out / Returning to Restart line
2300	10 52 819	63 38.081	350	4.9	3606	44	- Not Recording
2330	10 53 148	63 39 919	198	4.4	3609	40.	- turning to Re-run 28A
2400	10 50 784	63 40 054	175	4.7	3611	39.5	- Chg of Watch - YEA!!!

Cruise EW 404 JD 142 R/V Maurice Ewing Science Watch Log Page 9

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
00:30	10° 48.358 N	063° 39.900 W	174.9	4.51	3613.9	39.51	
0045	10 47 241	63 39 510	126.1	4.91	3615.16	39.51	over OBS 334
0100	10 47 170	63 38 372	52.0	4.61	3616.39	39.51	
0101	10 47 261	63 38 244	44.8	4.91	3616.54	39.51	over OBS 334
0130	10° 49.386 N	063° 37.895 W	356.5	4.71	3618.75	41.61	
0200	10 51 848	63 38 00056	1.5	4.81	3621.15	42.11	
0201	10 51 950	63 38 031	356.2	4.61	3621.26	43.31	over OBS 333
0230	10 54 338	63 38 137	356.6	5.01	3623.81	42.31	
0258	10° 56.579 N	063° 38.246 W	354.6	4.91	3625.01	35.71	OVER OBS 332
03.00	10° 56.712 N	063° 38.255 W	358.2	4.91	3625.93	36.81	
0330	10 59 187	63 38 390	0.42	5.01	3628.34	33.41	
0400	11 01 245	63 38 747	344.3	4.71	3630.38	32.41	over OBS 331
0400	11 01 508	63 38 812	346.7	4.41	3630.66	32.61	
0430	11 03.949	63.39	356.2	4.71	3633.03	33.31	
0450	11 05.588	63.240	359.5	4.81	3635.42	34.01	over OBS 330
0500	11 06.388	63.248	359.5	4.71	3635.61	33.61	
0530	11 08 804	63 39 356	358.0	4.71	3637.83	33.11	
0548	11 10 254	63 39 383	7.5	4.71	3639.23	34.71	Guns 8, 9 + 10 are out due to turning
0552	11 10.550	63.39323	17.7	4.71	3639.52	33.91	over OBS 329
0600	11 11.130	63 39.107	19.4	4.41	3640.11	33.41	
0613	11 12.595	63.38.521	22.2	4.91	3641.63	36.41	Gun 8 Back on
0628	11 13 285	63 38.322	9.0	4.61	3642.33	35.31	Guns 9 + 10 back on, Guns 11 + 12 off
0630	11 13 422	63 38 305	7.2	4.81	3642.42	35.41	
0651	11 15241	63 38.593	331.6	4.61	3644.22	36.5	over OBS 328
0700	11 15788	63 38.091	329.2	4.61	3644.80	35.21	
0704	11 16.175	63 39 ?	327.8	4.41	3645.57	35.91	All Guns back on + problems with shots 2ssor. with turn
0730	11 17 920	63 40.190	326.3	4.81	3647.06	36.81	

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Cruise EL 404 JD 142 R/V Maurice Ew) Science Watch Log Page 0

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0759	11 19.873	63 41.216	336.0	4.31	3649.06	36.21	over OBS 327
0730	11 20.102	63 41.336	327.9	4.41	3649.29	36.21	
08[illegible]	11 21 871	63 42 250	332	4.21	3659	32	- Gun 20 out of water
0830	11 22 328	63 42 486	329	4.41	3651	36.2	
0900	11 24 469	63 43 603	327	4.8	3654	36	- OBS 326
0930	11 26 754	63 44 799	321	4.9	3655	36	-
1000	11 29 018	63 45 971	331	4.11	3658	36	-
1002	11 29 158	63 46 075	331	4.11	3658	36	- OBS ~~327~~ 325
1030	11 31 192	6347 133	329	4.01	3660	71	
1052	11 32 925	6347 945	326	4.21	3661	87-11	- Gun 20 back in water / Maggie back in
1100	11 33 585	63 48 366	328	4.31	3662	95	
1103	11 33 850	63 48 523	336	4.61	3662	105	- OBS 324
1130	11 35 852	63 49 525	327	4.31	3664	233	
1200	11 38 395	63 50 857	331	4.71	3666	449	- End of Watch
1201	11 38 520	63 50 923	335.9	5.01	3666.95	492.71	over OBS 323
1230	11 40 886	63 52 152	334.7	4.71	3669.15	742.31	
1257	11 43 256	63 53 395	337.41	4.51	3671.24	724.99	over OBS 322
13:00	11° 43.418 N	063° 53.980 W	337.2	4.51	3671.39	719.5	
13:30	11° 46.139 N	063° 54.902 W	339.2	4.51	3673.74	643.41	
13:41	11° 47.832 N	063° 55.790 W	343.4	4.71	3675.2	415.61	Over OBS 321
1400	11 48 780	63 56 272	348.1	4.71	3675.95	414.01	
14:30	11° 51.411 N	063° 57.563 W	2.9	4.41	3678.2	373.61	
14:42	11° 52.491 N	063° 57.992 W	2.0	4.31	3679.07	359.91	Over OBS 320
1500	11 53 036	63 58 143	5.8	4.21	3680.38	358.51	
15:30	11° 56.641 N	063° 58.730 W	4.31	4.51	3682.6	329.31	
15:35	11° 57.150 N	063° 58.853	358.1	4.1	3683.3	324.41	Over OBS 319
16:00	11° 59.149 N	063° 59.244 W	8.5	4.21	3684.3	368.31	Change of duty
1630	12 01662	063 59.353	10.0	3.91	3686.97	913.91	

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Cruise EW 104 JD 142-143 R/V Maurice Ewing Science Watch Log Page 61

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
16:32	12° 1.809	63 59.869	5.8	4.21	36.87.05	929.71	over OBS 318
1700	12° 04.107	64 00.419	5.81	4.02	3684.10	2041.5	
1729	12 06.468	64 0.905	1.1	4.31	3691.17	2253.3	over OBS 317
1730	12 06.610	64 0.975	4.1	5.01	3691.23	2268.3	
1830	12 08.000	64 01.543	4.7	4.21	3693.00	2640.0	
1827	12 11.12	64 02.013	8.7	4.41	3695.13	3122.2	over OBS 316
1830	12 11.374	64 02.062	4.0	4.21	3695.40	3145.7	
1900	12 13.712	64 02.668	3.6	3.81	3697.44	3182.5	
1925	12 15.786	64 03.066	6.2	4.41	3699.28	3311.2	over OBS 315
1930	12 16.170	64 03.154	4.0	4.11	3699.91	3362.0	
2000	12 18.519	64 03.693	357.0	4.31	3701.71	3469.7	
2023	12° 20' 414	64° 04' 130	359	4.41	3703	3598	over OBS # 314
2030	12° 20' 975	64° 04' 256	000	4.4	3704	3627	
2100	12 23.387	64 04.810	356.1	4.51	3706	3430	
2121	12 25.104	64 05.201	351	4.5	3707	3401	OBS 313
2130	12 25.798	64 05.373	357	4.2	3708	3405	
2200	12 28.204	64 05.936	354	4.7	3710	3425	
2219	12 29.064	64 06.281	358	4.5	3711	3254	OBS 312
2230	12° 30' 666	064° 06' 485	000	4.5	3712	3298	
2300	12 33.006	064 07.006	358	4.7	3714	3354	
2316	12 34.420	064 07.340	358	4.7	3716	3330	OBS 311
2330	12 35.573	064 07.588	351	4.9	3716	3321	
2400	12 37.957	64 08.137	353	4.2	3719	3268	End of Watch
0012	12 39.074	64 08.395	357.7	4.21	3720.28	3189.7	over OBS 310
0030	12° 40.503 N	064° 08.731 W	359.9	4.61	3721.5	3020.3	
0100	12° 42.992 N	064° 09.292 W	353.2	4.31	3723.7	3034.6	
0109	12° 43.737 N	064° 10.501 W	352.1	4.41	3724.3	3029.5	OBS 309
0130	12° 45.475 N	064° 09.863 W	352.1	4.41	3725.94	3040.7	

Cruise E 104 JD 143 R/V Maurice Ew) Science Watch Log Page 12

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
02:00	12° 49.816 N	064° 10.407 W	356.2	4.61	3728.06	3066.7	
02:0	12° 48.397 N	064° 10.503 W	356.3	4.41	3728.8	3076.4	Over OBS 308
02:3	12° 50.369 N	064° 10.477 W	351.1	4.61	3730.3	3084.6	
03:00	12° 52.840 N	064° 11.548	352.4	4.41	3732.6	3107.2	
03:15	12° 53.053 N	064° 11.601 W	354.2	4.41	3732.74	3111.6	Over OBS 307
03:30	12° 55.267 N	064° 12.101 W	348.4	4.11	3734.8	3143.7	
04:00	12° 57.668 N	064° 12.673 W	354.2	4.51	3736.6	3158.0	Chance doty
04:00	12° 57.668 N	064° 12.673 W	354.2	4.51	3736.6	3158.0	Over OBS 306
0430	13 [illegible]	64 13.209	352.4	411	3739.15	3175.3	
0500	13 0237	64 13.751	354.1	432	3741.33	3180.04	over OBS 305
0530	13 64 733	64 14.272	354.1	4.21	3743.47	3187.6	
0600	13 07 010	64 14 798	354.5	4.21	3745.62	3193.7	~~over OBS 304~~
0600	13 07 010	64 14 798	354.6	4.21	3745.63	3193.7	Over OBS 304
0630	13 09 384	64 15.356	354.6	451	3747.84	3227.4	
0700	13 11.081	64 17.034	214.1	4.41	3750.04	3256.1	
0730	13 12.189	64 19 323	272.5	4.01	3752.24	3293.8	
0800	13 10.846	64 20.678	155.2	5.21	3754.50	3308.1	
0823	13 09796	64 19.520	127.4	471	3756.52	3284.6	All Guns Back in
0830	13 09.565	64 19.166	121.6	471	3757.01	3277.4	
0900	13° 08' 429	64° 17' 349	126	4.5	3759	3246	
0930	13° 07' 326	64° 15' 552	120	4.5	3761	3210	
1000	13° 06' 2800	064° 13' 781	124	4.8	3764	3171	
1030	13 05 074	64 11 979	123	5.0	3766	3150	
1100	13 03 951	64 10 195	123	4.8	3769	3120	
1130	13 02 708	64 08 121	124	4.8	3771	3082	
1200	13 01 468	64 06 247	123	4.8	3774	3036	End of Shift
12:30	13° 00.213 N	064° 04.219 W	121.7	5.1	3776.9	2988.2	
13:00	12° 58.935 N	064° 02.186 W	120.3	4.91	3779.36	2950.1	

Cruise EW 1104 JD 143/144 R/V Maurice Ewing, Science Watch Log Page 63

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1330	12 57 618	64 00 062	118.0	4.91	3781.89	2899.2	
1400	12 56 335	63 58 009	128.8	5.01	3783.87 ~~3786~~	2809.7	
1430	12 55 078	63 56 009	117.1	4.91	3786.89	2634.1	
1500	12 53 853	63 54 049	119.9	4.91	3789.38	2511.4	
1530	12 52 631	63 52 100	119.3	5.01	3791.92	2245.9	
1600	12 51 431	63 50 185	115.6	4.61	3794.41	2164.1	change of watch
1630	12 50 155	63 48 139	116.8	5.11	3796.98	1922.7	
1700	12 48 863	63 46 074	115.4	5.01	3799.41	1833.2	
1730	12 47 557	63 43 986	115.5	4.81	3801.85	1826.1	
1800	12 46.287	63 41.957	112.4	4.81	3804.21	1829.1	
1830	12 44.913	63 39 760	116.3	4.81	3806.73	1836.3	
1900	12 43.610	63 37.670	119.1	4.71	3809.15	1357.8	
1930	12 42.290	63 35.572	122.0	4.71	3811.57	1087.2	
2000	12 41 014	63 33 538	116.3	4.81	3813.88	969.61	
2030	12 39 693	63 31 422	117	5.01	3816	1059	
2100	12 38 408	63 29 361	120	4.91	3818	1025	
2130	12 37 086	63 27 254	117	4.71	3821	1055	
2133	12 36 956	63 27 047	117	4.71	3821	1055	Gun 13 - out of water
2200	12° 35'777	063° 25'162	120	4.5	3824	1093	
2230	12 34 545	63 23 199	120	4.4	3825	1166	
2248	12 33 730	6321 901	117	4.91	3827	1277	Gun 13 back in water
2300	12 33 247	6321 128	117	4.5	3828	1382	
2330	12 31 429	6319 021	117	5.1	3830	1786	
2900	12 30 730	63 17 104	119	4.9	3832	2512	End of Watch, problem with GPS01
0030	12 29 376	63 14 864	118.7	4.91	3835.46	2760.0	
0100	12 28 092	63 12 772	118.1	4.51	3837.90	2807.7	
0130	12 26 732	63 10 645	121.4	4.81	3840.17	2836.2	
0200	12 25 466	63 08 696	114.3	4.41	3842.41	2861.6	

Cruise EV 04 JD 144 R/V Maurice Ewi Science Watch Log Page 1 64

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0230	12°24.108	063°17.608	115.9	4.31	3844.6	2895.1	
0300	12° 22.826	063°09.490	115.2	4.11	3846.7	2920.5	
0330	12 21 548	63 02 445	115.0	4.41	3848.95	2929.7	problem with GPS fixed
0400	12 20 694	63 01 090	117.4	4.41	3850.35	2939.9	problem with GPS01
0432	12 20 558	63 00 585	116.0	4.31	3850.63	2942.0	problem with GPS fixed
0500	12° 20.260 N	063° 00.384 W	114.4	4.51	3851.14	2946.0	Change of duty
530	12 19 015	62 58 401	116.0	4.41	3853.26	2961.3	
500	12 17.766	62 56.273	106.9	451	3855 51	2967.4	
530	12 16.760	62 54.055	108.5	4.41	3857.67	2969.4	
600	12 15 481	62 51 915	116.0	4.61	3859.88	2956.2	
606	12 15 181	62.51.417	117.3	4.41	3860.33	2960.3	Over the OBS' Line
630	12 14 182	62 49 798	120.4	4.21	3861.96	2923.6	
700	12 12 875	62 47 700	118.4	4.02	3864.02	2880.9	
730	12 11 629	62 45 675	119.2	4.11	3865.99	2919.5	
800	12 10386	62 43.696	120.6	451	3868.02	2949.0	
0830	12 09082	62 41 622	121	4.31	3870	2788	
0900	12 07 847	62 39 645	119	4.31	3872	2713	
0930	12 06 583	62 37 628	120	4.41	3874	2726	
1000	12° 05'238	062° 35'617	120	4,5	3876	2862	
1001	12 05238	62 35 617	120	4.5	3876	2862	Guns 9/17 off line
1030	12 03988	62 33475	119	4.7	3878	2788	Guns 9 turn on
1100	12 02714	62 31441	121	4.7	3881	2728	
1130	12 01 443	62 29 401	123	4.8	3883	2298	Guns 17 back on.
1200	12° 00' 171	062° 27' 371	120	4,7	3886	2093	
12:30	11° 58.857 N	062° 25.463 W	120.6	4.61	3888.56	1819.1	
13:00	11° 57.609 N	062° 23.272 W	123.2	4.71	3890.0	1813.2	
13:30	11° 56.301 N	062° 21.188 W	122.4	4 51	3892.2	2076.8	
14:00	11° 55.079 N	062° 19.215 W	121.1	4.51	3895.52	2265.6	

Cruise EW 104 JD 144 / 145 R/V Maurice Ewing ; Science Watch Log Page 165

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1430	11° 53.805 N	062° 17.960 W	122.7	4.81	3897.45	2370.7	
1500	11° 52.598 N	062° 15.273 W	120.1	4.91	3900.31	2227.3	
1530	11° 51.322 N	062° 13.235 W	119.5	5.01	3902.8	1813.0	
1600	11° 50.093 N	062° 11.264 W	123.5	5.21	3905.3	1341.0	Change of duty
1630	11 48 843	62 09 207	120.2	5.11	3907.81	503.91	
1700	11 47 584	62 07 255	119.8	4.91	3910.35	369.11	
1730	—						[illegible]
1750	11 [illegible] 21	[illegible]	21	[illegible]	[illegible]	[illegible]	
1800	11 44 985	62 03.114	122.7	4.61	3915.32	494.21	
1830	11 43 798	62 01 222	119.8	4.81	3917.84	785.01	
1900	11 42 755	61 59 600	120.8	5.11	3920.39	769.41	
1930	11 41 567	61 57.660	113.1	4.51	3922.80	750.61	
2000	11 40 444	61 55 862	106.5	4.71	3925.11	728.31	Change Watch
2030	11 39 304	61 54 109	107	4.8	3923	707	—
2100	11 38 032	61 52.016	108	4.8	3929	665	
2130	11° 36' 751	061° 49' 953	108	4.7	3932	632	
2134	11 36 568	61 49 68[illegible]	95	4.7	3932	628	— Tail buoy Est. 3 km N. of line
2200	11 35 441	61 47 988	100	5.01	3935	594	
2230	11 34 162	61 46 858	109	4.7	3937	524	
2300	11 32 871	61 43 804	119	5.01	3939	398	—
2330	11 31.572	61 41 767	129	4.71	3942.37	306.81	
2400	11 30 412	61 40 936	123	4.5	3944	227	— End of Shift
0030	11 29 258	61 38 093	126.7	4.31	3947.10	205.21	
0100	11° 28.189 N	061° 36.919 W	128.6	4.31	3949.7	191.6	
0130	11° 27.193 N	061° 34.823 W	130.2	4.51	3951.6	182.31	problem with tape drives - see log
0200	11° 26.294 N	061° 33.371 W	130.7	4.61	3953.8	181.7	
0230	11° 25.425 N	061° 32.039 W	139.1	4.01	3956.03	181.61	
0300	11° 24.578 N	061° 30.691 W	132.3	4.71	3958.2	177.01	

Cruise EW 0204 JD 145 R/V Maurice Ewing, Science Watch Log Page 166

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0330	11 23 680	61 29 268	131.8	4.91	3960.65	175.51	
0400	11° 22.741 N	061° 29.737 W	133.7	4.71	3963.10	173.01	Change of duty
0430	11 21.748	061 26.209	129	451	396556	170 51	
0500	11 20.801	61 24.715	128.5	471	3967.93	170 01	
0530	11 19.829	61 23.176	128.6	471	3970.35	170.71	
0600	11 18805	61 21.547	128.1	5.01	3972.81	165.11	
0630	11 17 775	61 19.919	133.3	5.01	3975.30	160.21	
700	11 16.742	61 18.306	130.1	5.01	3977.67	159.61	
730	11 15.655	61 16.566	125.1	491	3980.27	150.91	
800	11 14690	61 15.030	121.5	471	3982.61	148.01	Change Watch
0830	11 13 623	61 13 321	123	471	3985	135	
0900	11 12 592	61 11 738	121	481	3987	134	
0930	11° 11' 606	061° 10'186	121	4.8	3989	124	
1000	11 10 568	61 08 526	120	4.7	3992	110	
1030	11° 09' 54.3	061° 06'927	120	4.7	3994	106	
1100	11° 08'506	061° 05'260	120	4.7	3997	97	
1130	11° 07'551	061° 03'751	120	4.7	3999	93	
1200	11 06 612	61 02 259	121	4.4	4001	85	End of Watch
1230	11 05 645	61 00 734	124.1	4.41	4003.10	80.71	
13:00	11° 04.791 N	060° 59.361 W	123.0	5.01	4006.02	67.71	
13:30	11° 03.936 N	060° 58.046 W	127.3	5.01	4008.4	61.51	
14:00	11° 03.167 N	060° 56.819 W	119.6	5.51	4010.9	36.11	
14:30	11° 02.296 N	060° 55.441 W	115.5	5.31	4013.6	55.81	
1500	11 01 416	60 54 074	116.6	4.91	4016.08	69.51	
15:30	11° 00.472 N	060° 52.579 W	119.8	4.51	4018.5	96.11	
16:00	10° 59.528 N	060° 51.080	113.5	4.71	4020.9	122.1	Change of duty
16:30	10 58 486	060 49 461	115.3	4.91	402330	76.61	
1700	10 57 433	060 47 805	119.2	4 81	4025.57	45 41	Gun 15 off

Cruise EW 04 JD 145-146 R/V Maurice Ewing Science Watch Log Page 67

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1730	10 56.369	60 46.107	119.0	4.71	4027.88	44.01	
1800	10 55.281	60 44.424	128.1	5.11	4030.45	51.01	
1830	10 54.122	60 42.617	121.8	4.81	4032.60	47.81	
1900	10 53.015	60 40.865	127.8	4.71	4034.91	52.31	
1930	10 51.848	60 39.043	127.7	4.71	4037.34	58.21	
2000	10 50.880	60 37.521	130.4	5.01	4039.39	62.51	
2030	10 49.655	60 35.607	130	5.2	4041	66.5	
2100	10 48.490	60 33.788	137	5.01	4044	80.21	
2130	10 47.407	60 32.051	147	5.71	4046	83	
2200	10 46.166	60 30.117	140	5.71	4049	59	
2230	10°45'.033	060°30'.357	140	5.31	4052	67	
2300	10 44.763	60 27.937	135	5.21	4052	67	– Nuggets Back in Water
2330	10°44'.051	060°25'.815	137	5.0	4054	70	
2330	10 42.824	60 24.903	132	5.3	4057	78	
2400	10 41.756	60 23.224	137	4.91	4059	80.8	– End of Watch
00:30	10°40.588 N	060°21.393 W	135	4.81	4062.5	99.31	
01:00	10° 39.466 N	060° 19.639 W	129.7	5.01	4065.04	164.81	
01:30	10° 38.246 N	060° 17.735 W	130.1	5.01	4067.52	255.01	
02:00	10° 37.066 N	060° 15.874 W	129.1	4.91	4070.01	314.61	
02:30	10° 35.871 N	060° 13.999 W	130.1	5.01	4072.50	405.31	
03:00	10° 34.738 N	060° 12.220 W	128.2	5.01	4074.93	464.21	
03:30	10° 33.573 N	060° 10.396 W	126.4	5.41	4077.4	585.31	
04:00	10° 32.354 N	060° 08.489 W	127.7	4.61	4079.79	608.71	Change of duty
0430	10 31.160	060 06.617	127.1	5.21	4082.60	658.01	
0500	10 29.986	060 04.782	130.8	5.11	4085.15	668.51	
0530	10 28.800	060 02.915	127.5	4.81	4087.73	704.01	
0600	10 27.567	60 00.999	124.5	4.99	4090.30	732.41	

Cruise 5? 104 JD 146 R/V Maurice Ewi ; Science Watch Log Page 28 (68)

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0630	10° 26.338	59 59.064	123.1	5.11	4092.75	744.41	
700	10 24 442	59 57 440	124.0	5.05	4095.70	769.41	
730	10 23 848	59 55 166	124.1	5.01	4097.64	790.41	
800	10 22549	59 53.140	1177	4.91	4100.19	811.41	
830	10° 21' 329	59° 51' 210	122	5.0	4102	856	
900	10° 20' 186	59° 49' 297	122	5.1	4105	859	
930	10 18906	59 47 424	128.5	5.41	4107.53	924.81	- XBT's launched between 9:14 - 9:21
1000	10 17 792	59 45 852	132	4.6	4109	970	
1030	10 16 608	59 43 856	131	4.6	4112	1026	-
1100	10 15 488	59 42 126	128	5.1	4114	1040	
1128	10 14 332	59 40 305	128	4.7	4117	1062	- Gun 8 out of Water
1130	10 14 269	59 40 215	131	4.9	4117	1062	
1139	10 13 870	5939 608	131	4.9	4118	1062	- 2-Guns out = 7/8
1144	10 13 663	59 39 290	127	4.9	4118	1076	- Gun 7 back on
1200	10 13 120	59 38 438	129	43	4119	1088	- End Watch - Gun 8 still out.
1230	10 12 476	59 37 442	123.6	5.01	4121.13	1114.1	gun 8 back on
12:30	10°11.818 N	059° 36.489 W	126.0	4.91	4122.53	1128.2	
13:00	10°10.734 N	059°34.732 W	133.6	4.91	4124.6	1175.8	
1330	10 09 626	59 33 019	128.3	4.71	4127.01	1161.0	
14:00	10°08.549 N	059°31.364 W	134.2	4.71	4129.3	1225.9	
14:30	10° 07.544 N	059°29.982 W	129.4	4.21	4131.7	1155.6	
15:00	10° 06.622 N	059°28.378 W	134.0	4.01	4133.9	1192.0	
15:30	10° 05.692 N	059°26.932 W	133.0	4.81	4136.2	1289.0	
16:00	10° 04.695 N	059°25.383 W	133.8	4.51	4138.6	1273.1	Change of duty
1630	10 03 734	59 23.890	136.0	5.01	4141.07	1310	
1657	10 02 892	59 22 600	133.0	5.31	4143.26	1354.8	Pulling in guns 11 + 12 for turn
1700	10 02 830	59 22 520	140.2	4.91	4143.39	1358.8	Stop
1702	10 02 732	59 22 380	143.4	4.91	4143.59	1356.0	Start turn

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Cruise: 04 JD 146/147 R/V Maurice Ew ; Science Watch Log Page 69

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1700	10 02.638	59.22 114	123.9	4.51	4144.06	1367	Gun 13 is off
1730	10 02 472	59.21 014	122.8	4.51	4145 02	1394.8	EOL 30
1730	10 02 345	59 20.788	129.2	4.91	4145 88	1420.9	
1800	10 02.917	59 19.030	31.1	4.61	4148.17	1460.9	On turn to line 31
1830	10 05 26	59 20	253.8	4.91	4150.34	1474.9	
1900	10 04.479	59 21.987	214.9	5.11	4152.72	1414.9	
1930	10 03.932	59 22 361	219.6	5.21	4154.02	1375.8	SOL 31
1937	10 03.669	59 23.586	241.8	5.31	4154.90	1337.8	Guns 11 & 12 back on
1930	10 03 646	59 23 753	237.5	4.81	4155.11	1320.8	At waypoint of line
2000	10 03245	59 26.042	237.5	4.61	4157.45	1196.0	
2030	10°02'795	059°28'495	245	5.3	4159	1086	
2100	10°02'831	059°30'929	242	5.2	4162	1007	
2130	10 01 937	59 33 364	245	4.0	4164	947	
2200	10 01 439	59 36 227	247	4.8	4167	928	
2230	10°01'041	059°38'532	245	4.2	4169	895	
2300	10 00 620	59 40 887	246	4.1	4171	838	
2330	10 00 233	59 43 086	239	4.5	4173	759	
0000	09°59.791 N	059°45.579 W	245.3	4.11	4176.2	689.21	Change of duty
0030	9 59 358	59 47 982	245.3	4.51	4178.58	632.61	
0100	9 58 443	59 50 375	253.2	4.11	4180.80	570.01	
0130	9 58 506	59 52 776	253.1	4.01	4183.00	474.01	
0200	09°58.103 N	059°55.125 W	257.3	3.61	4185.11	350.61	
0230	09° 57.657 N	059°57.606 W	254.2	4.71	4187.2	269.91	
0300	09°57.260 N	059° 59.936 W	258.6	3.91	4189.2	189.31	
0330	09° 56.817	060° 02.400 W	247.7	4.41	4191.6	154.91	
0400	09° 56.401 N	060° 04.753 W	250.8	4.21	4193.6	136.71	Change of duty
0430	09 55 980	060° 07.112	256.1	.441	4195.00	134.61	
439	9 55 851	60 07 844	253.1	501	4196.52	125.61	Gun 11 & 12 out of water

Cruise E\ ;04 JD 147 R/V Maurice Ewi , Science Watch Log Page 70

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0500	9 55.487	060 09.518	226.8	431	4197.99	87.81	Gun 13 Turned off
509	9 55 050	06009 905	185.9	4.61	4198.61	88.81	EOL 31 / EOT 829
530	9 53.926	60 09.525	139.7	4.51	4200.91	87.41	
600	9 52 588	60 08.590	140.9	4 41	4202.39	89.21	
630	9 51.261	60 07.632	137.7	4.41	4204.59	89.71	
700	9 51.768	60 05.892	60.8	4.51	4206.91	102.90	
730	9 54.296	60 06.78	319.7	4.51	4209.45	144.21	
0800	09° 56' 638	060° 09' 650	327	4.6	4211	133	
0830	09° 58' 550	060° 09' 268	328	4.5	4213	129	
0900	10 00 608	60 10 780	329	4.7	4215	123	
0930	10 02765	60 12 387	328	4.1	4218	112	
1000	10 05 063	60 14 109	327	4.3	4220	111	
1030	10 07 303	60 15 778	320	4.7	4222	98	
1100	10 09 437	60 17 301	325	4.6	4224	91	
1130	10 11 431	60 18 862	325	4.0	4226	96	
1152	10 13 207	60 20 171	317	4.4	4228	95	-- Gun 10 Down
1200	10 13 706	60 20 539	319	4.1	4228	99	- End of Watch
1230	10° 15.863 N	060° 22.151 W	315.1	4.01	4230.82	101.41	
1300	10° 18.043 N	060° 23.768 W	322.0	4.41	4232.82	102.51	
1330	10 20 216	60 25 402	323.2	4.21	4234.91	101.61	
1400	10° 22.306 N	060° 26.961 W	319.4	4.21	4236.88	100.71	
1430	10° 24.493 N	060° 28.606 W	321.1	4.11	4238.9	91.11	
1500	10 26 617	60 30 177	314.7	4.41	4240.95	89.71	
1530	10° 28.762 N	060° 31.779 W	312.6	4.31	4243.1	69.51	
1600	10° 30.826 N	060° 33.331 W	308.3	3.71	4245.06	63.71	Change of duty
1630	10 32.000	060 34940	306.8	411	4247.16	60.11	
1700	10 35 191	060 36.580	30744	3.91	4249.25	59.31	
1730	10 37 078	060 37993	317.0	421	4251.21	54.91	

Cruise EW0404 JD 147/148 **R/V Maurice Ewing Science Watch Log** Page 71

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1800	10 39.178	60 39 578	318.5	4.71	4253.35	49.41	
1830	10 41467	60 41.267	322.7	4.91	4255.68	67.71	
1900	10 43 563	60 42 839	316.9	4.91	4257.79	68.11	
1930	10 45 912	60 44 580	316.7	4.81	4260.17	62.71	
2000	10°47'777	060°45'975	315	4.5	4261	60.	- Chg of Watch
2030	10 50 024	60 47 658	314	4.3	4264	52.4	
2100	10 52150	60 49 232	308	4.1	4265	42.1	-
2103	**10°52'495**	**060° 49'513**	**308**	**4.1**	**4266**	**43**	**MAGNETICS SYSTEMS TURN OFF.**
2130	10 54 318	60 50 869	314	4.1	4267	47	-
2200	10° 56'576	060°52'571	319	5.1	4270	63	
2220	10°58'058	060°53'787	330	4.7	4271	86	- GUNS # 11 and 12 turn off.
2230	10 58 681	60 54249	305	4.2	4272	103	
2232	10 58 797	60 54455	298	4.2	4272	106	- End Line Bol 32
2300	10 58 310	60 56 554	181	4.0	4274	96	
2330	10 56 447	60 56 887	133	4.2	4276	78	
2400	10 55 760	60 55 313	103	4.3	4278	60	- Magnetics Systems back on
0030	10° 55.802 N	060° 53.591 W	78.4	4.21	4280.96	57.91	
0034	10° 55.996 N	060° 53.293 W	78.9	4.21	4281.3	61.01	SOT 858 and SOL BOL-33
0100	10 56 993	60 51 785	72.9	4.81	4283.21	80.31	
0130	10 58 243	60 50 052	77.0	4.31	4285.41	83.11	
0200	10° 59.444 N	060° 48.364 W	70.6	4.41	4287.5	81.71	
0230	11° 00.669 N	060° 46.650 W	72.8	4.41	4289.82	79.92	
0300	11° 01.444 N	060° 44.856 W	62.8	4.61	4292.08	83.11	
0330	11° 03.160 N	060° 43.141 W	53.8	4.21	4294.2	89.71	
0400	11° 04.446 N	060° 41.334 W	52.1	4.61	4296.3	89.31	Change of duty
0430	11 05.673	060 39 647	50.5	4.21	4298.27	90.61	
0500	11 06.972	60 37 825	51.9	4.11	4300.78	80.91	
0530	11 08.367	60 35.878	57.1	4.71	4302.69	80.41	

Cruise EW0404 JD 148 **R/V Maurice Ewing Science Watch Log** Page 72

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0600	11 09.801	60 33.885	57.2	4.41	4304.89	80.01	
620	11 11 069	60 32.758	360	4.41	4306.39	82.11	Gun 13 turned off
625	11 11 474	60 32.786	334.7	4.11	4306.76	82.91	FOL 33
630	11 11 813	60 32.934	318.5	4.51	4307.08	81.91	
0700	11 11.283	60 34.918	204.4	5.01	4309.58	77.51	
0730	11°09'171	060° 35'130	140	4.7	4312	80	
734	11 08885	060 34879	128.9	4.61	4312.35	77.61	SOL 34
0800	11 07.910	060 33225	137.2	4.21	4314.26	82.50	
0810	11 07 511	60 32 530	138	4.1	4315	81	Gun 11 on
0830	11° 06'768	060° 31'241	128	4.7	4318	82	
0900	11 05666	60 29 506	135	4.1	4318	81	
0930	11°04'530	060°27'620	133	4.7	4321	92	
1000	11 03 434	60 25 818	133	4.7	4323	100	Birds leaving floats.
1030	11 02 380	60 24 081	133	4.7	4325	111	Birds still on surface 20-11 → [illegible]
1100	11 02 380 +/-	60 24 081 +/-	104	4	–	194	Estimated lat/lon - Steel laboratory
1130	11° 01'078	060° 20'991	122	4.5	–	198	– Ramping 1 Gun
1200	11 03 405	60 21 149	311	5.2	5.76	308	Returning to Pure failure - Bol 34A
12:30	11° 04.713 N	060° 23.417 W	295.1	4.6	8.31	302	
13:00	11° 05.849 N	060° 25.581 W	298.4	4.9	10.62	149.91	
13:30	11° 05.364 N	060° 27.337 W	194.6	3.9	12.76	100.71	SOL 34A
14:00	11° 03.751 N	060° 26.334 W	137.5	4.6	15.15	99.01	
14:30	11° 02.686 N	060° 24.577 W	135.1	4.2	17.49	104.91	
1500	11 01 770	60 23 082	131.0	4.4	19.56	115.41	
15:30	11° 00.762 N	060° 21.403 W	131.4	4.6	21.82	151.81	
16:00	10° 59.759 N	060° 19.798 W	131.5	4.3	23.98	279.51	
16:30	10 58.684	60 17.991	126.3	4.3	26.19	996.91	
17:00	10 57.663	60 16.290	127.4	4.7	28.25	785.41	
1730	10 56 633	60 14.592	126.6	4.2	30.30	859.81	

Cruise EW0404 JD 148/149 **R/V Maurice Ewing Science Watch Log** Page 72

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1800	1055.526	60 12.782	131.3	4.0	32.56	1080.8	
1830	10 54.441	60 10.993	119.1	4.3	34.76	1472.2	
1900	10 53.397	60 09.254	121.7	4.6	36.87	1405.6	
1930	10 52.236	60 07.348	127.4	4.6	39.21	1343.0	
2000	10 51.167	60.0581	124.1	4.2	41.44	1144.5	
2050 ~~2000~~	10 50.095	60 03.823	125.0	4.4	43.67	1122.7	
2100	10 49 139	60 02.243	130.7	4.0	45.72	1034.4	
2130	10 48 883	60 00 500	129	4.1	47.93	1038	
2200	10°47'069	059°58'830	121	4.3	50	1067	
2230	10°45'092	059°57'209	126	4.1	52	1008	
2300	10 45 161	59 55 699	126	4.1	54	1106	
2330	10 44 165	59 54 039	124	4.4	56.	1105	
2400	10 43 295	59 52 624	127	4.0	58	1103	End of Shift
0050	10 42 310	59 50 964	127.6	4.5	60.44	1107.8	
0100	10 41 363	59 49 433	131.2	5.5	62.49	1106.8	
01:30	10°40.377 N	059°47.780W	141.3	5.0	64.67	1128.6	
02:00	10°39.457N	059°46 255W	140.2	4.5	66.85	1131.6	
0230	10 38 525	59 44 739	144.8	4.7	69.23	1130.6	
0300	10 37 656	59 43 323	145.3	4.6	71.46	1143.5	
0330	10 36 790	59 41 885	144.6	4.8	73.72	1155.4	
04:00	10°35.973 N	059°40.535W	141.1	4.3	75.75	1168.4	Change of duty
0430	10 35.095	059 39 095	143.3	4.4	78.05	1182.2	
0500	10 34.000	059 37 438	143.3	4.0	80.80	1214.0	
0530	10 33.433	059 36.363	144.3	4.3	82.45	1236.8	
540	10 33 153	059 35.895	145.9	4.0	83.20	1243.8	Gun 10 is off
546	10 32 974	059 35 597	142.0	4.2	83.68	1254.7	Gun 9 is off
600	10 32.601	059 34.939	134.9	4.5	84.64	1258.5	
603	10 32 409	059 34 737	156.0	4.8	85.08	1256.7	Start turn

Cruise EW0404 JD ~~149~~ 149 **R/V Maurice Ewing Science Watch Log** Page 73

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
610	10 31.962	59.34.470	165.8	4.8	85.89	1260.2	EOL 34A
620	10 31 639	59 34.405	183.2	5.1	86.70	1261.6	SOL 35
630	10 31.251	59 34.522	204.3	5.0	87.8	1260.6	
700	10 29.890	59 35.365	202.4	4.3	84.41	1255	
641–647	-	-	-	-	-	-	Shots are missing due to Spectra problem
730	10 28 528	59 36 255	202.7	5.2	91.78	1230.8	
800	10 27 104	59 37 183	197.2	5.0	94.18	1205.0	
0830	10 25 851	5938 139	198	50	96.6	1196	
0900	10° 24' 113	59° 39' 122	194	5.0	99	1178	
0930	10 22 594	59 40 101	198	5.3	101	1148	
1000	10° 21' 000	059° 41' 138	197	4.8	104	1186	
1030	10 19 448	59 42 138	203	4.9	106	1077	
10:35	10:38.44	59 42 463	202	5.0	107.31	1065.1	lost ~8 shots due to drive problems.
1100	10 17 757	59 43 228	204	5.0	108	1043	
1109	10 17 237	5943 555	198	5	109	1031	– Gun 3 off
1132	10 16 069	59 44 333	200	5	111	1009	– Gun 11 off
1138	10 15 591	59 44 633	195	5.0	112	993	– Gun 12 off > Prep for turn
1149	10 14 986	59 44 915	174	5.1	113	982	– End Bol 35
1200	10 14 382	59 44 867	173	5.1	113	974	– End of Watch – Turning to Bol 36
1230	10 13 975	59 43 242	65.9	4.9	116.38	998.71	
13:00	10°16.594 N	059°43.530 W	282.6	4.8	118.90	1035.4	
1303	10 16 657	59 43 763	269.8	4.8	119.16	1025.5	over OBS 440
1330	10 17 959	59 45 923	286.1	5.1	121.24	969.41	
1400	10 19 522	59 48 374	290.1	5.0	123.71	916.41	
14:24	10° 20.809 N	059°50.413	297.0	4.9	125.72	870.71	Over OBS 439
14:30	10°21.138 N	059°50.924 W	284.6	5.0	126.18	857.51	
15:00	10°22.736 N	059° 53.924 W	288.5	4.9	128.63	807.21	
15:30	10°24.322 N	059°55.897	283.6	4.8	131.05	780.41	

Cruise EW0404 JD 149/150 **R/V Maurice Ewing Science Watch Log** Page 74

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
15:42	10° 24.973	059° 56.924	288.5	5.2	132.06	774.51	Over OBS 438
16:00	10° 25.879 N	059° 58.347 W	294.9	5.4	133.55	750.61	Change of duty
1630	10 27 498	060 00.904	299.7	5.2	136.27	751.81	
1700	10 29.021	060 03.291	298.3	4.8	138.74	684.01	
1730	10 30.530	060 05.622	298.1	5.0	141.18	667.21	
1800	10 32 060	060 08.022	298.5	4.9	143.71	619.41	
1830	10 33.548	060 10.353	291.0	4.8	146.17	580.81	
1835-37							bad taps + bad shots ⇒ check logs
1900	10 35.021	060 12.662	301.4	4.5	148.67	434.61	
1930	10 36.504	060 14.999	300.9	4.9	151.22	347.81	
1955	10 37.451	060 16.381	300.5	4.9	152.22	320.57	Over OBS 435
2000	10 38003	060 17.354	301	5.0	153.66	277.81	
2030	10° 39' 495	060° 19' 679	296	4.7	156	159	
2100	10 40 937	60 21 932	297	4.8	158	91	
2112	10° 41' 527	60° 22' 864	297	5.1	159	83	Over OBS #434
2130	10 42 928	60 24 264	298	5.2	160	75	
2200	10 43 778	6026 339	298	5.1	162	70	
2230	10° 45' 318	060° 45' 318	298	5.0	165	67	
2256	10° 46' 820	060° 30' 442	298	5.0	167	56	Over OBS # 433
2330	10 48 325	60 33 516	293	4.9	170	80	
2400	10° 49' 801	060° 35' 885	292	4.5	173	66	over OBS # 432 / Change of duty
0030	10 51 357	60 38 290	295.0	4.8	175.97	63.01	
01:00	10° 52 744 N	060° 40 503 W	297.9	4.5	178.40	52.01	
0126	10 54 074	60 42 535	293.1	5.5	180.57	47.81	over OBS # 431
0130	10 54 233	60 42 741	290.9	4.9	180.84	43.01	
0200	10° 55.718 N	060° 45.170 W	297.4	4.9	183.33	41.31	
02:30	10° 57.256 N	060° 47.556 W	293.5	4.5	185.81	43.51	
02:4	10° 58.165 N	060° 48.954 W	300.6	4.4	181.79	65.81	OVER OBS # 430

Cruise EW0404 JD 150 **R/V Maurice Ewing Science Watch Log** Page 75

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0300	10° 58.730 N	060° 49.842 W	305.1	4.7	188.18	87.61	
0330	11 00 360	60 52 402	310.7	4.7	190.63	96.81	
0400	11 02 052	60 55 056	314.1	4.1	193.00	59.81	
0405	11 02.312	60 55.471	312.9	4.1	193.37	54.71	over OBS. 429
430	11 03 766	60 57.762	301.7	4.1	19509	54.41	
500	11 05 442	61 00.422	297.1	4.2	197.15	78.71	
0515	11 06.430	61 2.001	296.0	4.1	198.77	86.91	over OBS 428
0530	11 07.096	61 03.075	297.7	4.0	199.29	90.01	
0600	11 08.745	61. 05.645	297.2	4.3	201.22	100.41	
0630	11 10.425	61 08.298	296.8	4.0	203.48	113.01	
633	11 10570	61 08.490	295.6	4.3	203.64	114.81	over OBS 427
700	12 052	61 10.878	291.0	4.3	205.70	125.41	
730	13.660	61 13.453	297.4	4.4	207.87	142.51	
749	14704	61 15.032	294.5	4.5	209.23	147.11	over OBS 426
800	15 294	61 15.991	294.7	4.5	210.07	151.91	
0830	11° 16.922	061° 18.573	289	4.5	212	162	
0900	11 18 475	61 20 025	286	4.6	214	164	
0905	11 18 819	61 21 580	286	4.4	215	164	- OBS 425
0930	11 20 131	61 23 655	288	4.8	217	172	
1000	11 21 129	61 26 168	294	4.6	219	170	
1026	11 22 960	61 28 080	301	4.5	220	171	- OBS 424
1030	11 23 279	61 28 632	303	4.2	221	171	-
1100	11 24 729	61 30 933	309	4.5	223	180	
1130	11 26 357	61 33 510	301	4.8	225	184	
1150	11 27 084	61 41 16	303	5.3	228	184	- OBS 423
1200	11 27 879	61 35 898	303	5.3	228	188	- End of 5th Watch
1230	11 29 512	61 38 565	307.6	5.1	231.40	212.61	
1300	11 30 873	61 40 631	305.5	4.6	233.82	233.61	

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Cruise EW0404 JD 150

R/V Maurice Ewing Science Watch Log

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1307	11 31 206	61 41 140	308.8	4.9	234.43	209.31	over OBS 422
13:30	11°32.228 N	061°42.811	312.1	4.70	236.24	344.31	
1400	11 33 588	61 44 947	308.7	4.9	238.67	472.71	
14:30	11° 34.919 N	061°47.070 W	319.8	5.2	241 23	566.31	
14:39	11° 35.329 N	061°47.708 W	315.2	4.8	242.03	592.51	Over OBS 421
15:00	11° 36.211 N	061°49.108 W	318.6	4.7	243.68	625.21	
15:30	11° 37.560 N	061°51 240 W	327.8	5 0	246.26	656.61	
16:00	11° 38.907 N	061°53.417 W	319.5	5.2	248.81	691.11	Change of duty
1610	39 444	061 54.267	316.7	4.7	249.75	712.01	over OBS 420
1630	40 374	061 55.744	317.9	4.9	251.39	729.71	
1700	41.872	61 58 141	321.9	4.6	253.9	756.91	
1712	42.522	61 59.139	317.2	4.9	254.9	766.90	over OBS 419
1730	43364	62 .00506	313.5	4.6	256.32	788.61	
1800	44.84	62 02.863	306.5	4.7	258.67	531.71	
1814	42522	62 03.990	304	5.2	259.79	413.31	over OBS 418
1830	46.354	62 05 296	306	4.8	261.70	375.91	
1900	47 804	62 07.618	307.4	4.6	263.1	366.91	
1918	48 696	62 08.998	304.3	4.6	301.9	546.51	over OBS 417
1930	49.377	62 10.121	303.9	5.4	266.05	867.71	-3.5 kHz died
2000	50.790	62 12.369	311 8	5.0	268.44	1696.2	3.5 kHz working.
2014	11° 51' 518	062°13'556	310	5.0	269	1818	over OBS 416
2030	11 52 266	62 14 730	311°	5	270	2201	
2100	11 53684	62 17 021	306	5	273	2369	
2130	11 55 152	62 19 343	307	5	275	2245	
2200	11° 56' 608	062° 21' 013	308	4.7	278	2000	
2230	11 57967	62 23 837	305	4.9	280	1793	
2300	11 59 361	62 20 071	305	4.7	283	1835	
2313	11 59996	62 27 051	302	5.0	284	1959	- OBS 415

Cruise EW0404 JD 150-151 **R/V Maurice Ewing Science Watch Log** Page 22

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2330	12°00'777	062°28'353	300	5.0	285	2040	
2400	12 02 092	62 30 431	300	5	288	2510	End of Watch
0030	12°03.474	062°32.700	307.	4.7	290.7	2661.4	
0044	12 04 092	62 33 653	300.8	5.0	291.85	2786.5	over OBS 414
0100	12 04 805	62 34 776	305.9	5.1	293.12	2871.2	
0130	12° 06.199 N	062°37.841 W	304.6	4.9	295.71	2682.1	
0200	12 07 602	62 39 245	296.9	5.1	298.14	2717.9	
0213	12°08.190 N	062°40.179 W	298.6	4.8	298.98	2716.9	Over OBS 413
0230	12 08 977	62 41 434	296.5	4.7	300.59	2775.3	
0300	12° 10.345 N	062°43.635 W	301.1	5.2	303.06	2934.8	
0330	12° 11.694 N	062°45.785 W	298.4	4.9	305.49	2907.7	
0341	12° 12.289 N	062°46.724 W	297.8	4.8	306.50	2878.3	Over OBS 412
0400	12° 13.161 N	062°48.165 W	299.5	4.8	308.01	2884.1	Change of daily
0430	12° 14.643	062 50.543	298.5	4.9	310.50	2927.8	
0500	12 16.054	62 52.830	300.0	5.0	312.86	2949.0	
0505	12 1638	62 53.216	299.3	5.0	31321	2950	over OBS 411
0530	12 17.926	62 55.192	315.37	4.7	316.5	2966.2	
0600	12 18.939	62 57.480	301.4	5.1	317.84	2954.1	
0630	12 20.393	62 59.828	296.8	4.9	320.43	2944.0	
0652	12 20 472	62 59 960	302.8	4.6	320.57	2938.0	Over OBS 410
0700	12 21.812	63.02.145	302.2	5.0	322.93	2926.8	
0730	12 23.266	63 04.464	301.7	5.3	325.35	2910.6	
0756	12 24.559	63 06.558	303.1	5.0	327.59	2883.3	over OBS 409
0800	12 24.631	063 06.677	297.8	5.1	327.71	2882.3	
0830	12° 26'209	063° 09'238	300	5.0	330	2038	
0900	12° 27'680	063° 11'600	300	5.0	332	2005	
0919	12° 28'712	063° 13'346	300	5.0	334	2779	over OBS 408
0930	12 28178	63 14 000	296	5.1	335	2764	

Cruise EW0404 JD 157 **R/V Maurice Ewing Science Watch Log** Page 78

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1000	12° 30' 806	063° 16' 667	292	5.8	337	2.527	
1030	12 32 332	63 15 115	294	5.7	340	1648	
1039	12° 32° 798	063° 19' 873	290	5.0	341	1.539	Over OBS # 407
1100	12 33 776	63 21 422	291	4.9	342	1300	
1130	12 35275	63 23 868	291	5.0	345	1129	
1200	12 36 792	63 26 330	294	5.2	347	1088	End of Watch
12:09	12° 37.307 N	063° 27.162 W	296.0	5.1	348.3	1051.1	Over OBS. # 406
12:30	12° 38.418 N	063° 28.948 W	295.2	4.8	350.44	1022.5	
13:00	12° 39.910 N	063° 31.392 W	293.2	4.9	352.8	1069.1	
13:30	12° 41.472 N	063° 33.895 W	291.7	4.9	355.3	1004.6	
13:39	12° 41.881 N	063° 34.453 W	293.4	5.0	356.1	1028.4	Over OBS # 405
14:00	12° 43.024 N	063° 36.412 W	299.0	5.0	357.72	1159.2	
14:30	12° 44.620 N	063° 38.959 W	300.1	5.0	360.34	1522.0	
15:00	12° 46.187 N	063° 41.539 W	293.6	5.1	362.92	1793.1	
15:04	12° 46.447 N	063° 41.851 W	293.4	5.0	363.33	1812.0	Over OBS # 404
15:30	12° 47.801 N	063° 44.115 W	299.4	5.1	365.53	1835.0	
16:00	12° 49.293 N	063° 46.563	296.8	5.1	368.05	1840	
1630	12 50 795	063 48975	310.59	4.9	370.61	2018.0	
1637	12 51.006	63 49504	303.4	4.8	371.32	2076.0	over OBS 403
1700	12 52.240	63 51.327	300.4	4.6	373.07	2230.0	
1730	12 53.653	63 53.601	301.4	4.7	375.48	2418.3	
1800	12 55.095	63 55.941	307.4	4.7	377.84	2636.8	
1812	12 55.560	63 56800	309.9	4.8	378.13	2729.4	over OBS 402
1830	12 56.522	63 58.246	306.3	4.9	380.22	2829.8	
1900	12 57 946	64 00 555	313.8	5.1	382.61	2903.6	
1930	12 59.404	64 02.920	307	4.6	385.07	2959.1	
1944	13 0127	64 04.081	307.6	5.1	386.27	2975.3	over OBS 401
2000	13 00683	64 05.446	296.7	5.2	387.59	3002.6	

Cruise EWO404 JD 151/152 **R/V Maurice Ewing Science Watch Log** Page 79

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2015	1301 383	64 07 041	299	4.8	389	3040	– turns 9/10 off of for turn
2021	13 01 383	64 07 212	299	4.8	389	3040	End line Bol 36
2030	13 01.938	64 07.002	323.3	4.9	390.11	3070.4	Turning to line BOL-37
2100	13 03 595	64 07 430	71	4.9	392	3067	Turning
2123	13 02.956	6406.039	139.8	4.5	394.21	3034	BoL-37 started. (Shot 23-28 before Restart)
2129	13 02 546	64 05 741	139	4.8	394	3035	Restart Bol 37 Shot 12/47006
2200	13 00 629	64 04 422	137	4.6	397	2989	Shots #23-28, File# 47000-47005
2230	12° 58'879	064°03'244	137	4.2	399	2964	were shot at 175 m, wrong.
2300	12 57 189	64 02 603	135	4.5	401	2946	Restarted line again.
2330	12 55 498	64 01 948	135	4.5	403	2915	–
2400	12 59 892	63 59 862	132	4.9	406	2848	– End of Shots
00:30	12° 52.126 N	063°58.660 W	137.2	4.7	408.5	2759.2	
01:00	12° 50.587 N	063° 57.624 W	139.1	4.8	410.9	2703.1	
01:30	12° 49.044 N	063° 56.595 W	143.7	4.7	412.99	2645.3	
02:00	12° 47.216 N	063° 55.350 W	143.1	4.5	415.52	2536.6	
02:30	12° 45.402 N	063° 54.111 W	141.8	4.7	417.99	2476.3	
0300	12 43 673	63 52 455	146.6	4.4	420.24	2855.1	
03:30	12° 41.865 N	063° 51 734 W	147.3	4.7	422.64	2594.0	
04:00	12° 40.146 N	063° 50.594 W	142.5	4.7	424.88	2359.7	Change of duty
0430	12 38 441	63 49.423	150.3	4.5	427.17	2274.4	
500	12 36 864	63 48 360	146.6	4.4	429.33	2136.1	
0530	12. 35.310	63 47.308	143.1	4.4	431.51	2226.2	
0600	12 33.747	63 46 256	150.5	4.4	433.76	2226.3	
0630	12 32.203	63 45.209	140	4.5	435.97	2045.0	
0700	12. 30 685	63 44.187	147.0	4.2	438.10	1983.0	
0730	12 29.111	63 43.121	143.8	4.3	440.35	1847.0	
0800	12. 27 471	63 42.006	148.8	4.5	442.69	1506.1	
0830	12 25 767	063 40 857	149	4.6	445	1293	

Cruise EW0404 JD. 152 **R/V Maurice Ewing Science Watch Log** Page 79 80

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0900	224 065	63 39 717	146	4.4	447	1120	
0930	22' 446	063° 38'581	146	4,5	449	842	
1000	220 861	63 37 567	153	4.4	451	556	
1030	18'810	063°36' 444	146	4,5	453	507	
1100	17'700	063° 35' 445	148	4,5	455	525	
1130	216'070	63 34 318	154	4.7	458	534	
1200	14' 180	063° 33'340	150	4,5	460	667	
12:30	12.758 N	063° 32.090 W	147.4	4.6	463.10	1780.1	
13:00	11.130 N	063° 30.989 W	145.9	4.4	465.3	2032.6	
13:30	09.400 N	063° 29.823 W	145.6	4.4	467.53	2195.2	
14:00	07.754 N	063° 28 714	146.6	4.1	469.57	2236.1	
1430	06 112	63 27 613	151.4	4.3	471.68	2234.3	
15:00	04.647 N	063° 26.613 W	148.9	4.1	473.70	2212.3	
1530	03 176	63 25 622	148.6	4.1	475.86	2093.0	
16:00	01.816 N	063° 24 703 W	159.4	4.2	477.87	1943.9	Change of duty
1612	01 197	063 24 297	153.5	4.9	478.83	1786.1	The 2 GPS systems now give the same result
1630	00.419	063 23.771	155.3	4.4	480.06	1702.3	
1700	59.007	063 22.814	151.4	4,3	482.26	1511.0	
1730	57.561	063 21.846	150.0	4.2	484.41	1452.4	
1800	56.072	063 20.840	155.0	4.2	486.52	1364.9	
1830	54.492	063 19.779	147.1	4.3	488.73	1205.0	
1900	53.080	063 18.831	147.1	4.2	490.87	1126.6	
1930	51 526	063 17.778	153.0	3.9	492.83	1047.3	
2000	49.989	063 16 748	146.3	3.9	494.98	975.91	
2030	48'547	063° 15'761	147	4,2	497	893	
2100	47'167	063° 14'848	149	3,8	499	837	
2130	45864	63 13 968	151	4.0	500	785	
2200	44574	6313 095	151	4.0	501	785	

Cruise EW0404 JD 152+153 R/V Maurice Ewing Science Watch Log Page 81

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2232	41 43 204	63 12 175	150	4.5	505	682	
2300	41° 42'845	063° 11'391	153	4.3	507	623	
2330	41° 40'774	063° 10'548	146	4.1	508	548	
2400	41 39 747	63 09 852	148	3.9	510	482	
00:30	41° 38.424 N	063° 08.996 W	148.8	4.2	513.16	392.81	
01:00	41° 37.289 N	063° 08.148 W	149.1	4.3	515.31	294.11	
01:30	41° 36.045 N	063° 07.358	148.3	4.3	517.31	219.91	
02:00	41° 34.669 N	063° 06.441 W	148.6	4.8	519.62	115.41	
02:30	41° 33.319 N	063° 05.520	151.3	4.8	521.95	85.91	
03:00	41° 31.897 N	063° 04.571	149.1	5.0	524.3	77.11	
03:30	41° 30.514 N	063° 03.634 W	151.9	4.1	526.5	77.11	
0400	41 29 162	63 02 730	150.1	4.0	528.64	74.91	
0430	41 27.735	63 01781	142.9	4.4	530.84	73.01	EOL Bol-37

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