

7 JULY 1983 - CRUISE FM-18

MISSISSIPPI CANYON ^{Area} - seismic Stratigraphy
of - (MC)

sponsored by JOINT INDUSTRY - 14 companies

1720 Z - underway from dock at
Galveston, Texas, R/V Fred H. Moore

1723 Z - setting clock to GMT - Data logger
times no good till now

still fooling with setting timer - may be time
glitches thru this period

1755 Z - Finally got time set accurately with
scope - OK from here on

weather - clear & sunny
wind - 5-10 kts - East
seas - less one ft.
few scattered clouds

18:04:00 \Rightarrow at 17:00:00 1st watch began
member include:

12-4
shift { Jamie Rangel
DAN Hurston
Missy Feely

Passed Buoy at 18:20:00 & changed
course to 131° .

* \Rightarrow 19:15:00 DATA Logger went down
didn't get information for over 45 min
07/07/83 Rebooted at 20:03:00.

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Fire drill at 20:54

4:00 CREW COMES IN:

Crew members: ① Bill CROSO

② TOM LIN

③ CATHY KANTENBERGER

Time 21:00:00

4:47 course change : 098°

22:35Z Tom & Cathy went to Dinner.
Bill held down the Fort.

R. LOG 45

23:00Z DATA Logger Down: "NO DRIVES OPEN"

23:15Z Bill waited down dinner while Tom &
Cathy talked about ice cream

0021Z C/C to 130° to avoid ship

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0029Z C/C to 098° - back on course

0035Z C/C to 088°

0100Z NEXT WATCH : SHAUB
CROWE
WALTERS
(2000-0000L)

0127Z C/C to 099°

0222Z C/C to 090°

0233Z C/C TO 099°

0307Z DATA LOGGER BEGAN TAKING 1 MIN.
FIXES ON ITS OWN

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0330 DATA LOGGER APPEARS TO BE OK NOW

~~044~~ 0500 Z NEXT WATCH UP, FEELEY
HOUSTON
RAMPELL

0855 Z. Corso on watch. "All Well"
0859 Z Xantenberger & Lin here too

0936 Z - 15° starboard to avoid a rig to 115°

1043 - Come Aboard TO 90° TO AVOID SHRINE
B&A.

10:50 BACK ~ Course (115°).

12:47 C/C TO 090°

1300 Z CROWE, SHAVIS, WALTERS ON WATCH

1305 Z NO BATHYMETRY OUTPUT; GAIN WAS
ADJUSTED

1310 Cover had come off EPC - OK NOW

1314 Z c/c 110°

1325 Z c/c TO 105°

1441 Z c/c TO 090°

1525 Z SPARKER OUT BUT NOT RECORDING.
- TRIAL DEPLOYMENT

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1640 Z EFFECT FROM SPARKER NOW CAN BE
SEEN ON BATHYMETRY

1649 Z SPARKER TURNED OFF

1700 Z WATCH CHANGE: RANDALL, FEALEY, HUSTON

1700 Z Sparker ON but still has bugs

1754 C/C to 085°

1810 Z C/C to 095°

1820 Z Sparker quit - some good data

1850 Z C/C to 117° Lat $28^{\circ}32'98''$ Long $90^{\circ}28'41''$

1909 Z C/C to 080° Lat $28^{\circ}31'68''$ Long $90^{\circ}25'64''$

1930 Z Salt Dome seen on Bath Chart

2002 C/C to 070°

2000 Z - Sparker up - running - seems
OK - $\frac{1}{2}$ sec. Sweep - but triggering
sparks only every 1 second

Begin annotation of sparker log - Time
every 15 min date every hour

2102 Z Change The Guard: CORSO, LWS
KAWBENSON

2110 Z sparker system down; cause unknown

2114 C/C TO 075°

2123 C/C TO 090°

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2129Z - Weather: Partly cloudy, sun's out
beautiful day

20

5

2234Z - slow turn to starboard, c/s to one engine

2246Z - now heading 218° at 1.9 kts

2300 - ^{Data logger} printer not printing out lat-long
using NORTHSTAR 6000 for these

2341 - still not printing properly

Fixes on map @ ~~2834~~, 2300Z,
2315Z, 2330Z may not be
exact (had to use NORTHSTAR 6000
instead of Data logger)

2345 - data logger is up again

0000Z - changing data logger tape
NEW DAY! DAY 03!

7/9/83

0030Z - c/c 250° (downwind) - speed is 3.6

~ 2230Z putting out streamer - Begin -

got ^{to} 1st transducer - no signal back
to meters in Lab - might be 7 transducer -
continue to next

~ 0000Z At next depth transducer - still no
signal from cable to Lab - meters - Stalling
~ keep trying find problem - stopped putting
out streamer to see if can find problem

END 1600-2000Z WATCH

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0058 Z (2000-2400Z WATCH)

Still Deploying streamer; no signal from depth transducer

0110 Z: CONTINUE TO DEPLOY STREAMER

0212: DEPLOY STREAMER; SECTION 35 CONTAINED AIR AND REQUIRED FILLING WITH NAROMA. MORE LIGHT IS REQUIRED ON THE BACK DECK OVER THE WINCH, TO BE DONE IN PORT.

0300Z - RAN cable out to Line 19 on section 38 where there is a depth transducer - could see this - Calibrated OK - took apart connector & could see good wires to all outboard transducers - so problem inboard for trace 19 & one depth TR. - may be problem on 2nd T.D at this connection - (inboard of 19)
Waiting for Stirling to trace down problem

0415 Z - Stirling seems to have found where problem is located - i.e., inboard of 19 - & found depth transducer at 9 - now sees 5 DT's - 3 inboard one at 19 & one at 9 - the one at end of streamer still bad - & trace 19 still bad

Hydraulic hose leak on main cable winch
fixing by Ty & George

0446: All STOP; continue Streamer north

0500 Hasler, Feeley, Randel on Watch

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~~32~~

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0527 - Completed calibration test on streamer up to section 18 - putting ~~it~~ back into water.

0723 Z - ~~Reloaded~~ The Bathymetry machine with paper. HAD problems with it. ~~So~~ So we didn't begin to get Readings until 0745 Z

0811 \Rightarrow Streamer is out & ~~we~~ we ARE putting stretch line on.

C/C \Rightarrow 0800 to 238°

0855 \Rightarrow Completed putting stretch section in streamer.
— YA!

0920 \rightarrow Kantenberg on watch
Corso helping w/ streamer

0932 Z \Rightarrow begin making a turn to head to beginning of 1st line - streamer is out now. Will plan to start shooting \sim 1300 Z

0940 Z - DATA logger out; Bates
09:51

1005 Z \rightarrow 6° turn to starboard (begin)
_{min}

1030 Z still turning to starboard - 325°

7/9/83 RM-18

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1054Z - stopped turning now for ~ 30min
course: 038°

1100Z - weather - sun^{rising}, few clouds, beautiful day

1200Z - slow turn 5°/min to 058°

ca. 1225 - Compressors Turned up, for
Air guns.

1256 - C/C to 090° to avoid rig

1300Z - NEXT WATCH: WALTERS
SHAUB
CROWE

1305Z - START PUTTING GUNS IN WATER

1310Z - CHANGING COURSES + SPEED TO
DEPLOY GUNS

1314Z - C/C TO 135°; DEPLOYING GUNS

1324 - BEGIN TEST-FIRING GUNS
2 GUNS - 2000 cubic inch - 2000 psi

1338Z - CHANGING SPEED TO 4.5 KTS

1355Z - STEADY @ 4.5 K

1400Z - SINGLE-CHANNEL MONITOR OPERATING
but not well yet

steering various Cns ~ speeds to avoid rigs
or to get to start point NW of Miss. Cyn
try ing to ~ 4.5 kts

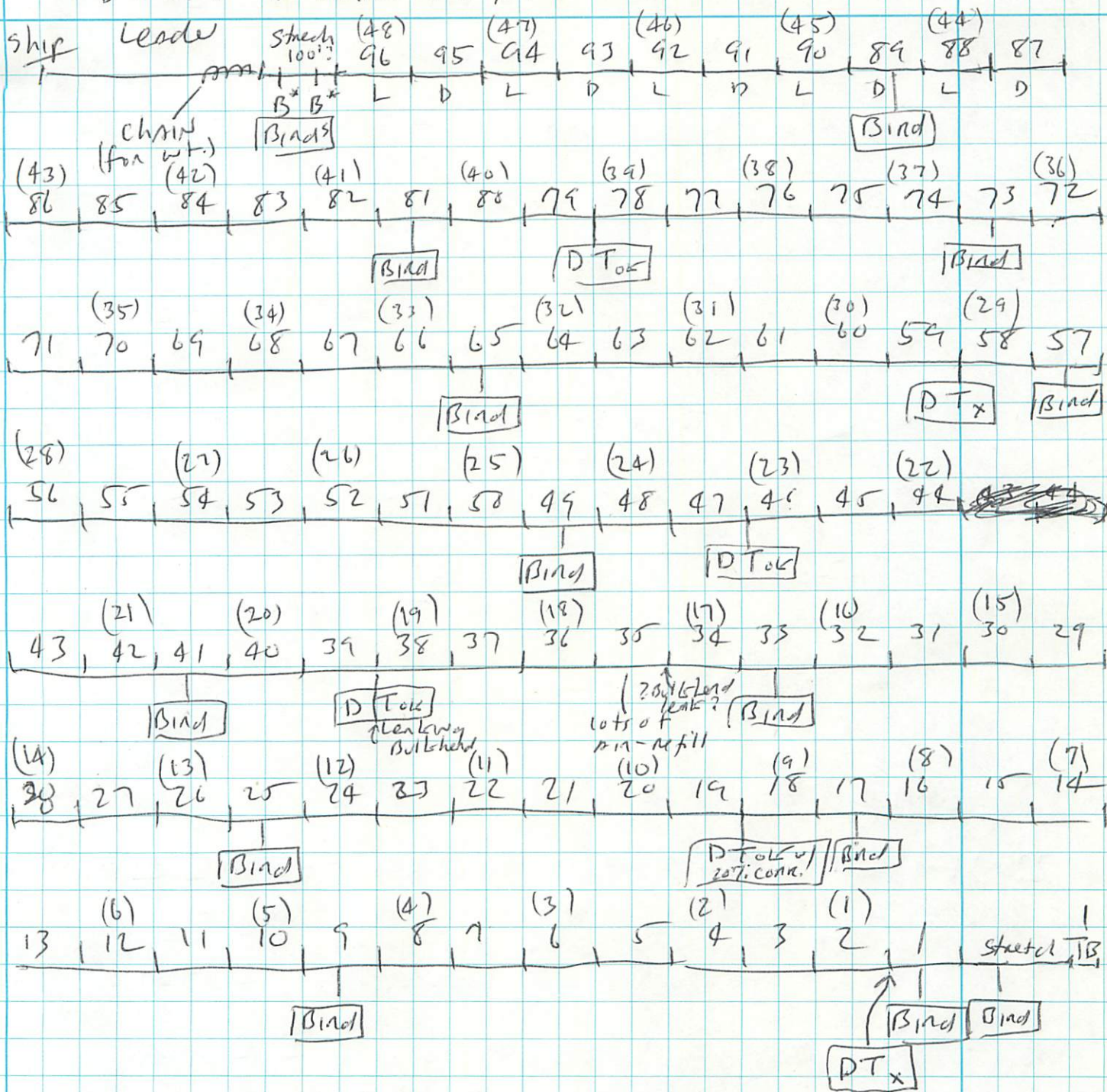
Guns firing at 30 sec r/n - checking out
timing of solenoids & phones on guns

appears to be some noisy traces -

4 depth transducers giving reading - ? ones

cable (sterner) configuration -

B = Bird B* = Birds with fixed wings to get front power



Numbered each section in streamer —

for ~~the~~ section $\text{Depth} = \text{odd} = 1$ & etc.

4, All reads are odd numbers

all Liver are Even numbers

this is for history & inventory of streamers - each section with unique number - 1 thru 96 -

Different from traces (1-48) that goes to DFS

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For each live & dead section - recorded serial

Number - Number of leads - kept in

10

Separate log -

sparker still be worked on by Ker - both
 boards seem bad - interrupt to work on getting
 air gun shooting going

1300Z Not getting good signals from Gun Solenoid or
 blast ~~from~~ phone - to trigger guns - working on by
 Ker & Stirling

4 depth sensors seem to be working - at
 78-79, 47-46, 38-39, & 19-18 w/
 20% connection
 all 4 were calibrated on deck -

Running fairly deep -

sect. 19-18 ~ 45 ft	Trace - 9
→ 47-46 ~ 46 ft - 47 ft.	23
→ 38-39 ~ 45 ft	19
78-79 18 ft.	39

1500Z SLOWLY CHANGING COURSE TO 100°

1511Z Steady on ^{C-} 095°
 095°

1520Z - ran common monitor

Trace # 5 - Bad - no data

Trace # 27 - seems to have gone bad - was
 ok earlier

Traces 14, 16 & 19 are very noisy - may be
 in DFS?

Front part of sturmer - 41-48 seem noisy
 may be too shallow

19 only real real trace - others show continuity

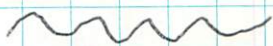
1620Z DEPLOYING SPARKER & GUN-SIGNAL
 No Sparker display yet (STARBO)
 PHONE (PORT)

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11:57 = 16:57 GMT Dan, Missy and Jim on Watch

Sparker & phone in water -

still working or problem to synch. Both pinguns

17:41 Sparker begins working - display in lab
Also appears on Bathymetry display.Sparker monitor record has peculiar
wave - uniform at seabottom & belowDON'T know why or what causing - may be related
to bubble caused by firing of guns

18:10 - changed paper on single-ch. monitor -

got strange one-second pulse from sparker on single ch. monitor
? Why -18:20 Z - deactivate filter on single ch. monitor - works better ^{Filter saw sparker}

18:33 Starboard gun shut down for test

18:39 Starboard gun on port gun off
to experiment on effect of waves

18:46 C/C to 090° and sparker record

W/ Starboard gun off seems to make record
better - but still wavy

18:47 - 2 guns back on

19:08 Z Both guns off to see if guns really
affecting sparker record19:10 Z - seems to improve sparker record - no
waves
Guns back on

20:28 Starboard gun remote to manual

2020Z - Guns off

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20:24 Sparker shut off

12

20:25 Bringing in cable to secure lead weights -

20:30 - dead slow - \approx 2 knots,

20:45 - drifting 1 knot

~~20:45 - putting cable back out,~~

2100 - Kantenberger, Lin, Corso on watch

2145 - Weights added to inboard stretch sections
streamer redeployed \rightarrow add 16 leads = complete

2147 putting out sparker -

working on chafing gear on guns -
+ re-attaching gun chains more inboard
to give deployment of sparker more room
plus possibly help sparker display - try
to get red & scallops

Try putting on phones on guns -
he also earlier replaced phone hanging
from fist - to be used as far-field phone
did not work earlier - no signal

2153 - Sparker out again & working

2213 - ^{heading} \sim 090°

2247 Guns Ready to go BACK INTO
water. Will do as soon as
Bridge crew Ready.

2259 - putting starboard gun in; starboard
engine off.

2308 guns in remote
back on course @ 090°, 4.5 Kts

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13

23:35 Communicate w/ The "Atlantic SEAL".
They Asked us to stop shooting
for ca. 1 hr. Our guns are
interfering with their operation.
Plot their position @ 28° 34' N 89° 44' W
WE will stop shooting shortly.

23:43 Shut Down The SPARKER. Interfering
with 3.5 KHz DDR.

Shut down airguns for awhile so won't
interfere w/ "Seal" who is doing 3-D shoot - 12
mile square - leaving compressors on - hope
to start again in ~ 1 hr

SPARKER record getting weak with depth -

2359 - changed data logger tape,
Begin Day 04!

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Planning action

- 1) use Berthel's plane for far field ^{staring} - 1) BACK
or poss. little structure
- 2) can't use as trigger as alt. trigger
(generic operator - set spl.)
range -
- 2) + sort fish set-up
Run new wire direct down
- 3) 5 ind guns ^{start at same time ~ assume}
1) fire at same - mesh. similar -
~ 25ms?
2) 1 gun ^(front) but loose energy

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Solevoids — 2 spare — 1 new 1 old
^{new is}
 1st spare gun —

~ 20 minutes to change out —

Need to find out why blast phones

governing problem — is speaker —

use Solevoids ^{if do} to monitor medic's syn in
 guns so can use if have to later —

Discussion w/ Ken & Stirling re: Guns &
 phones etc —

Situation: 1) one Solevoid ^{on} one gun working —
 using for triggering gun — other gun
 on starboard gun not working

2) 4 phones were put on each of 2 guns
 (2 each) — none of these now seem to
 getting any signal — ? why — phones or
 wiring

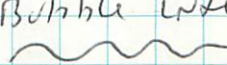
3) phone (Both?) put on bottom of
 orange fish near receiving any signal

4) Now have no way to synch guns —
 either thru Solevoids or phones —

5) can fire ^{both} guns with external ^{electrical} pulse —
 & assume that guns fire — but no way
 to synch —

6) Could trigger off phone hung over side
 near guns — but no way to synch.

7) Could run one gun & DON'T worry
 about synch. —

? if can use w/ guns 8) problem of speaker — interferer w/ 3.5 kHz ^{source}
 plus gives scalloped signal at water bottom & below —
 due somehow to guns — Bubble interferer with
 speaker signal  goes wrong when
 turn gun off.

Action - Decided to do

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1. Take new solenoid from 3rd gun & put it starboard gun - will allow to trigger gun & synch. Both guns etc.
2. Check how gun up^{on deck} - ✓ out wiring to blast phones
3. If works - use time to check mechanical synch. of guns - in case later how to fire from ext. pulse - i.e. if check & ~~strings within~~ see if guns stay within 5-10ms if so - can have some assurance guns are mechanically firing at same time
4. Use Bedthos phone over rear - as far-field phone - for now - or record on DFS (Gen)
5. Check into using speaker single-ch. eel to put thru^a high-pass filter - the signature from A1A-guns - as possible intermediate resolution tool in place of speaker - record on ERC - ? tape as speaker causing problems
6. Worry about speaker later - its problems
 - a) interference w/ 3.5 kHz
 - b) 60 cycle noise - very prominent
 - c) scalloped record - due to A1A gun
7. Poss. could us single ch eel for far field?
8. Work on putting another working phone on fish - possibly wini externally, along with - ✓ out what problem is - phone or wini.

0100Z ON WATCH: WALTERS, SHAUB, CROWE

0115Z C/C TO 180°

FM 18-01, CONT, 10 JULY 83

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0230 Z, c/s, 2.2 KTS, ONE ENGINE
WORKING STHD. GUN - CHANGING OUT SOLENOID
& CHECKING PHONES

0259 Z, c/s 2 FATHOMS, 4.5 K

0302 Z, c/s 030°, LONG SLO TURN

0337 Z - FALLER to Atlantic Seal - Western
Inlet - Who are shooting 20 mi ±
to North

0341 Z BEGIN PAPER RECORD OF SHOTS ON
SINGLE CHANNEL MONITOR (NO DATA
ON MAG TAPES).

0349 Z LAT. + LONG. OF X ON MAP:
28° 23.70 N 89° 34.00 W
- TELL BRIDGE TO STEER TO THIS PT.
TO START SHOOTING 1ST LINE

c/c 0380

0404 Z - SHOT 1 - BEGIN RECORDING DATA;
LINE MC-9

0411 Z - DATA LOGGER NOW OUTPUTS LAT., LONG.
EVERY SHOTPOINT
- START PLOTTING FIXES EVERY 15 MIN.

0420 Z - hooked up single-ch. reel from speaker
to filter - 160 - 450 other to
ENC to see if can get a higher
resolution record using any useable
energy or higher frequencies

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09:00 New watch (Kateraga, Lin, Corso)
shooting line (MC-910 All seems OK.

Visibility - 10 miles clear NE - 10 kts Wind
Partly Cloudy, Seas - 4-6 ft.

09:15 ON OSCILLOSCOPE: Are only seeing
"TOP" gun signal when firing NO
Pulse for lower gun. Both seem
to be firing though, single ch. ed. EPC-Jump?

09:42: Have Pulses for Both Argons on Oscilloscope
Now.

10:11. C/C TO 160° & C/S TO 5.5 KTS TO
Avoid ship Traffic (Averbe-
seis ship. The Schwartz).
Leave Rep. Rate @ 30 sec.
Appear to lose Deep reflectors from
TRACE MONITOR.

10:41 Still going 6.0 KTS @ 160° TO.
Avoid The Schwartz. My impression
is that The Schwartz was not
shooting & did little to help
the situation. We had to speed up
& maneuver.

10:49 Andy (officer on Bridge watch) calls down
& says the ship's name is The Jeff Swift.
C/S TO 4.5.

Single ch. TRACE. LOST. why? Speed?

10:56 C/C TO MC-10 line. ca. 2 miles off line.
I will be BACK on line before Endpoint
I have tried to correct single ch.

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cont.
10:56:

EEL. But An unsuccessful. Record not
important enough to wake Ken Now.
Will wait.

11:15. J.T. (Eng.) Says need to shut Down A
compressor shortly. will notify us
exactly when.

11:30 J.T. (Eng.) Has "Jury-rigged" compressor
to hold it on line till hopefully
we reach the End of line MC-10.
It will need to be shut down & Fixed
through.

12:00 Things not going smoothly:
1) Single ch. Trace from
Shank of. has not given
A coherent Trace since we sped
up. Ken will look @ when he gets up
2) Last Demux Tape at sequence.
This was the Tape online when
we sped up Also.

12:00 d/c to 126° Back on Line MC-10.

12:52 Next Demux Tape OK!
at sequence Tape related to
increase of speed & not readjusting
the scan interval?

13:00 Z SHAD WALTERS CROWD ON WATCH

STILL NO FIRING SIGNAL ON OSCILLO-
SCOPE FROM PORT AIRGUN

WEATHER: FINE WIND 15-20 KTS
SEAS 1-3'
PARTLY CLOUDY

DATA
DFS, DEMUXR, ~~FAE~~-LOGGER, BATH & NAV
SYSTEMS WORKING.

Recording by DFS on tape 3 signatures
on AUX channels —

ch. 50 = starboard

ch. 52 = port

ch. 54 = a Bentley phone on a long
wire behind boat to record some
type of far field signature of guns-
poss. use for processing

1506 Z START C/C TO A PT. $27^{\circ} 33' 20''$ N
 $88^{\circ} 33' 50''$ W
- STILL LINE MC-10

1517 Z - C/C TO 138°

1555 Z GENERAL NOTE, THERE ARE FOUR
OTHER SEISMIC BOATS WORKING
IN THE AREA OF LINE MC-9 &
THE BEGINNING OF MC-10.
ATLANTIC SEAL & WESTERN INLET
ARE SHOOTING ON A TIME-SHAR-
ING SCHEDULE. AT PRESENT
WE ARE MOVING AWAY FROM
ALL OF THEM.

1628 Z SHOTS NOT BEING RECORDED;
TAPE DRIVE PROBLEMS

1647 Z NOW RECORDING DATA ON 1" DRIVES
- DEMUXR PUTTING WRONG DRIVES
ON LINE

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1651 Z - DEMUXR BACK ON LINE ; NOW RECORDING ON BOTH SETS OF DRIVES

1700 Z -- FENLEY HUSTON, & ANGLE ON WATCH

~1930 - put small spinner eel on bottom of 3.5 kHz fish & put over side - to record & for trace signature - seems to be working well - go crisp signal - record on channel 53 on DFS

21:00 (New watch (Lin Kanten Bergen, Cors.)
Still running line MC-10.
Bridge needs new End Point.
End of line MC-10 = $26^{\circ}59'$, $87^{\circ}53.5'$

by discovered (Stirling) that poss. could use this spike ~~at~~ for calibrating synch. of guns - when most guns out of synch using knob - big spike from gun signature breaks up - suggesting that guns are out of synch -



23:05 - Single monitor trace looks very poor.
EPC - Print polarity changes by accident.

23:57 John changed DATA log on TABE.

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At w. 23:30 Lost Spike on Oscilloscope
Monitor of Argon's Discharge. At First
Ken was not necessarily aware, but
at Dr. Buffle's request, cable increased.
② 00:06 case unknown.

7/11/83 Z

STANBAND

00:25 START Turning TO ~~PORT~~ TO correct
FOR EASTWARD SET.

00:40 Z. change scale on single ch. monitor
FOR A 2. sec delay, so in sec
Deeper. (i.e. 8-10 sec.).

00:44 Z. Ken has received Argon Discharge
Spike on oscilloscope

01:00 Z CHANGE WATCH: WALTERS
SHAUB
CROWE

01:42 Z NO OUTPUT FROM SINGLE CHANNEL
MONITOR - CALLED KEN

01:48 Z SCM OK; KEN REPLACED BELT

02:53 Z DEMUXR TAPE DRIVE C
DECLARED A PROBLEM

02:58 Z WILL USE TAPE DRIVES 'A' AND 'D'

~03:24 Z GUN MISFIRE SHOT 2802
~ 6 SEC. LATE

04:40 Z Bruce noticed streamer outbreak
of port gun. Notified kb.

THIS HAPPENED EARLIER & STREAMER
EVENTUALLY RIGHTED ITSELF.

THE STREAMER DOES NOT SEEM TO BE CHAINING
OR TANGLED WITH THE BALLOONS OR THE
GUN CABLE, SO WE'LL JUST KEEP AN
EYE ON IT.

Depth Transducer pos. 39-40 at 4ft.
noted at 05:11 D.H.

Galoo camera record shows some dead
channels - 05:15 D.H.

0640 lost Loren signal switching to new Rx
(Sandy)

0834 EOL ~~MC~~ 10

pull gas
~~S/LMF~~
c/s

port

down slow on starboard engine to
pull ~~port~~ port gun

0837 Z shift guns off to manual

0845 Z shot down engine (starboard)
to pull AIR Gun.

0853 → Begin slow turn to port ($\approx 3^\circ$)
with only one engine. Both
AIR Guns on ship.

0900Z New watch (Bill, Kathy, Tom) on duty.

0921Z make small turn to port ($\approx 3^\circ$) (go in
circles while check guns)
+ put ^{power} ~~gear~~ on guns, etc

trimmed sparker tips

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Starboard gun got water w it ns pulling 23
in - not enuf pressure kept w gun - now
leaking - replacing std. gun -

Stirling's working on putting new black phones
on guns - 2 each - testing - Mark helping

Ken working on hooking up Sparker to 3rd
ERC on wall + Delay of 2 sec + 1 sec sweep -

Set out DFS - problem with bad traces
seems to have gone away with jiggling
switches etc. -

~~10:42~~ 10:42 Sparker plot start showing in Bathymetry plot

11:00Z change Pape - 3.5 ERC Recor

Before stopped shooting live, discovered several
groups of traces on cable were going bad -
went back to camera records & Bds checked
when began - as follows

1) ~~Tapes~~ Tapes 1-10 - Trace 19 out -
Trace 5 Bad - delete -
Tr 1-2 Noisy - ? signal
pass. delete -

2) Tapes 11-19 - 19 out, 5 Bad - 1-2 Noisy
15 - Noisy ? Delete -
13 intermittent

corrd. →

switched out std. gun
11:15Z 2 Guns firing - Bds in water

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24

type 20 - no roll

21 - 1-5 looks bad

22 - no roll

* 23 - TR. 1-12 at 0724Z

TR. 5 only - 14 many at 0138Z

24 - no roll

25 - TR. 5 Bad - 1-2 not good

* 26 - 1-13 out again -

26 - 1-12 ~ 13 out - Bad

27 - 1 - 12 ~ 13 out -

28 - 1-12 Bad - + 34? - ~ 38-39 Bad

29 - 1-12 ~ 13 Bad - + 35-38 + out - Bad

30 - 1-13 only - 35-38 OK

END 7 MC-10 - shut down for guns

few ~~extra~~ checker DFS - switched switches
etc. & all channels seem OK now - need
to watch -

checker checking on guns - cooler OK -
upgrades

112Z - 3.5 KHZ working again

1119Z - guns started firing again

11:49. Continue slow TURN TO PORT TO
get o/c 269° TO Begin Line MC-11.

check on all signals from guns -

lost good solenoid on stbd gun - can't see
signal - after switched guns - also switched
solenoids - ? why -

put on ^{blast} 4 phones - 2 centered right away
2 still working -

1204Z C/C 27Z - study on cas for DISA side 8A

Status of phones in water —

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50

25

1) small single ch. eel on ~~fish~~ fish — port side —

gives good signal still — use to sync guns
or far field —

2) 2 blast phones — one on each gun — using one
to trigger guns

3) No solenoids on guns ~~are~~ working

4) Blast phone on cable behind boat — ok —
recording —

1220 Z — Begin MC-11 — DEMUX ON

phones —
port-2

→ recording on DFS DUX channels the
following phones —

54 — Blastor — towing on wire behind

53 — BEL on fish on port side

52 — port phone on gun

51 — port phone on gun

50 — starb phone on gun

49 — starb phone on gun — firing —

Spanker not getting any subbottom

penetration — seeing water bottom only w/
some rings — problem — phone 2 — not
enough power ⁱⁿ ~~at~~ deep water

1300 NEW WATCH: WALTERS, SHAUB, CROWE

1336 KEN & STIRLING WORKING ON
WAVE-MOUNTED EPC THAT IS
RECORDING "HIGH FREQS" FROM
AIR GUNS. THEY ARE TRYING TO
PUT AS MUCH OF THE RECORD ON
THE TAPE AS POSSIBLE.

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26

1415 Z - MAGNETOMETER BEING DEPLOYED

1423 Z - MAGNETOMETER HOOKED UP

1456 Z - Magnetometer not working - upper unit - switched to lower unit - looks better -

1500 Z - Magnetometer seems OK - recording values that seem reasonable + steady

248718 Y - recording on data logger

SPARKER TURNED OFF BRIEFLY FOR MAINTENANCE

1515 Z SPARKER BACK ON

1522 Z - compressor out Temporarily -

took gun off that was tripping shots - missed shots -

shifted guns ^{back} to trigger

so could work on compressor -

Firing one gun only -

1526: SHOOTING ON STARBOARD GUN only -

1547 - working on topside compressor - sta. side - problem unknown -

1622 Z - - LOST TRACE 30 ON THE DFS.

1624 Z - TRACE 30 BACK IN

1643 Z - - " " OUT AGAIN

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27

1712 Z — changing course to 242°
slow turn to port — passed Kaur
DSDR site 8A — heading for MF-7 &
MF-5

Beautiful day — clear & sunny —
calm seas —

1714 Z lat/lon on hard copy crashed
1726 Z ~~rebooted~~ rebooted system — back on line

* 1757 Z — Firing on 2 guns

1839 Z port gun off line
compressor fail again

1857 Z — Both guns back on —

1923 Z port gun off line
1931 Z both guns back on

20:58 NEW WATCH: KANTENBERG, LW, CISO.
Firing Two Guns, Maggie \$3.5 KHz.
SPANICE SYSTEM DOWN.

DATA Logge DISPLAYING "Tape write Error"
TOLD TO let go till new TAPE
Over CAST, 8 mi, NE 5-10, NE 2-3
visibility seas
1-3 ft

2130Z - CAUSSING DSD 1 side MF-7-
deco hole or leg 96

11 Jul 83
proposed

53
28

22:00 Single TRACE Monitor: whitening out.
Probably Belts & Prime will change
After passing MF-5. Another possibility
is a problem w/ Compressors.
It has apparently "whitened out" earlier.

CA-2240 Single ch. monitor coming BACK.
No longer "white out" AND UNKNOWN
Mechanical Problem.

23:30 Shut down single ch. monitor to
change Belt.

23:34 New Belt & style on single ch. monitor

0000 Begin Day 06 → 12 Jul 83

Overcast 8 mi Visib. Winds from NE

0025 STBD GUN needs to come in to check
for leaks — NOT STBD.
PORT GUN is leaking, Firing w/
only 1800 lbs.

0029: Take PORT GUN off line. Shoring
w/ only STBD GUN.

0033Z Deck slow stop — C/S
not off to pull gun

0056 Z WALTERS, SHAUB, CROWE ON WATCH

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FM18-01, MC-11

0116 Z -

STARBOARD GUN ONLY; PORT ENG. CUT;
RUN DEAD SLOW ON STARBOARD

0120Z GUN BACK IN operation - 2 GUNS

C/S 4.5 kts

Continue shooting MC-11

0456 DATA LOGGER DOWN; NO OUTPUT
MESSAGES? MON - F - TRAP to ~~16-010164~~

4 007506

007570

OCCURRED TWICE, 2ND BOOT Appeared
Successful, for 1 shot

0504: WRITE 2 SHOTS, CRASHED AGAIN.

Recording LOGAN C in log every 5
minutes

0520 - re boot logger - working OK now

0900 - New WATCH (Ltn, KARR-Beyer (ord),
3.5 kts, Both GUNS working (sh-6357).
MAGSIE working.

Weather Report: visib. 12 mi wind S 5 kts
seas calm, partly cloudy

10:50 T.J. (Eng. or watch) says PORT GUN IS
leaking (w/ ca. 1500 psi).
WAKE Ty } KENN

10:58 TAKING PORT GUN off line. To check for leak.

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30

11:05 Shut Down Port Eng. Dead Slow STBD.

11:10 Resume Speed.

12:29. Pump on compressor has shut down.
 It seems we can run 1 compressor
 & 1 gun. However we will be
 putting it 'strain on the system.
 May need to stop shooting to repairs
 can be made.
 Mike (chief eng.) will ~~check~~ Repair Pump &
 we can keep STBD gun firing.

1300 Z CHANGE WATCH: WALTERS, SHAUZ, CROWE

1306 Z C/S DEAD SLOW ON ONE ENGINE

1311 Z C/S 4.5 KTS, 2 GUNS FIRING

1347 Z DEMUXR, DFS, NAV, DATA LOGGER
 & MAGNIE,
 MAG RECORDER HAS ZERO &
 CALIBRATION OFF.

1350 Z CONTACT FROM ANOTHER VESSEL,
 WESTERN WIND, APPARENTLY
 SELS BOAT, BECAUSE WE SEE
 SOME COHERENT SIGNAL IN OUR
 CAMERA RECORDS BETWEEN THE
 D-WAVE & WATER BOTTOM,
 BUFLER TALKING TO "WIND".

1414 Z BUFLER TALKING TO "WIND".
 THEY ARE SHOOTING ABOUT 30
 MILES NORTH OF US & ARE PICK-
 ING UP OUR SIGNAL. WE ARE
 PICKING UP THEIR SIGNAL.

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FM18-01, CONT. MISS. CANYON

1416 Z WE ARE CONTINUING TO SHOOT.
POSITION OF WESTERN WIND;
27°07 N 90°02 W

1503: SPARKER OUT; (I.E., DEPLOYED)
Trigger every six seconds.
Sparker firing normally.

1647: ETA @ TURN and START MC-12 ~ 45 min;
or we may continue into MC-11 since
data is 500 good!

1700: Jim Dan Missy on watch

1717 Z Shut down sparker — not getting
any significant penetration —
better records of shallow seabottom on
3.5 kHz — plus sparker interfering
w/ 3.5 kHz —

+ still getting scalloped record on sparker
due to interference of big guns

2000 Z Shut down computer
to change oil in generator
that supplies power to
computer room.

Pull guns. (Last shot 7679)
EOL MC-11

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2000

~~0700~~ 2 — shutting down all Lab systems
computers, DFS, Data Logger —

Gows to pull both guns — ✓ out
chofag — put on phones that are not
working —

Engineers, going to change oil in
low compression & 50 kW
generator + port 100 kW generator

2100 New WATCH. (Cathy, Tom & Bill).
All systems still Down.

21:23 3.5 BACK on line

21:25 ON 1/2 hr — START slow turn to Port
& cross on a EAST of Position @ 2000.

21:30 START slow turn to Port.

21:38 Port Guns BACK in watch.

21:39 Bill made new scales (probably all wrong)

21:39 DATA LOGGER IS ON!
STARBOARD ENGINE OFF SO
ST. GUN CAN BE PUT IN

21:42 MAGGIE'S BACK.

22:03 Guns Firing

22:08 START UP ELC — see Trace Memo

22:26 Finish Port Turn. Heading 048°
when cable straightens out, Sigen MC-12

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22:54.16 ~~STAT~~ MC-12.
26.39.77 90.21.43

Triggering ON Starboard gun —

2300Z. Being let west. Coming Around ^{STBD} 180° so
that we may pass over 2000Z (MC-11)
End Point.

2322Z - West word set so we needed
to turn to starboard to
pass over end of MC-11

23:30Z -

Up to Now (from beginning of MC-12) the
streamer end has been noisy
due to it coming around
in turn

23:33 Commence turn to port: 041°

23:38 After Deck taking control
of guns

23:38 Guns going off to fix
compressors - problem w/ Battery
DFS IN BYPASS

00:00Z 13 July 83 STAT shooting.

0036Z-

13 Jul 83

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34

from Shot 204 (possibly earlier) we've
lost the last 12¹³ traces - noisy
Cause: Probably the DFS-IV-

0100Z - WALTERS, SHAUB, CROWE ON WATCH

0150Z - c/s - 6 kts - experiment to see
if near end of cable comes down -
kept watching & set out DFS & see
nothing wrong electrically - suggest it
may be due to streamer at surface -
getting wave noise - speeding up to see if
cable comes down any -

lost 13 traces noisy

0200Z - c/s ^{5.0} ~~4.5~~ kts c/c 068°

* When increased speed to 6 kts - near
end of cable did come down - Both on
depth transducers & also noise did go
away - decreasing to 5 kts to see
if stays down -

0215Z c/c 5.5 kts to see if
comes back ^{down} then reduced to 5.0 kts
Came back up - Knot-meter on Bridge
suggest going only 3 kts thru water - when
going 5 kts over ground -

13 Jul 83

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35

END LINE MC-12

0225 Z CHANGE REP RATE, 25 SEC
Begin LINE MC-13

At new rep-rate - at 5.5 kts

to keep near end of streamer down -
change name of line since will be
processing differently -

Line MC12 will have to be processed w/
last 12-13 traces eliminated -

* Also traces 4 & 5 are now both bad -
trace 4 = new bad trace - may be just
noisy - still getting some signal -
+ seeing other seismic signals on records - other boats or

0257 Z GO TO 30-SEC REP RATE ^{area}
TEMPORARILY -
CANCEL THIS MESSAGE

0333 Z SHUT DOWN PORT GUN

One Upper Deck compressor having problems
with ~~one of~~ lubricating pumps - having
been tripping out - various pumps - now
one pump seems out - Mike checking out -
no spare parts - if bad - have to
run on one gun for awhile -

40 sec - max. respite one gun -

0538Z Second gun back on.

0835Z Starboard gun down, compressor problems

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08:57 New watch (Cathy, Tan & Bell)
on line MC-13. ^{daily} Port Gun
Firing (ref rate 25 sec). 3.5 kHz & Maggie.

09:04 clear sky, vision ^{about} 10 mile
ENE 13 kt wind
ESE 4 kt current
1018 millibar pressure
weather report

09:28 Groe Bridge new EndPoint (sandy beach)
($28^{\circ}04.1'$, $88^{\circ}57.9'$) I have straightened
out the line so that we may
continue w/ MC-13. Also it seems
this EndPoint will more evenly space out
the Tie Points along Dir Line MC-10.

09:30 As of now we've shot ca. 340 miles
of MCS surveys.

1000 Z. compass still being ReBair; STBD gun
Not Firing.

10:19 Z change status on New-TTAC Monitor. go from
2 sec Delay TO 1 sec Delay.

10:08 now have port & starboard guns online

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11:35 Lose STD GUN. Compressor CRAPS OUT.

~~ALREADY~~ Losing shots, from 1747-1779
ca. 11:40 lost PORT GUN.

11:50 Both guns in remote & back online

11:52 TAKE PORT GUN OFFLINE TO CHECK FOR LEAK
then check STD GUN.

11:55 only Compressor, will only run ~~STD~~ ^{STD} GUN.

12:54 Weather: Seas ~ 1 ft, partly cloudy
A little sun

1300Z WALTERS, SHAB, CROWE ON WATCH

1307Z MISSING SHOTS, NO GUNS ON LINE

1317Z WESTERN INLET (SEISMIC VESSEL)
ASKS IF WE WOULD SHUT DOWN
FOR A WHILE; 28-10'N/089°-16.7'
NE

1332 c/c 060°

1355Z END MC-13 BEGIN LONG SLOW TURN
TO STARBOARD TO PICK UP ON A
LINE BEYOND THE SALT

1450Z c/c 240° —

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38

1500Z - Begin slow turn to star to come back
on line & begin MC-14

1520Z - pulling port gun as not using it - still
operating on one gun - as std. deck compressor
still down - Engineers working on but can't find
problem - still tripping out -
C/S one engine to pull gun

1550Z C/C 000°

1556Z: TURN COMPLETE: START MC 14₀₀₀
STEADY ON 000°

1614Z: LOST POWER TO SHIP: GUNS DOWN.
AUTOPILOT DOWN. ~~ATIS~~ ~~STATE~~ ~~DE~~ ~~KE~~
~~ATIS~~, LOST SHIP SERVICE GENERATOR. (100 KW)

1615Z SHIP GENERATOR & GUN DOWN

1617Z: 100 KW BACK ON LINE!

~~1623Z~~ ~~1629Z~~ → ~~GUNS BACK ON~~ - ~~ATIS~~
discussed

1622Z - Generator down - GUNS OFF -

1623Z ^{Generator} Back on line - GUN ON -

1629Z discovered trig line on std. gun off -
putting port gun in water so can pull
std. gun

filled w/ Mike - ENGR. - ready for 2 GUNS
when get set up again

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1635 C/S Dan slow on one engine to put port
gun in

1642: STEADY ON 034°

1645- switching guns - bringing port on line

1645Z port gun firing MISSING shot while shifting
triggers

1647Z -
trIGGERING ON port gun -

1650Z - C/C TO 025° TO AVOID TRANSIT THROUGH ~~WATER~~
SALT.

1700Z DAN, MISSY, JIM ON WATCH

GOING SLOW to work on bringing in stbd gun

1720Z back to 30 sec rep rate, sp 2571
speed up to 4.5 kts on one engine
good place to start processing as new line
Bad end of streamer shallow at 4.5 kts -
need to process out

1738Z Bad morning - circling to start new line -
generator problems - changing course
to avoid sharp bents - ship's
power & generator off for awhile - + lost
gun tag line - not much more could
happen - line MC - if prior to this point
not going to be much good - made mistake
& should have just kept going on line
to NE as set up by CONSO instead of
trying to circle back around -

Mike (Eng) feels stbd. compressor working
OK & can go back to 2 guns when
get rigged -

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40

1745Z - Back end of streamer still shallow -
last 15-20 fencer are noisy & unusable -
need to process out -

C/S 5.5 kts - 2 engines back on line
completed being in sta. guns -

Another place to break line when processing
seems to have streamer back down? *

1759Z - Discovered fence 47 - Monitor fence
seems to be going bad on DFS - *

Switched monitor to Fence 46 - we were
getting poor monitor record -

1800Z C/C to 0410

1816Z Going back to 25 sec. Rep. Rate. *

Another place to change processing
of line

1830Z - noticed middle part of streamer
coming shallow on depth sensors &
middle fence all of sudden going
noisy - *

1838 - Starboard engine off, dead slow on
port.

putting Starboard gun back in

1841 - Starboard engine back on. Resume normal speed 5.5

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41

1841 Z - both guns in water
& working. —

¹⁹⁰⁵ 1915 Z - ntr logged down — since ~1905 Z
M-Booked

2100 Z New Watch: Cathy Bill Tom

weather: clear, easterly winds 10-15 kts
" Seas 2-4 ft
swells 4-6 ft
86° - dry therm
77° - wet therm
partly cloudy

2230 Z: Shut down everything while
begin turn to starboard 6°/min
Other boats shooting in area so we'll
be shut down for about 2 hrs.
to let them thru
End line MC-14

23:32 Come TO DEAD slow TO Allow Western
~~test~~ INLET TO START shooting.

Western's Position @ 2230 was 28° 05.6' 89° 16.7'
& then line was due north
for 3-4 hrs.

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0100 Z SHAVER, WALTERS, CROWE ON 42
WATCH

BATH, MAG, DATA LOGGER, LORAN
C & SATNAV OPERATING;
DFS SYSTEM ON STAND-BY.

0115 Z LOST LORAN C ON DATA
LOGGER.

0125 Z DATA LOGGER BACK UP BUT RESPONDING
VERY SLOWLY TO COMMANDS

0315 Z BELIN LOOK TURN TO
STARBOARD

0330 Z AFTER TURN, WILL STEADY ON 307° COURSE

0357 Z - BOTH GUNS IN WATER

0400 Z - GUNS firing

0405 Z one gun only - problem w/ one
screw compressor - shut DOWN -
not out air -

0414 Z START LINE MC-15, SHOT 4116

0416 Z - BRINGING UP second gun -

0418 Z Port gun off - can't keep up air

0423 Z - Running ^{one} gun on 1600 psi -

Compressor problems - guns not firing
quite on trigger - Monitor shows some relays

0435 Z - up to 1700 psi - still problems -
MC-15

shooting time, nt 5.5 kts, rep rate 25 -

to get 29-fld - 10 sec record length -

0555 Two guns up and firing -

0900 Z - New watch (Cathy, Tom & Bill).
14 July 83

Firing 2 guns. All systems working,
on line MC-15, No problems (yet).

Weather: clear, wind from E 10-15 kts
Seas from E 1-3 kts
Swell 3-5 ft

Dry bulb 82°
wet bulb 76°
partly cloudy

1255 Z Slow Down → 4.5 kts.
Do not ~~to~~ compensate for rate
lose 24 fold. Sea Point 5369.

1259 Z Pick up speed again. Sea Point 5379.

1300 Z SHAW, WALTERS, CHOWE
FULL SET OF SYSTEMS GOING.

1445 Z - Begin Sparker - test -

1450 Z c/c 304

1507 Z c/c 300

1516 Z c/c 303

1516Z - Jernie - the cook discovered one of

lines on one of gun balloons had come loose - still held by 2 - try to go to end of line as all else going well -

Weather nice - winds & seas following from SE - seas 1-2 ft - sunny no clouds but hazy - poor visibility - only ~ 4-5 miles -

1550Z C/C 307

1630Z C/C 313

SEIS VESSEL ATLANTIC SEAL WOULD LIKE TO TIME-SHARE; THEIR CLIENT IS AMOCO, ONE OF OUR SPONSORS ALSO, SO THEY ARE CHECKING WITH THEM & TELLING THEM WE ARE ALSO TAKING AMOCO DATA.

1707Z - Compressor problem - shooting on one gun

1823Z \Rightarrow Port gun going down (compressor problems)

1841:30Z both guns on

1846Z Radar is back on 1846

1850Z Begin turn to starboard C/C

1900Z Course is 350°

1908Z Port gun down

1930Z Guns off - engine slowed

END LINE MC-15

1944Z port engine engaged - resume speed.

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45

Shooting
1954 Z - DOWN for several hours to let Atlantic
seal shoot a line - we blew them out
of water several times & want to give them
time to shoot -

North
end of MC-15 west past Drilling Rig
About .9 mi to port - Rig located
at $\sim 28^{\circ}39', -89^{\circ}58.25'$ -
 $28^{\circ}40.04' - -89^{\circ}58.07'$ - nearest point to
well we are trying - BB 305 is located at
 $28^{\circ}40.0' - 89^{\circ}58.9'$

compressors shut down - fixing sta. upper
Deck compressor - cleaning out - lube system

guns on Deck for checking & repairing tape,
winch & float - guns working great -

pulled sparkies & clipped tips & back in water -
& ready

2000 Z - Data logger off for a few minutes -
re-boot logger - 19:48-20:00
switch to ^{data} every 5 minutes

2100 Z WALTERS, SHAUB, CROWE ON WATCH

2137 Z TAIL BUOY OFF STERN - ~~GOING OUT TO~~
~~RECOVER IT~~ DUE TO FAST TURN

BRIDGE MAN^{sp}euvering to kill time while waiting
for Atlantic seal to finish

talked to them - will be done about 0030 Z - 7/15
will begin line to NE of 305 & shoot to
SW from 305 & other wells to SW - & then line
7

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2300Z - talked to Mike Huxton - seems to think he has 46
Solved engineering problem of upper deck compressors -
values dirty & gumming up - cleaned out -

not a good day -

earlier in afternoon Buttle accidentally detonated flare
gun in wheel-house - flares blew off & burned out -
Mohammed acted rapidly & got fire extinguisher on it
& got it out - saw fire drill - lots of smoke
in wheel house & upper ship - only damage was
to radar - burned wire - up out radar for
~ 1 hr while shooting end of MC-15 - Stanley
checked out radar - only apparent damage was wire -
reconnected & OK -
Mohammed to be commended for quick & alert action on
Bridge -

later in afternoon while man^{eu}vering ship while
waiting we turned back over stern - George
peasey observed tail-buoy passing ship to port only
a few 100 yards - upside down - then watched it
drift across our stern - did a figure 8 - must
have been set back by wind & current
cable seems to be OK - not unusually noisy -
won't know until I shoot



tail buoy must have passed
under cable center -

0000Z 15 JUL 83

COMPRESSORS ON, GUNS IN WATER
PREPARING TO START MC-16, SHELLE
LINE TIRING WELLS AT/NEAR MOUTH OF
MISSISSIPPI CANYON

15 ~~14~~ Jul 83 ~~72~~
47

01000Z Turning to begin MC-16. —

0120Z Steady 222°

~~0120Z~~ 0122Z c/c 227° to head for well 305

0135Z c/s run slow to let shrimp boat go ahead —

c/c 232°

0141Z c/c to star to come behind shrimp boat

0147Z c/c 255° — to ^{AVOID} avoid shrimp boat

0148Z turned speaker on

0151Z c/s 5.5 kts

0155Z — Start Remox — one tape drive
_{lost vacuum}

begin low MC-16

X

still have to alter course to port to
come back across 305 —

staring & making looking into tape drive
altering courses to ^{port to} try to come close to 305

0238Z crossing nearest point to 305 well

0240Z magnetometer down to remain shock
cord.

0250Z — massive back on — bad values —

0312Z c/s to 208° from 220° heading to G1 wells

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03:31 - Bridge advised that rigs on starboard and dead ahead require cps to port.

04:01 Closest approach to G190 wells - $2\frac{1}{2}$ Knot mile or less from each.

04:15 Begin turn to starboard 5° /minute for total of about 24°

04:16 Rig heading 120° about $2/10$ Knot away check for well logs!

04:25 238° stable heading - avoiding rigs

04:40 Bridge reported rigs to port and starboard within a knot mile.

04:51 z Back to one gun - gun failure -
reason unknown

~~04:54~~

04:59 Switched polarity of sparker

05:00 New Watch Corso Lin Kanterberger

c/c 220°

05:06 z c/c 210°

05:11 c/s dead slow on starboard engine to pull port gun

05:20 Engage Port Eng. Will cue BACK to SPEED. Spent gun on deck

05:21 c/s back to 5.5 Kts

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~ 06:00 sparker blew circuit, off

06:12 sparker back on

06:20 sparker off again

06:23 ~~24~~ sparker on again

06:25 off again! Needs trimming so will be off
for a while

06:48 sparker ^{for a while} back on - off now wrapped
around gun, had to retrieve & redeploy

07:00 sparker back on

07:06 still problems w/ sparker - wrapped around
gun again, working on it

07:20 C/C starting turn to port to 180°

07:30 must stay @ 1600 b/c ^{another} ship on
port side

07:36 C/C 125°

07:40 C/S dead slow starboard
Disengage port - to put gun back in

07:43 resume speed, engage port

07:46 have both guns firing again

07:50 dead slow on starboard - pull in sparker

07:55 SPARKER BACK! added 60 ft of cable

AN EVENTFUL NIGHT. AT ABOUT 1:00 (0600Z)
 The circuit breaker tripped on SPARKER.
 Sterling Diagnosed The Pblm As BURNT
 TIRES - U. Bill pulls in the SPARKER
 while Sterling & TV work on Port Gun.
 Bill clips TIRES & throws SPARKER
 BACK in. SPARKER GETS CAUGHT IN
 STBD Gun. TV, Sterling & Bill Redeploy
 SPARKER & AGAIN ITU BECOMES ENTANGLED
 IN STBD Gun. Shift OPERATIONS TO
 Port Airgun, ALL Finish Redeploy
 Gun & Then The Third Try TO
 Deploy SPARKER is successful. PROBABLY
 DUE TO SLOWLY DOWN SHIP (DEAD STOP
 IN STBD SUEW) & SLIGHT MANEUVERING

0848 shut down port gun
 speeding up to avoid ship
 traffic - 5.8 Kts.

0855 speed back down again 5.2 Kts

0956 Z MAGNETOMETER READINGS
 STILL UNSTABLE

(only on the strip recorder)

00

DLogger is fine.

1027Z Port gun back on line.

1045: DEMUXR TAPE 180118 Showed a tape
 number of 180117 during SEGDOC.
 The tape QC'd normally. *may be too fast*

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1047Z 0947L 15 JULY 83 0400/0800 WACTH

1104Z: REEL 180119 ~~180119~~ SEGDOC'd normally with
the proper reel number.

1222: MAGGIE CHART RECORDER FUNCTIONING
ABNORMALLY. DLOGGER VALUES OK.

1226: 3.5 KH offline; no apparent reason

1239: 3.5 KHZ BACK ON LINE (THANKS KEN!)

1259: MAGGIE ALARM SOUNDED AFTER CHECKING
PAPER.

1412Z Spokes off — getting too deep — not
getting any good records —

earlier — yesterday — when went over trail buoy
seemed to have righted it — now seeing strobe light

✱

1530Z — tape 180124 showed 180123 in header — ✱
? poss. bug in program that goes too fast —
happened earlier on 118

for the record — Mark has developed two quality
control programs — first — SEGDOC — looks thru
tape & looks for errors — run on every tape —
second — single trace plot — from 1-3 secs
of data — takes long time — same as collecting
tape — so running on every other tape —
program = NTPLOT

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52

7/15/83 —

1540Z — Monitor records showing cross-talk from other ships in area —

talked with Mark — he has developed another program to ABC the single trace plot — is now checking out — can then give plot more like a true single-ch. monitor record — great *

going over streamer yesterday shows need of some type of program to plot position — course etc in real time —

1610Z c/c ~~two~~ 2 degrees to port
new course 154° true

1639Z Gun went down

1639Z. Starboard Gun went down and that was our trigger gun so we lost data since nothing was being triggered.

1644Z switched trigger to port gun, getting data again

1647Z Ship going to dead slow to check guns
starboard
- gun may be only being towed from tag line

1657Z disengage starboard engine
engaging starboard engine to go up to speed

Harness chain on gun broken being towed by tag line. — BANG IN SH. GUN

1700Z New watch Corso Lin Kantenberg

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53

1900Z having problems w/ bathymetry
losing. Bottom. Because of rapid
change in slope. Had to play w/
programming of KEY/GATE sequence.

1938 kill starboard engine, dead slow
on port

1943 engage starboard engine, resume speed
both guns in remote
2 guns Back firing

Ty & Company took off old rigging which
had ripped apart when chain broke &
replaced it with new (already made-up)
harness — second time — snit

2100Z WALTERS, SHAUZ, CROWE ON WATCH

2134Z DEMUX TERMINAL CRATERED — LOST
DEMUXR TEMPORARILY
OUTPUT

2139Z DEMUXR BACK; MISSED ~12 SHOTS

16 Jul 83

01:05 — unplugged trigger phone to connect Fairfield
phone to scope for display — missed shot 224

0339Z — slowing down to let boat pass us.

0346Z shut ~~port~~ ^{starboard} engine down to go even slower

MF2 27°36.3 89 04.8

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54

0351 - started up starboard engine. Still
dead slow on both.

Present speed \rightarrow 2.6

0357 - Going back up to full speed.

0504 New watch. (Cathy, Tom, Bill)
All systems working.

0519 - C/C begin turn to \sim ~~180~~⁰⁰⁵⁻⁰⁰⁷
END live MC-16

Begin live MC-17.

0545 - Shutting port gun ^{down} for awhile
b/c compressor problem, has to
build up pressure

0548 - putting port gun back on

WE were Triggering off The
Port Gun (I thought we were
Triggering off The ~~STBD~~ gun).
Therefore By shooting the Port Gun off
we lost 4 shots (1251-1253).
Sorry About That. Quickly Remedied Though.

0602 Finish Turn course 004°.
There was a lot of STEPMAN noise generated
By the Turn see G/A's Recon 1283

0900 - 1300Z (0400 - 0800 wacth) 16 JULY 1983

0900 WALTERS, SHAUB, CROWE ON WATCH

0954: MISSED A N.T. PLOT ON 180146
BECAUSE THERE WAS STILL A
REPEATED 180145 PLOT IN THE BIN.

1012: [Data logger was apparently shut down
at around 0700 to 0715Z (mid watch)
to reload paper. No log entry was
made, and unless there were problems
it is unnecessary to ^{Shut down} reboot simply to
change paper. ~~HT~~ will stop writing to
tape for as long as necessary, and
when finished ST will begin writing again...
~~the data logger will be rebooted~~

→ 1030: Reply this comment; logger was rebooted
because it appeared to have cratered.
~~Probably~~ Probably a good idea to
check amount of paper for both
DEMUXER and data logger every
watch, especially since the
out of paper lights have guards
over them.

16 JULY 83

0400-0800 L

0900-1300 Z

1045: LINE: MC-17 CURRENT REEL # 180148.

@ 1253 Z: Dist to MF-2 \approx 21 n.m. or 3.8 hrs13:00 Dan Missy and Jim on watch
away at 5.5 knots.

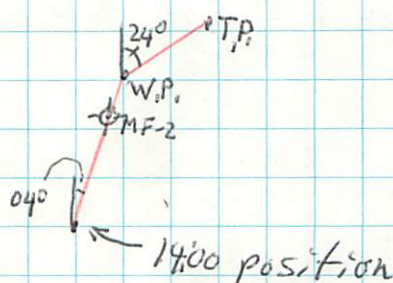
For the past day we have been running QC to
 NPLOT on every tape - NPLOT runs on
 second window around water bottom
 so doesn't take as much time to can do one/
 output tape from demox & not get behind

ken wil' that centered yesterday seems OK - new
 decided what was wrong - just juggled it -

14:00 Heading for well MF-2 at $27^{\circ}36.3'N$ $89^{\circ}04.8'W$ 040

14:15 Turn point past well is at $27^{\circ}56.2'N$ $88^{\circ}54.0'W$
 Revised turn point is $27^{\circ}54.8'N$ $88^{\circ}55.8'W$

14:45 Way point 3.5 miles past well at $27^{\circ}39.5'N$
 $89^{\circ}04.2'W$



15:00 Advised Bridgeto steer 05° True to
 intercept MF-2 - DPH

17:00 Z New Watch. Cathy, Tom & Bill
 All systems working fine.

16 Jul 83

82
57

17:17

Weather: wind E-NE 8-12 kts
seas E-NE 4-3 fts
partly cloudy

17:30 making turn C/C to 029°

1808 C/C 024° true

1926 LORAN crashed (Bridges did too)
Bridge is navigating by Satellite

1935 LORAN C is BACK UP AGAIN

20:14 C/C 026° true

20:20 turning $1^{\circ}/\text{min}$ in order to hit
our tie

Type Drive D was wiggling - out of adjustment
stabilizing adjusted - seems OK for now -
adjusted vacuum - will adjust & test further
when end line is shut down

From 1900 to ca 1950 the Trigger off the guns
was hooked up to the ed phone. This phase
is too noisy, thus DATA poor. See
change in resolution in single channel
monitor. Ken had apparently
reconnected things & Sterling caught
the error. Guns and sync.

16 JUL 83, FM 18-01, MC-17

83
58

2100 Z WALTERS, SHAUB, CROWE ON WATCH,

2120 Z - Monitor shows triggering late? - not sure of problem - shows shift in arrival of signal - PROBLEM WAS THAT THE RECORDING BELT WAS RE-POSITIONING ITSELF; NEW BELT ON.

2130 Z EDL MC-17. BRING IN GUNS FOR MAINTENANCE; EVADE TRAFFIC IN THIS AREA; BEGIN LOW SLOW TURN TO PORT TO GET US UP FOR MC-18.

STEERING POINTS FOR MC-18:

27° 57.0' N / 088° 54.0' W

27° 42.75' N / 088° 51.0' W

TOOK THESE TO BRIDGE.

2354 Z ON COURSE & AT SPEED
BEGIN LINE MC-18

17 JUL 83

0110 Z Talked to Western inlet agreed to shoot for 2½ hrs more then stop and circle for 2-3 hours to allow them to finish their line.

0151 Z slowing down to let ship cross bow

0156 Z C/L to 171° speed back up to 5.5 kts

0210 Z C/L to 170°

0249 Z Shut down guns for 2 hours to let western inlet shoot.

0501 Z C/L to 000° for turn to north.

New watch. Cathy, Tom & Bill.
NOT SHOOTING. Turning to SBD. Wasting Time
(ca. 1-1½ hrs left) while western inlet

17 Jul 83

84
59

15 Firing - Only systems working 3.5 kHz
Maggie / DCS & Demux off.
DATA Logger taking DATA every 5 min

05:14 Ship Traffic - (Tug in Tow.) MUST
maintain heading of ca. 270°
to permit him to pass with 1.8 kts.
Also saw down A.IAD. (4.0 - ca. 2 kts)
Made turn A.IAD. A whole lot.

05:40 starting VERY slow turn to starboard
as tug passes

0552 - c/s - ~5.0 kts -

continuing turn to starboard to head
back to star of line ~60/min

0621 - c/c 039° true

0651 - Maggie left on "cal" so no
data on strip chart for about
20 min

0708 START of confessions, get ready to start firing.

07:15 START shooting, guns

0718 shut down guns for few minutes

17 Jul 83 ~~83~~
60

0720: start shooting - 2 guns firing ok

0734: start recording - Demux
Continue Line MC-18B

Streamer very noisy - due to sea state:
Strong SSE winds 15-20 kts
seas - SSE - 3-5 feet
swells - 4-6 feet
visibility ~ 12 mi - partly cloudy
intermittent lt. rain

BILL & TOM ARE SEASICK!!
CATHY IS NOT!!
(AND REAL MEN DON'T EAT QUICHE - HA)

0900 Z SHAUB, WALTERS, CROWE ON WATCH

STREAMER STILL VERY NOISY.
MORE WIND & SEA THAN WE HAVE
HAD SO FAR THIS CRUISE

1045 Z c/s 4.8 K, TRY TO QUIET
STREAMER

1100 Z c/s 6.0 K, TRY TO QUIET CABLE
STREAMER DEEPER, QUIET

1312 Z Guns seem to have gone (no signal
for one) then just come back.
now they seem to be O.K.

this part of line needs to be processed X
separately - as fold will be less - going
faster - but did not change rep. rate

1542Z - shift monitor to 2 sec delay -

17 Jul 83 86
61

1600Z - weather

sl. overcast - wind ESE 15-16 kt

hazy - seas SSE - 2-5'
swell 3-5'

visibility ~ 10 mi

1617Z c/s 5.5 kts ^{try-?} - weather calmer -
stunner not as noisy - place to
break line in processing *
*

Mark has revised program to check tapes
before using - earlier seemed to run into a
bad tape - thus the reason - will try to run
tapes & put on track

Mark also wrote program to plot data from
daily MER tape of Nau/NAD program - need
way of quickly editing ~~new~~ magnetics,
Bathymetry & shot points w files - instead of
visually trying to check nos - this way can
plot & look for excursions - needs to be
documented & implemented - but looks like it works -

Mark also has been working on way to plot a
single trace strip record for several tapes - with
AGC - to get something similar to seismic record -
? status -

1634Z - checker camera records - stunner looks
much quieter - as weather calmer - seems ok
at 5.5 kts - weather was choppy all
during nite - stunner very noisy - need to
watch when processing *

Range point at 26°32.6'N 88°23.8'W - Begin turn there

17 Jul 83

87
62

17:00Z New watch (Cathy, Tom & Bill). Runway MC-18.
All systems working. Approaching MF-7.

17:23Z passed over MF-7

17:29. Loran C is creeping up to
6.0 KTS occasionally. However
Bridge is NOT increasing turns
from 5.5 KTS setting. Increase in
speed. Real? A function of
Loran's integration? Currents?
Rep Rate ~ 1000 remains. 25 sec.

17:30 CA off A Gun @ A Time &
look @ them. MAINTAIN speed
of 5.5 KTS.

18:54 The Sterling is changing the
stn - ? belt of 3.5 kHz
Was off for about 4-5 mins

19:35 Port gun goes manual
Dead slow on Stbd

19:38 Turn to 143° True. d/c.

19:44 Engage Port engine, resume speed
C/S

17 Jul 83 88
63

19:59. Core Dead Slow TO Port Gun
BACK INTO The water.

20:03 Both guns are in remote

20:08 Switch trigger to port gun -
pulling out star gun

20:08 STBD Gun in, Resume speed.

20:24 - STBD Gun needs repair (O-Ring)
2-3 hrs.

20:36 c/c TO 150°

21:00 Z WALTERS, SHAUB, CROWE ON WATCH

21:47 Z BOTH GUNS IN REMOTE - 2 GUNS -

22:15 Z (SHUTTING DOWN PORT GUN - COMPRESSOR PROBS.
TRIGGER ON STBD. GUN
- HEAD GASKET BLOWN ON DECK COMPRESSOR

Great job by Ty & Stirling changing out
O-RING in gun & getting it back in water
in record time -

22:59 Z BOTH GUNS IN REMOTE

23:07 Z CHANGED REC. LENGTH TO 13 SEC.

XX

need to change line here & process as
separate line - Doing this with possibility
of getting reflector off Moho at oceanic/
transitional crust boundary -

18 Jul 83

89
64

0053 Z - TAPE DRIVE PROBS. - MISSING STABS

0057 Z - DEMUXR STOPPED, GOING TO 1" TAPES

01:36 - Went back to regular tape drive at slot 3806 at 01:36

0144Z - synopsis of Demuxr tape problems.

Analysis of errors seen on drives led to conclusion that drive interconnect cables are at fault. At end of tape 180188, I attempted to change cables. Some malfunction occurred (probably misconnected cables) which caused a severe software hangup. Demuxr was rebooted; one inch tape was recorded for a while. MW

0048Z

~~0048Z~~ shot 3690 last good Demuxr reel 180188
shot 3714 1st one inch tape shot
0107Z shot 3736 2nd rebooted Demuxr shot
0117Z shot 3760 last one inch tape shot

02:00 C/S to approx 154° . - Never came around to more than 152°

01:300 steady at 147°

05:05 Change watch (Cathy, R & Bill)

All systems working continuously on line MC-18. Will finish go to next line MC-19. switch to 10 sec. Fr 13 sec. Sweep - Demuxr.

When ending line MC-18 & turning to MC-19 will turn @ $3^{\circ}/\text{min}$ & see high noisy streamer gets. Can afford such a leisurely turn because of no ship traffic & precise. Endpoints are not necessary.

18 Jul 83 20
65

0730 End line MC-18 START TURN @ 30°/min
Begin line MC-19 } change
DTS Record length to 10 sec.

0755 END TURN. Bearing 071°

Note: 4 Galathea prints were made
At the beginning of the turn, 3/4 through it,
At the end } 10 min after the end.
Noise in ch. 25-48 was great during
the turn. However died down within
10 minutes of the turn's completion.
There was no apparent increase in
noise in ch. 1-24 during the
turn.

0900Z WALTERS, SHAVB, CROWE ON WATCH

1037Z REEL 180203 SEVERAL INTERNAL
TIME BREAKS

1047Z STARBOARD GUN SOMETIMES FAILS
TO FIRE, MAY BE SOURCE OF ITBIS.

1100Z TY IS PULLING STARBOARD GUN -
C/S 3K

THERE IS NO MESSAGE ON DEMUX
SCREEN ABOUT "NO DATA", SO WE
ARE NOT SURE WHETHER DEMUX
IS RECORDING THE OVR-GUN
SHOTS.

1120 CALLED MARK
NO DATA RECORDED DURING
INTERNAL TIME BREAKS NO MATTER
WHETHER SCREEN SAYS ANYTHING
- CHANGED TRIGGER TO PORT GUN

1123 C/S 5-5 KTS

pulled gun that was tagging; DFS—Missy
gave a few shots—

FEM18-D1 MC-19 18 JUL 83

91
X 66

1130 Z C/S 3.0 K PUT GUN INTO WATER
PORT GUN NOT A CLEAN TRIGGER
TO SINGLE-CHANNEL MONITOR

1133 Z C/S 5.5 K, GUN IN WATER

1145 Z GUN SYNCH. PROBLEMS: STARBOARD GUN
FIRING VERY ERRATICALLY: GETTING MORE I.T.B.'s

1200 Z PULL STRAP GUN
C/S 3 K

1208 Z C/S 5.5 AFTER STRAP GUN ON
DECK

1300 Z Dan, Jim and Missy on watch

1415 Z C/S disengage starboard engine to
put starboard gun back in water

1418 Z C/S back to speed, gun back in water

1419 Z Both guns back on line

1500 Z - problem w/ tape 208 - didn't seem
to be writing to tape - problem unknown - only
got to shot 69 on tape as was trying to re-write
- took 2x time - Tape is unreadable
shot 5685 to shot 5699

looks like bad patch on this tape -
too bad - over deep Basement structure - salt? or
BSMT block

1510 Z - will record next ~~shot~~ tape on 1" drive's
while checking out Demux system

1535 Z - Begin Recording on 1" tape
Drives - tape 210 - testing Demux

X

18 Jul 83

92
67

1619Z — Still testing DEMUX — running 1" Driver

16:55 Z. Cathy, Tom & Bill — watch. Approaching
end of line MC-19. Do A 3°/min
Turn TO Begin line MC-20

DEMUX Down Recording —
1" TAPES.

17:13 ~~1802Z~~ Started up DEMUX
System again w/ tape

180212!

1744 completed the turn, c/c 133°

1723 — began turn, end MC-19, begin MC-20

1755 Bridge concerned about LORAN
reading for speed (4.3 kts), so will
watch it for few minutes to see
if it comes down, if not
bridge will slow down a bit

1757 → Speed coming down on LORAN (by
itself) 5.6 kts

1800 Z — Switch trigger guns to str. gun — to pull
port gun — check rigging etc.

1802Z Pull Port Gun in, End Writing —
1" TAPE. Last shot 6171

18 Jul 83

98
68

1803Z c/s - ^{of gear} took one engine out to pull gun
shooting on one gun

earlier this morning
tinker w/ Ty - when pulled stbd gun found
bad teflon O-ring - had been firing
OK under pressure - decided to put spare
gun in water - O-ring has been repaired

1810Z - c/s Backup to 5.5 kts - gun on deck -

1831 Disengage Port eng., Dead slow stbd
Put port gun back in water

~~1810Z - c/s Backup to 5.5 kts - gun~~

1834 Resume full speed
Both guns in remote

2100Z WALTERS, SHAVB, CROWE ON WATCH

19 Jul 83

0015Z MAGNETOMETER DEAD - CALLED KEN
STEWART TO Logger though...

0100Z DAN, MISSY, JIM ON WATCH

0115Z Magnetometer needle & Box working
again.

0409Z - Spotted the strobe of streamer
and all looks well. Streamer
looks directly behind us.

0400:58 Demuxr down

0405 Demuxr back on line and recording

19 Jul 83

94
69

0412Z closest approach to well MF-13
within .4 Nautical miles

0500Z New watch (Lahy, Tim & Bill)
Proceeding PAST MF-13 on line MC-20.
All systems working. Triggering off the
STBD gun. Will End fire MC-20 @ 12:30
(0530Z). & START 3°/min turn to Port
& loop BACK over MF-13. This
will begin line MF-21.

0530: Starting 3 deg/min stbd turn
End line MC-20, begin MC-21
Changing oil in compressor
while port gun is pulled in.
Firing off stbd gun.

0544: Both guns firing

0630 Continuing Broad, slow TURN R STBD. will
Hold a heading of ca. 300° for ca 40 mins.
Before Finally coming AROUND TO 024°.

0643 on This heading (300°) Bridge is unable
to maintain S-SLO. According to LANC

19 Jul 83

95
70

Speed Fluctuates Between 4.4 & 5.0: Even with Engines Almost Full. COT.

07:00 LORAN C Signal Quality very Poor (250-800)
I seem to be giving us Axiomatic Positions.
(2501). Check with no. on Bridge. His
seems to be working use his Points.

07:11 Bridge loses Loran C. Manoeuvre with stabilizer.

07:15: Loran C (LAD's & Bridge) SNR 800 & 400
SANDY locks LAD's onto Average Slave
SNR #'s 800 on both MASTER & SLAVE 3.
Let settle Down Before Taking Fix.

07:23 START STD TURN TO course TURN
TO 024°. LORAN C still FLAKY. Try other Slaves

07:40 I assign (TO SANDY'S choice) Loran C Slaves & The Number
Look GOOD. SNR > 800 for both
MASTER & SLAVE. Positions seem
reasonable.

08:00 : STOP Turning & Head N (course 355°) TO intersect
AN extension of 024° line SW of MF-13.
Need only to go ca. 1.1 miles before intersecting
024° line.

08:31Z Cue ADON TO 024°. Have (Finally!) ordered
STD. TURN.

08:51Z PASS over proposed drill site MF-13.

09:00 Z WALTERS, SHAUB, CROWE ON WATCH

July 83 (0400-0800L) [0900-1300Z]

0900: Crowe, Maub, Watten on watch.
- continue line MC-21

0932: Change to master slave on Loran C,
will take a few minutes for readings,
 ϕ , λ , speed, etc., to stabilize

Reset slaves, SN back up to ~900's, only
after some confusion...

01300 - New watch Huston, Feck, Randall

1620 - Stbd gun offline to test for leaks

1628 - dead slow on stbd engine port
engine disengaged. Bring in gun

1644 - Resume speed - found O-ring
busted - Ty repairing

1640 - towed fish & single ch. eel
out of water for checking
adjustment & bringing eel
up closer to fish

1700 - New watch: Cathy Tom Bill

1710 - Slowing down to put fish &
eel back into water

1730 - Start 30°/min turn to port
End line MC-21 } only shooting
Begin line MC-22 } w/ port gun
Change paper in Single
channel monitor

19 Jul 83

87
72

1740 Both guns in water
Fish & eel in water - resume speed

1745 Pull in port gun for inspection

1750 Completed the turn

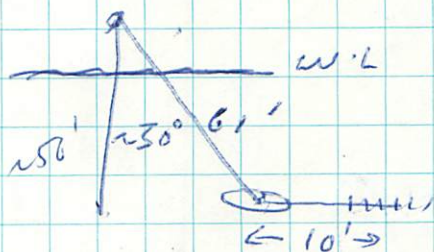
1755 When port gun goes back in, will not fire immediately. Hold off while work on compressor is completed working on upper deck compressor

1758 Resume speed (port gun back in the water)

~1740 put fish & sing ch. eel back in water - should resume recording on Tr. 53

18:30 Both guns in remote

measured dimensions of
fish & eel -



2100

SHAUB & WALTERS ON WATCH

F-M18-01 19 JUL 83 / 20 JUL 83

0100Z Dan, Jim and Missy on watch.

0045Z 1000 miles of data collected Yeah!!

0500Z New watch (with Tom & Bill)
Everything working. Continuing Line MC-22
Triggering of STBD GUN08:27. Very uneventful watch. All
systems worked flawlessly.
Tom over RAN 10 TAPES through
TAPCHK.

0900Z WALTERS, SHAUB, CROWE ON WATCH

1017Z TAKING STARBOARD GUN OFF LINE - AIR LEAK,
PRESSURE DROPPED1030Z ONE GUN ONLY - TRIGGER ON PORT GUN
C/S: DEAD SLOW ON PORT TO TAKE OUT GUN

1040Z RESUME SPEED 5.5

1100Z C/C - 317°

1120Z DEAD SLOW ON PORT ENG. TO REPLACE STBD. GUN

1130Z RESUME SPEED 5.5; BOTH GUNS IN REMOTE

1548Z - DISCOVERED tag line off port gun - going
to take out of water - winch in.1556Z - Take out ^{port} Starboard Gun to work on
Slow on Port and cut off starboard
engine.C/S - will stay slow while pull in port gun

20 Jul 83

99
74

1612Z - Observing some kind of wind cross-

talk on middle part of streamer on camera records - periodic waves cutting across record very regularly - 160-180 ms

middle of streamer running very deep while slow while front & back look shallow - not well balanced - middle = heavy - always goes down - *

1618Z - C/S Back to S.5 kts -

gun on deck - one gun -

cross-talk seems to go away when speed up

1634Z C/S - port disengages - slow on star to put gun back in -

1642Z - C/S - resume S.5 kts - both guns in

1642Z guns in remote - 2 guns firing *

1700Z New watch (Larry Tom & Bill). All systems working. Rigging off ~~STBD~~ Gun.

18:22 lost STBD Gun. (3132 - 3139 shots lost) & Trigger.

18:25 Change Trigger over to Port Gun.

18:28 Slow Down To Retrieve STBD Gun

18:36 Change ribbon in DATA logger.

18:35 Resume S.5 kts.

20 July '83 - FM 18-1 cont'd

TS

1840 Z - std. gun on deck - see no leaking
put back in water?

1849 Z STBD gun BACK in water & Firing

1855 Z - further plan MOCIBA to Patty
Ganey in Austin re. Matthews Zone -
she confirms use of Zone 16 thru out
study area - use MOCIBA to change

2000 Z: Tell Bridge to START c/s. (see ABENT to CO. 3100)

2042 Z. Stbd gun seems to be leaking
Ty checking. Only 1200 psi.

2043: shutting down stbd gun to
check & fix -

2045 Z order slow plant - increase stbd to
c/s - pull stbd gun

2050 - c/s - back up 5.5 kts - gun on
Deck - completely broken apart - front
end mangling off gun - ? if lost
anything -

20 July 83

20/21 July 83

2/5
76

BAND holding front of gun together - Bolt broke
Damaged hose - firing wires etc. OK - going to
cut ^{off} hose & put ^{hose} back on gun - & put same
gun back in water. - no apparent damage to
harness

2100Z WALTERS, SHAUB, CROWE ON WATCH

2217Z - C/S - Dead slow 1 Engine & put
gun in water -

2220Z - C/S - 5.5 kts

2221Z - Both guns snob or low -

X

2359Z : WRITE EOT TO DAY 14 logger tape

0000Z : 21 JULY 83

0000Z : WRITE TO DAY 15 logger tape

0025Z : CORANC IN STANDBY MODE FROM 0000Z (0011Z)
TO 0022Z. NO FIXES TO DAY 15 logger
TAPE DURING THIS TIME.

0128 : Going back to full scale on EPC near
trace monitor

Between 0000Z ^{0030Z} ~~0000Z~~ - get peculiar interference
on records - ? cause - Bursts of noise across
record - got earlier - CAN see on monitor -
~~pass at same time get noise on magnetics~~
= NO correlation

0500Z. New Watch (Cathy, Tony & Bill)
All systems working. Triggering off Port Gun.

21 Jul 83 cont A

28
77

0515Z: MAGGIE STOP chart paper recorder
seems to be on the Fritz. Wild
Records for #5 F10 49925-49950.
Ken played w/ it. His Recommendation.
let it run awhile, if still weird
shot it off.

0536: Maggie seems to be itself once more
@ 49943.5

0559 TAKE STBD. Gun offline to check
Towing HARNESSES

0603 STBD Gun Back online & firing

0817Z: Lost Bottom on 2.1KHZ POR BECAUSE
coming up slope quickly. Played around
w/ the key/cate/Print sequence; Rubie
width & gain & finally found Bottom
@ 08:26Z

0855Z: Stbd gun went down (triggering
off port) Afterdeck is shutting
down stbd gun.

0900Z: C/S: dead slow port, disengage stbd
SHAHB WHITES CROWN WHATEL

0905Z

RESUME STJ

21 JUL 83

PM 18-01

21
78

0944 Z O/S DEAD SLO DN 1 GUN WORK
PICKING UP ANOTHER SHOOTING
SHIP ON CABLE

0950 Z O/S S.S.K. STBD GUN BACK ON

1050 Z O/C 3380

1214 Z CHECKED BACK DECK
THAT STBD GUN BUBBLE IS SOME-
THING ELSE; SO IS THE PIERCUS-
SION AGAINST HULL

1230 Z SOME QUESTIONABLE LORAN
READINGS
USED SATNAV DR

1245 Z LORAN STILL FLAKY
IN SATNAV

During the past week or so since being out
at sea - Mark W. has developed the
following programs for 1134 to improve our
on-board data flow and quality control:

- 1) shot ϕ - to zero any ^{group of} unwanted shots, in
navigation program ^{numbers}
- 2) mag ϕ - to zero out any unwanted magnetics
numbers etc
- 3) QC program - Run on each Demux tape after
Demux to look for tape errors (SEGDQC)
- 4) PLOT program - Run on each Demux tape,
usually I see 7 data - on a single trace -
to see if data being written on tape OK -
could run longer data but takes a long time

21 July 83

28
79

5. a program to apply AGS to single track strips
→ get a record more like seismic monitor - works
but not applied yet - no time
6. a program to run plots of navigation fix
in NGSDC format to check for errors - ie,
quality control - called PLTDRY -
gives linear plots for LAT, LONG, SHOTS,
BATH, MAG, RES (mag residuals) - vs
24 hour day - to look for bad data points
allow to edit file
- 7) program to get power spectrum - frequency
of data - shots, bubbles, noise and
seismic reflections -

1508Z EOL MC-22 ~~28° 08' 40"~~ 29° 12.48' 88° 19.78'

~~1508Z EOL MC-22~~

1508Z - ^{to starboard} make turn, dead slow. we will change
the oil on Generators and Compressors.
- started turn and came to dead slow -
T

1510Z - starting to shut down LAB so can shut
off 50 kW generator & change oil -
will stay down till 50 kW back up.

1516 - LAB SHUT Down completely

1517 - 055° Heading during shut down & turn
Cyro 90° off from true course we are steering

1550Z. data logger up and working

21 Jul 83

23
80

1552 - LAB has been back on so low fuel

~ 20 min - gyro must have gone out
during switching of generator - still ~ 80°
difference between true course & gyro
course -

Shooting on one gun - port gun - while
monitor on -

changing oil in compressors -
deck & screw - one at a
time -

1555 - Start back up to 5.5 knots

Note: Line is very deep at present
due to slow down & turn.

1550 Data logger up and recording on tape Day ¹⁵~~15~~ - 02
new data logger tape because of shutdown of system

16202 Still problems w/ gyro from bridge

16192 Started recording data, w/ one gun
SOL MC-23
29° 14.19' 88° 16.70'

X

7:00Z. New watch (Cathy, Tom & Bill).

Just began line MC-23: STBD Gun Dead
only using Port Gun.

★ REEL 180298 does not exist and has
never existed. The tape sequence is 180297
then 180299 ★

21 Jul 83

81

1749: Stbd gun back on line

1925: Ty ~~sys~~ Ballon on STBD GUN/HAS line
Close will need to Pull gun in
shortly. to fix harness on
balloon

1953 C/S disengage stbd, dead slow
port
Remove stbd gun

1937: Demux R hung Post shots
→ 1937Z to 1950Z
670 to 702⁵

1950: Demux R back

1956: C/S Resume speed S.S.K.S

20:03 STOP STBD Eng. PUT STBD Gun BACK
INTO WATER.

20:05 PICK UP SPEED. — Both guns firing X

20:03 Stbd gun signal dropped alot (by
about 10) Filter gain changed
from +6dB to +20dB.

2015 Shrimp Boat on 2 miles off STBD MAY need
to maneuver around him. As yet
it has not responded to RADIO (ca. 1 min).

21/22 July 83

82

2109Z - new course heading is 044°.

2117Z - Stbd. gun phone Filter gain changed from 20dB to 60dB - signal is stronger now, but not so great as originally. ??

2144 - back to 20dB ??

2240Z - turn started 3° to starboard with a course heading of 135° Deg.

2240Z - Change line to MC-24
We changed at point of turn

2321Z - Turn complete

2330Z - c/c 155°

2356Z - SPARKER started ON and working
1/2 sec sweep.

0015Z - notice problem with Single Channel printer. It began printing clanker (Heavily Drinker) almost at same time SPARKER was turned on. Ken checked it and ~~it~~ ~~the~~ change the reverse polarity switch. Now it's working good.

0042Z - changed Belt on SPARKER

22 July 83

32
83

0100Z New watch (only Tom & Bill)
All systems OP. (including Sparrow) (C)
1/2 sec sweep, 2 sec shot.
Triggering off the Port Gun.

0132Z START 30° STBD TURN.
END line MC-24
Begin line MC-25.

0157Z STOP STBD TURN, Heading 280° gyro. 4.3 kts

0214 Maintain Course & Speed (4.4 kts)
Due to ship traffic.

0243: START slow turn to Port to 248° True

0255: C/S to 5.5 kts
line MC-25 from START (0132Z) to
now (0255) has been shot (C)
4.5 kts w/ rel rate of 25/sec.

0343Z @ Shot 1836 switched triggering
to stbd; will be shutting
seems to be testing my engineers
0345Z port gun off

22 Jul 83

28
84

0345Z losing record on EPC (about
3 minutes)

0353 switched triggering back to
port gun

0353 Stbd gun offline to
be checked

0359 switched triggering to Stbd gun
port gun offline to be
checked

0400 losing record on EPC

not triggering - making adjustments
missed a few shots - *

0407Z - triggering seems ok

0413: port gun back online
triggering off port
stbd gun offline

22 JULY 83

8524

0423 both guns back online

all checked out - found nothing wrong?
gun or compressors - compressors at first
were ~~not~~ reported not cycling correctly - but ok
now

0500 Z WALTERS, SHaub, CROWE ON WATCH

0524 Z SPARKER OFFLINE...

0526 Z SPARKER ONLINE...

Switching polarity

Standing orders - NO salt on MC-25

0608 Z: C/C to 234°, continue MC-25

0739: SPARKER OFF TO CHANGE PAPER

0744: " ON AGAIN

1107 Sparker off to clip tips

1140 Sparker on - tips clipped

1159 0.1 sec delay on sparker

1201 0.2 sec delay on sparker

1300 Z New Watch Callin Tom B. //

Firing off Port gun

Switch Polarity - SPARKER

22 JUL 83

86%

1505Z Guide rope broke on Stbd gun

1512Z Stbd gun is down to 1500psi
& it's not firing (triggering
on port gun so ~~we~~ we are
getting data)

1514Z Shutting off Stbd gun
1500psi, missed several shots.

1518 Firing STBD GUN.

1530 c/c TO 242°

1700Z SHAUB WALTERS CROWS ON
WATCH

Atlantic Seal
Porpoise
Skirmish
Martenchullet

1742Z WESTERN INLET REQUESTS WE
STOP SHOOTING FOR 2 HOURS
SO THEY CAN ACQUIRE A LINE
IN THIS AREA;
OUR LAST SHOT³⁸⁵⁰ IS @ 1742Z

1747Z SPARKER TOWNS ARE BEING
BROUGHT ON BOARD FOR
MAINTENANCE DURING THIS
BREAK

C/S 3.0 A

FM18-01

2204483

1807Z BEGIN SLD TURN TO PORT

1810Z C/S BACK TO ~5K

1907Z SPARKER ON — took all
wires out — split open — pulled out
further — put looks back w/ tapes
back up — took about 1-1/2 hr —
should have enough slack in tape to last
rest of trip

1945Z — GUNS BACK IN LINE — remote
firing of 2 guns —

1947Z — EPC synch-on monitor on

— platform

circulating well — poss. use as correlator *
if can get logs — approx. lat & long

28° 46.75' 89° - 4.0'

2004Z — Res W Demux — Spt 4191

Begin new wire MC-26 *

still in slow turn to port —

2045Z STEADY ON 2570
TURN COMPLETE

MA-0612 RECORD IS VERY DITTY

2100Z Dan, Jim and Missy on watch

2115Z Starting turn to come back on course to
next port; Had to avoid rig

22/23 Jul 83

88/88

2236Z shut down sparker to change polarity

2238Z sparker back up w/ polarity changed

2240Z sparker went out, possibly blew breaker

2252Z sparker back on

2311Z coming to dead slow to avoid lots of traffic

2317Z magnetometer has been going wild for last 25 minutes

2324Z bringing back up to speed
magnetometer finally settled down

2356 Demuxr hung up for 15 shots
None of those 15 were recorded on tape

0028Z magnetometer acting flaky again

0100Z New Watch (Cathy, Jan & Bill)
All systems working, OP Port Gun Triggering.
1/2 Survey - The SPARKER.

0115Z Radio conversations w/
Atl Seal will resume in 8 hr (ca. 60 min)
Shot west
W. Inlet. Behind E. of the way
Sergeant Verrill: Heading NE & shooting.

0206Z have to shut down for about
2 hrs for Atlantic Seal

02075TAT 90° TURN TO Port @ 5°/min

23 Jul 83

89²⁸

0222Z - c/s ~~lets~~ 6 kts

0225Z - ~~Sho~~ Shut down sparker
to turn tips

0235Z - Sparker back

going to go back & try to pick up line
behind Salt Dome (at 0200Z) & try to

shoot (continue line south of salt dome if
possible —

Notice @ 0225Z that the Maggie appears
wrapped around the MC stream
sterling says that it's been that way
for a while.

0412Z : turn to port c/c 340°

0430Z. c/c to 220° 6°/min
turn in guns

— Will start MC-27 soon —

0500Z SHOT 5477, BEGIN MC-27, 220°
SHAND CROWE WALTERS ON WATCH

0525Z c/c 215°

0535Z sparker down to change polarity

0538Z c/c 202°

23 JUL 83

0626 Z c/c 2320

0733 Z JUST COMPLETED CONTACT WITH SEISMIC VESSEL "STORMY", MO INFORMED THEM WE WILL SHOT ON PRESENT COURSE FOR ~ 1 1/2 HR, THEN TURN SOUTH & SHOOT OUT OF THIS AREA FOR SEVERAL DAYS. "STORMY" SAID THEY WOULD PLAN AROUND US.

A FBW MINUTES BEFORE THAT "ATLANTIC SEAL" CALLED, SAID THEY WERE PASSING BEHIND US, JUST BEHIND OUR TAIL BUOY. THEY SHOT FOR A WHILE, BUT WERE SHUTTING DOWN.

0822 Z c/c 1970
STARTED DT, MAINTENANCE

0834 Z c/c 192

0948 Z - Gun went down only 700 psi. Showing.

0952 Z - CALLED IN A DEAD SLOW on both engines to slow down while gun was down

0958 Z - Starboard Gun ~~was~~ being pulled offline to check for leak.

1003 Z - port Gun off line

1010 Z - ~~Starboard Gun~~ Starboard Gun In & Firing.

23 Jul 83
lots of ITR's on Demux - triggering off gun that 91
pulled out - shift trigger to star gun - lost ~
50 shots
Resume speed

1011Z

1014Z - nose came off Port Gun. lost forever.
we will Resume on one Gun (Star board).

1018Z - Single channel ^{minib} was set on Rapid needed
to be external (This means we missed
some shot and it doesn't show it)

1028Z - C/C to 143° to make turn.

1015Z - sparked down

1038Z - went out and broken shut off
so I started it again.

1050Z - turn complete

1103Z - Bridge called down and said they
would head to get back on course.
we are a little to left of projected
line.

1105Z - C/C 132° (new course heading)

1121Z - C/C 190° (coordinates to next
way point were off
by 50 min.) ~~back on~~
~~course now.~~

1130Z - wake up chief scientists and
we're instructed to make a turn
to ~~previous~~ reach previous way point
28 17.90 89 45.07 then we will
be on the correct path to our
line we will turn 3° (gradual)

23 Jul 83

41
92

1130Z - Polarity change on sparkler

1135Z - polarity change complete.

1138Z - turning to ~~make~~ circle back to line.

1151Z - Disengage Port engine to put gun in

1153Z - engage port engine resume speed.

1155Z - Both guns in water and working.

1219Z - Turn to starboard 6° per min
head toward line.

1227Z - We will take one gun out
of water to see if Western
Seal gets less noise from us

*

1230Z - Atlantic Seal told us they would
not be working in this area from

(Tues night to Thursday morning)

1233Z C/C 202°

turning to head back south to next
way - point west of ending back - to
get out of way of other Bonts - shooting
rest of line on one gun - so don't
interfere w/ At. Seal -

1243Z - Sparkler turned off.

1257Z - Head slow on starboard.
to work on gun.

1259Z. New watch (Lashy R & Bill). 1 gun (STBD) on.
SPARKER off, continue MC-27

23 Jul 83

42
93

Spanker off

1418-192 Last 3 shots (6816-6818) Misfire on
STBD gun on missed trigger?
Did not see score when happened.

1435 Z 3 shots missed (6856-6857) saw thing
as before run at 1/2 lock @ 1950
After ca. 1950-2000 psi.

1554 Z. 3 shots lost (7046-7048). Saw score
trace this time 99 shot so gun
Misfire? Why? Gun in
hosed - Shunt fire? Talk w/
Steptig / MARK let it be till 1:00
when we put back gun back
online

1700 Z SHAUB WALTERS CROWD ON
WATCH
ONLY ONE GUN FIRING DITS
LIVING SPORADIC TIME BREAKS.

1800 Z FDL MC 27
BOL MC 28

~1820 Z 2 GUNS BACK ON line - *

1840 Z MAV PAPER CHANGED

1903 Z Shift trigger to port gun -
stl gun lknwgs -

1906 Z - Both guns back on -

23 JUL 83

48
94

2116Z - going to shoot one gun - port X
shut down star. gun -
? problem w/ compressors on guns - not sure
yet

2118Z - 2 guns - ? problem - was loss ? pressure -
why

24 July 83

0017Z - starboard gun gone out. 0017Z.
Did not need to change trigger
since we were triggering on port.

0021Z - Starboard gun coming out of water.

0024Z - Starboard gun being pulled in. Leaking
Starboard engine off port engine dead slow

0029Z Resuming speed

0100Z New Watch (Cathy, Ted + Bill).
only shooting w/ Port gun
on line MC-28

0119Z - both guns in remote
main O-ring - second time

From 0200 - 0300Z speed as indicated by
LARC went up from ca. 5.5-5.6 - 5.8 Kts.
After 0300. Flt. Reduce speed "ATAD" to
Bring it BACK down. (speed were already real).
Free (more watch) Further reduced speed. ©

24 July '83

41
95

0312Z. @ 0330-0345: Low C speed
Recon comes Down to 5.5 Kts and
AFAID.

0338Z. Streamer Depth has significantly
increase during the past hour.
From ca 40' → 80'. PROBABLY related to
speed increase. Expect A) decrease of
Streamer depth with speed reduction.

NO
WRONG.

The SERG STATE HAS BEEN DEAD CAL ALL
Evening & the Ambient noise in
the Streamer is minimal.

0350Z

over past - 1-2 hours middle of
Streamer running very deep - showing
readings of 70-80 ft. on 2 middle

DTI - ? reason - maybe calm seas?

And - ? - tent or cable -

Streamer looks great on camera - ^{very} quiet -
quietest has been - because is so deep -

speed thru water is ³⁵⁻ ~ 4 kts - this ~~may be~~ reason
no wind - so currents - ^{is} ~ 2 kts - pushing us
west → east

Talked to Lew - doesn't seem to think will hunt
cable any - may be problem with
processing - need to look into static
connections -

probably loop current in N. Gulf off
Gulf Stream - Florida Current -

24 July 83

48
96

0500 Z WALTERS, SHAUB, CROWE ON WATCH

0510 Z ~~SHUT DOWN STARBOARD GUN FOR COMPRESSOR WORK.~~

0615 Z LOST SIGNAL FOR STRBD. GUN FOR 2 SHOTS

0900 Z Dan, Jim and Missy on watch.

1032 Z EOL MC-28 $27^{\circ}24.70'$ $88^{\circ}11.82'$
SOL MC-29

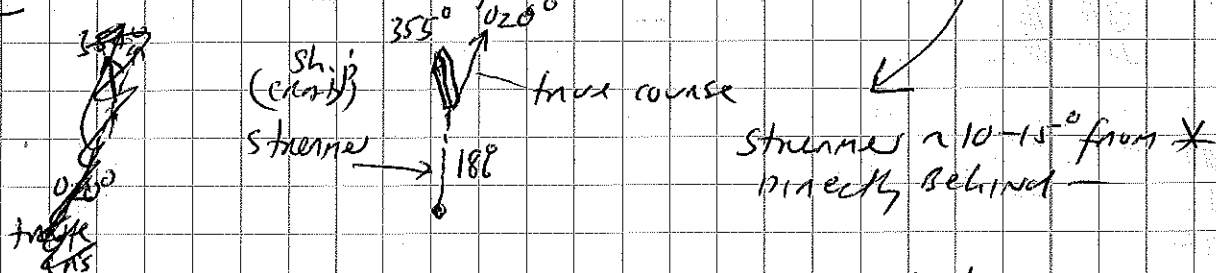
1054 Z \Rightarrow TURN IS COMPLETE

1300 Z. New Watch: (Aly, Tom & Bill).

Both guns fixing; tripping off Port.
ON line MC-29

ON this new line to NE - steering course of
about 355° to making true course of 020°
w/ crabbing about 25° - strong currents
still from west to east - same as last night *
checked trail buoy & seems to be
pretty much behind us - $\sim 10^{\circ}$ off port
quarter - $\sim 186^{\circ}$ - 187° True = 13° degree of str. 1/4 on
true course *

streamer running more normal depths -
40-50 f - New - far tracers noisy *



1326 Z problems with port gun; switching
trigger to stbd. Still have two guns
tho - crew watching the pressure.

24 Jul 83

48
97

1338Z - asked Bridge to pull a couple degrees
stbd to get back on correct course

1408Z - remeasured next way pt & got $28^{\circ} 22.6'$
instead of $28^{\circ} 23.00'$ So Bridge is now
heading to it (was pulling slightly to left of
course)

talked with Mark - last nite he discovered that
synch. traces - that he presumably had zoned
out earlier in course - to save tape - may be
skipping & picking up next data trace - thus
shifting traces? - or maybe just making one
trace bad - will run random checks & see if
major problem

Mark also has developed 3 additional
programs - for onboard use

- 1) Real time navigation or Testronic -
LOCANC - gives plot in real time of
course - w/ any lat-long grid you desire
still has bugs - but works
- 2) program to pull off & compile all comments
from logger tape
- 3) Run plot of individual shots & look at
all traces in a shot - OC PLOT?

1443Z (due to DEAD slow Because ship traffic
o/c 1400 off Port ca 5.5 miles.

From 1443 - 15:04 MANEUVER & c/s TO Avoid ship.
Position did not change significantly. Currents
more or less kept us in place. During this
time the Port gun misfired several times &

24 Jul 83

47
98

The middle of the streamer sank below 100'.

15:04 Z ship passed & we resume sisters
log of 022° True (steering 356°).

15:25 Z 1 off (BD) 1 on (Awa) 3 off (Awa)

*Note = When Flat Trace on BDy - check A (intended to see if pulse has not just migrated from B - window).

15:26 Z Port gun is not firing
Been shut down

15:33 Z Both guns back online

15:35 Z Port gun not firing again

15:37 - Port on & off again.

Port gun
Firing
erratically
(Possible elec.
fault?)

15:55 IT seems to be a blast phase Pbl. -
on Port gun. It has died & we are
not getting a signal in the (AD),
Although the gun has been firing.

no control on gun synch. at this point -

1700 Z SHAWB WALTERS CROWE ON WATCH

note: on this new line MC-29 to NE - getting
a more erratic bubble - timing - jumping around -
probably due to guns going up & down - could
be due to currents: as sea calm - could be
problem w/ processing - using bubble on
EBI - trace 53 - playing out tape to checks -

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48
79

talked with Mark about synch. trace - seems we may have bug in Demux, when eliminated 2 synch traces resulted in cruise to same tape - Demux should skip or eliminate this trace - evidently it may be recording 2nd synch. (timing?) trace on DPS ch. 25 (ch. 34) so skipping data trace 25 so - may have lost one trace (25) for most of middle part of cruise - Mark checking further - X

running last pile - Mark switched back to record all 63 traces -

may have to process out trace 25 - X

Summary of traces that Demux records -

1) - 1st part of cruise

1	2 - 25	26 - 32	³³ 34	34 - 57	58 - 63
synch - timing trace	Data traces	Aux. traces - (not used)	synch. - timing trace	Data traces	extra traces -
					shot phones 58-61
					EEL-Bubble - 62

2) middle part - taking synch traces out -

1 - 24	25 - 31	32 - 55	56 - 61
data	Aux	data	extra

Back to stage 1) now since last night -

need to identify when switches took place for processing - X

24 July '83

48
100

1732Z - c/s 3.0 - to take port gun out to
fix blast phones

1735Z - c/s 5.5 kts -

1828Z BOTH GUNS IN REMOTE, FIRING

2048Z DATA LOGGER & PRINTER HUNG UP,
POWER SWITCH FLIPPED OFF

2110Z DATA LOGGER BACK ON

2140Z - ~~Began~~ Switched trigger for guns from
Starboard to port. Had interval time
break for shoot 1333 but after
that it went ok. We did this because
in 30 minutes we will begin new line
with port gun only (one gun only)

lot of gun jitter during this line —

2218 - Began turn, change line from MC-29
to MC-30. *

2222Z - Starboard gun off line. We will
shoot with one gun from now on.
(At least for this line) bc of Western Inlet

2223Z - Dead slow on port and disengage the starboard
engine.

2230Z - Started the barker.

2247 - Turn completed cs 291°

0100Z New watch (Cathy, R & Bill).
Starboard, Port gun only. line MC-30

Cathy!

0114Z: 1 changed Polarity w/ SPARK

0100 - 0130 - DICK & BILL Screwed Around w/
Delay ~ SPARK.
Finally I might I ADD even 50
Scientifically we establish A
4 sec firing rate w/ 1/2 sec sweep
& 2.75 sec delay.

0210Z - dead slow to pull in spark
& clip. TIAS.

0215Z - resume speed

0223 - spark back out & firing

0353Z: ca 0345Z CAPACITOR IN
SPARK BURNED OUT. SPARKER IS
DEAD.

Impact? Burned out - NO MORE **
spark for next 7 trip -

0500Z WALTERS, SHAUB, CROWE ON WATCH

0707Z BUTLER SAYS WE'RE SHUTTING
DOWN FOR WESTERN, FOR 2 HRS.
LAST SHOT = 2693
- START TURN TO PORT - CIRCLE.

* PRIOR TO SHOT 2694, DFS ^{WAS} SWITCHED TO TEST MODE AND GREY
SWITCH WAS SET TO ABORT SHOT. SUBSEQUENT 'COMMENTS' COULD
NOT BE ENTERED SINCE KEYBOARD BECAME LOCKED. DEMUXR
RUN LIGHT WENT OUT, CRASH PROCEDURE USED TO RESTART
DEMUXR. NO EOT WRITTEN TO 180397. LAST SHOT
WAS ACTUALLY 2692. *

25 JUL 83

51
102

0911Z, 2991 FIRST SHOT, CONTINUING MC-30
Heuston, Feeley, Rangel on watch

1100Z - shots 3222 to 3231 were lost
due to threading problems on Demux.
It did have a chance to Read begin
since it wasn't threaded properly.

1300Z - New watch Bill Tom Cathey

1336 - ^{c/s} slowing down to 5 kts for ship traffic

1346 c/s to 4.5 to Avoid ship

1410 c/s to 3.5 kts. (same mother ship is
in front of us).

1415 with speed report - The middle part
of the strecher has sunk to
100'

14:31 ^{c/s} resume speed 5.5 kts

1505: Launch C Dawn

1518Z Increase speed to Avoid ship Traffic.
(6.5-7.0 kts).

1521Z Launch C Brazil winner

15:30Z: C/S BACK DOWN TO 5.5 KTS.

streamer still going deep when slow down -
something must have happened - salt water?
But showing no shorts etc - earlier in
Cable was running shallow - ~~now~~ when
stopped - or turn - mainly back part -
But middle also came shallow - now goes
to 80-100' when slow - ???

Learn Straling working on getting EGG
Sparker Box hooked up - will try to
replace Teletype sparker -

1700Z SHAUB WALTERS CAME ON
WATCH

1720Z DATA LOGGER PROBLEM
NO PRINTOUT, NO TAPE RECORD

1747Z NEW SPARKER EQUIP ON &
RECORDING - EGG BOX replaced Teletype
NO POLARITY - REVERSAL OPTION
MUST BE TRIMMED EVERY 6 HRS

1747Z DATA LOGGER BACK IN PROPER
OPERATION; PROBLEM WAS THAT MACHINE
CONNECTOR AT BACK OF MACHINE
WAS LOOSE

1835Z STARTED FIRST TAPE (ANALOG)
OF SPARKER RECORDING SYSTEM

1900Z SPARKER ANALOG RECORDER MAY
BE INTERFERING W/ MAG DATA

25 JUL 83 - 26 JUL 83

Sparker being picked up on DFS - see on
camera & monitor records

58
104

2025 Z CLEANED TPUT NEW PAPER INTO
CALVD CAMERA

2141 Z End of line MC-30
Start of line MC-31 First shot - 4792

2141 Z Start slow turn to port to circle
back across MC-30, crossing line at
 $28^{\circ}09'$, $89^{\circ}39.2'$

2150 Z Changed delay on sparker record from
0.8 sec to 0.6 sec

turned 3.5 kHz recorder off to charge

2156 Z 3.5 kHz back up with new paper.

2154 Z Tape at on sparker

2210 Z Sparker back up recording
- completed 90° of turn, going straight for ~15 min

2226 Z Change delay on sparker back to 0.8 sec.

2230 Z began renewed turn to port 3° per min

2317 Z - sparker tape turned off to
pull up cable and clips.

2334 Z sparker ~~was~~ back up

2354 Z Turn is complete

26 JULY 83

20020Z

DFS Traces (6+7) were swapped, ^{on patch panel} they are back
up swapped now, seen on balvo records at
least back to 2300Z

26 JULY 83

54
105

Discovered that traces 6 & 7 had been switched
possibly from beginning of cruise — trace 6 was
coming in offset from 7 — Switched back to
normal — need to check this in processing —
may have to make correction for this
may have note of later in cruise from
at $\sim 0015 \pm 2$ — tape # 416 — beginning —
need to hand
down when

*
*
*
*

0030 Z — clc 020° — 30 minute to
come on to line up to NE
Straightened out on MC-31 — all of train
was included in MC-31

0100 Z — new watch: (Cathy, TC, Bill)
port Gun firing.
EGG-SHA-10 — More DATA EPC'S TO
MANIC.

0349 Z — changed trigger on EPC to ch. 48 *
to try to eliminate sparker noise on record —
was on 46

Now tape #1 & tr. 6 & 7 are in right
order — so got reversed somewhere later —?

0435 WInlet called us, we called back
but no response

0436 noticed on EPC that it's not getting a good
(gun) trigger from signal, so setting
white lines occasionally (but no ITB's)
on record

26 July 83

53
106

0500 Z WALTERS, SHAUB, CROWE ON WATCH
0505 Z SPARKER OFF TO TRIM TIPS
0513 SWITCH TO STBD GUN

0516 Z STBD GUN offline - trigger to port

0518 Z having trouble getting trigger on ^{port} gun

missed ~ 5 shots

not a very good signal

0520 Z SPARKER BACK ON

evaluated

0358 Z — Bull noticed

amplitude lessened —

wave — length increased —

ie, signal — from port gun — both phones
seem to be going bad —

not sure if gun going bad on ^{BL/NT} phones —

reason for trying std. gun now —
std gun has problems — ~~problem~~ wasn't
firing right.

0530 Z R/C 013°

0531 Z SWITCH FROM PORT TO STARBOARD GUN

not working — continuously firing — ? problem

0533 GUNS BACK to port only

LACK OF PRESSURE

missed some shots

*

0545 Z — tried to switch gun to std —

something w/ std gun — Back to port —

missed shot —

0556 Z DEAD SLOW ON PORT ENG. TO PULL STBD GUN

0600 Z RESUME SPEED 5.5 KTS

26 JULY 83

56
107

0622 Z - SOME INTERNAL TIME BREAKS. MISSING SOME SHOTS...
(PORT GUN LEAKING)

0625 Z - C/C 336°

0626 Z - SHUTTING DOWN DEMUXR - REPAIR GUN;
LAST SHOT = 6051

0630 Z: PORT GUN IN REMOTE

0630 Z: C/S RESUME 5.5 KTS

0630 Z: START UP DEMUXR, SHOT 6064, MISSED 13 SHOTS,
CONTINUING THIS LINE

0633 Z: PORT GUN ONLINE FIRING / CONTINUE
ACQUISITION OF MC-31

0634 Z: PORT GUN STILL LEAKING - SHUT DOWN
AND SHUT DOWN DEMUXER.

0636 Z: DETWY / TEST STBD GUN.

0637 Z: S/C RESUME 5.5 KTS.

0640 Z: SIC DRAG SLOW BOTH ENGINES.

0643 Z: DISENGAGE PORT ENGINE TO PULL PORT GUN (LEAKING);
STARBOARD GUN WAS NOT GETTING ENOUGH AIR

0646 Z: GOING BACK UP TO SPEED TO AVOID SHIP
SHIP'S CPA WAS 2.99 mi OFF PORT STERN.

0649 Z: SHIFT TO STARBOARD GUN - SEEMS OK

0652 Z - Demuxr Backup. - Resume fire

1ST SHOT = 6113; MISSED FROM 6091-6113; 42 SHOTS
std gun probably wasn't firing when not
enough pressure due to port gun on too -

port gun leaking bad - going to put bubble
suppressor in when fix - cap? bad

0738 Z SHIP TRAFFIC ACROSS BOW - COMING TO DEAD SLOW

0745 Z RESUME SPEED 5.5 KTS

26 JULY 83

57
108

0818 Z - C/O 272°

0830 Z - EOL MC-31; START LINE MC-32, SHOT 6358,
AT 0833 Z

0914 Z - a vessel called Medina called ship
and said he would be working in
the area for next day and a half.

0946 Z - change paper in SPARKER display.

1105 Z - noticed that the guns sounded
different. ~~that~~ The signal was
less defined also. Ty was called to
look at it.

1100 Z - DAN is trimming SPARKER

1108 Z - our beam went down and doesn't
want to ~~come~~ work properly

* 1111 Z - Ty came back with word
that the gun is leaking.
Since we are on one gun
(starboard) we probably have problems
in DATA. Recovered since the leak.

1115 Z - Dead slow on port and disengage
starboard engine to pull beam.
(We are shut down due to not
having a working gun.)

1108 Z - NO Reading from LORAN on log. HAD
TO turn it off since it was not reading
correctly. CALLED someone to come work
on it at 1118Z. KEN KENG.

26 July 83

58
109

1120Z - SANDY CALLED down that he is having to over compensate for strong wind pushing us to our starboard.

1123Z - disengage port, Dead slow on star board.

* 1124 - LORAN still down.
Guns still down

1125Z - SPARKER TRIMED AND BACK ON. ~~■~~

1133Z - Going back up to speed.

1135Z - one gun BACK ON (Port gun) bubble suppressor on gun! *
LORAN STILL NOT WORKING.

1133Z - SPARKER ~~seem~~ giving strange signal.

1140Z - OUR Present status:

- Recording off one gun. (Port)
- LORAN still down
- SPARKER seems to have improved a little.

1151Z - LORAN IS BACK UP. How, who knows?
It just started up again on its own.

1213Z SWITCH LOGGER TO BRIDGE LORAN C

1227Z - We switched from the bridge LORAN
Now since the LORAN in LAB is having problems.

1241Z Begin turn at 6° per min. to 200°

1300Z NewWatch Cathy Bill Tom ^{Jul 26, 83} ~~59~~ 110

Our Loran still screwed

13:25Z will start turn in 2 min to port
will take fix every 5 min to
make sure we hit EB 305!!

13:27 start turn to port
END MC-32, BEGIN MC-33

1335 Loran looks like its back, checking
False alarm - still no good

1343 Bill taking camera records b/c
new boat going over(?) streamer

1354 Bill taking more camera records
b/c boats close by

1357 looks like ^{we've} gone over EB 305
this time! Yea!!

1403 - coming about to 103° in a few minutes

~1345ish a ~~few~~ couple white lines thru
EPC ^{sim. channel} record - NO ITB's tho - guess
problems w/ triggering

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111

15:12Z we've been altering course a bit
to go around boat tied to rig so
won't get as close to well as hoped
↓
We are passing several platforms
on our port side

1539 - will try to ease back to port to
get back on line

- Stormy starting a short line -
are on our stbd side - may
shut down for them to be nice

1542 SHUTTING DOWN
FOR STORMY! & Atlas seal
Last shot 7386 ^{nice guys} _{are we}
Will continue shooting @ ~ 1900Z
Make a box (0200 local)

1608

1615 Taking port gun out of water

1616 C/S disengage port engine
dead slow on stbd

1620 Resume speed

26 Jul 83

81
112

1627Z, change the delay time of the sparker
from 0.5 sec to 0.0 sec

1627Z change the delay time of the sparker
from 0.0 sec to 0.25 sec

1631Z - c/c 280° - continuing Box to kill time
Atlantic Seal

this morning - put other massie on STB.
red - ~~red~~ hooked up wiring - ready to
try out

1647Z Box going to hell b/c of Atl Seal (in way)
so turning to port ~30° to avoid

1650Z Maintain 250° for good long while

so Atl Seal can pass over stern

@1920Z Atl Seal will finish shooting

1700Z WALTERS, SAAUB, CRONE ON WATCH

1740Z BACK INTO TURN TO GO BACK TO
OUR LINE

OUR LORAN C STILL QUESTIONABLE; SO
WE ARE USING BRIDGE LORAN

1812Z

c/s ~ 5K; TURNED ANALOG SPARKER PAPER

1824Z

c/s DEAD SLOW ON BOTH ENGINES

LOFF.

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113

1815 Z WE CANNOT READ THE 3.5 BATHY-M
RECORDS, SPARKER SIGNAL IS OVER-
LAYING 3.5 RECORD

1845 Z SPARKER RECORD DONE;
CLEANED BELT, CHANGED POLARITY;
HAVE A MEDIOCRE RECORD AGAIN

1912 Z ATL. SEAL STOPPED SHOOTING; GOING NORTH BACK TO
LINE & START SHOOTING THEN; WILL START MC-34

1915 Z CS 5.5K

1917 Z GUNS FIRING - PORT GUN ONLY; INTERMITTENT

1936 Z DEAD SLOW - STILL TRYING TO GET GUNS FIRING

1940 Z BRING IN PORT GUN
BOTH GUNS HAVE PROBLEMS; CAN'T
GET EITHER ONE WORKING
PORT GUN LEAKING & STARBOARD GUN FIRING
AUTOMATICALLY

1948 Z SPARKER OFF

1950 Z SPARKER BACK ON

1953 Z TURNING OFF SPARKER TO CLIP TIPS
PORT GUN IN REMOTE; TRIGGER SWITCHED FROM
STARBOARD TO PORT

1955 Z START UP DEMUX 2, 1ST SHOT = 7994
LINE MC-34, COURSE 090°, STILL ~3 KTS
* FIRING PORT GUN ONLY, W/ BUBBLE SUPPRESSOR *

2004 Z SPARKER BACK ON
CAPTAIN CHANGED LAB LORAN STATIONS, LORAN
2007 Z RESUME SPEED 5.5 KTS; ON COURSE 113°, WORKS

Sparker gives spikes across DAS
Records - hopefully this will stand out
Spikes every 2 secs trigger

2045 Z DEAD SLOW ON PORT ENG TO DEPLOY STARBOARD GUN
2049 Z RESUME SPEED 5.5 KTS

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114

2050 Z BOTH GUNS IN REMOTE

2052 Z CATANAN HAS HAD AN ERROR MESSAGE ON SCREEN \pm 1 HOUR; KEV PUT IT THRU "TEST" & ERROR MESSAGE CLEARED OUT.

21'04 Starboard gun offline
Triggering on port gun

21'00 Dan, Jim, and Missy on watch

21'11 C/S to ~~099~~ 099° True

21'16 Both guns in remote

21'30'25 Well at 00° 1/2 mile from fix
28°34.72' 89°42.08'

22'30 Z starboard gun offline — ^{ONE-GUN} ~~TESTING~~ —
fixing spare gun — one that was
pre-fired — found bad O-RINGS — will
snip out —

2246 Z Disengage starboard engine, dead slow on
port engine.

2254 Z Resuming speed

23'13 Dead slow on starboard — putting starboard
gun back in the water.

23'15'30 Resume speed — gun may have pre-fired
at first shot — It appeared that the
2 gun explosions were separated by some
fraction of a second.

23'20 Disengaging port engine — dead slow

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115

23:22 - Bad shots - out of sync. Many have occurred over the last 5-7 minutes, ship vibrating

23:23 - Resume speed - shots stabilizing

23:29 - good shots for the last few minutes.

2332 c/c 122° - gentle turn to starboard

Ty et al worked overtime on guns - Ty up for last 48 hrs - Both sta. guns down -
one gun is still pre-firing - at random - don't know what problem is - Ty is stumped - ??
two gun - has broken spring assembly - no spare parts - may be able to cannibalize - will try in morning - Ty needs sleep -
shooting on one port gun - w/ bubble suppressors - not as much energy as would like. But best we have now - Better than nothing -

July 27 '83

00:03Z 128° True Course Turn complete

noticed on camera record TA. 47 looks bad * need to check on when - & if stays bad -

0100 New Watch Corso Lin Kandenberga

0232Z, change delay time of the sparker from 0.5 sec to 0.75 sec

talked w/ western whet - ~ 5 mi away they are circling - discovered 2 more Sershie Bont ~ 30 mi away down track

27 Jul 83

66
116

0346Z, change the delay time of sparker
from 0.75 sec to 1.00 sec

0352 Sparker is off to clip

0409 Dick called from gunshack & said
we lost two wires (slipped back into sparker
cable) & may leave it out
(sparker)

0420Z Sparker put back in
& firing

0421Z change delay time of sparker
from 1.00 sec to 1.25

0444Z LORAN went down again

0456Z having trouble w/ volume on
intercom speaker (we can't hear bridge
very well at all)

0500Z 27 JULY 83 MC-34

0500Z : JOHN, JEANNE, ROB ON WATCH.

ALL QUIET ON THE "WESTERN" FRONT...

0620-0630Z : Previous comment premature... Western Inlet
has been bothering me for about 20 mins...
was doing a wonderful job being cryptic...

0645Z : NOT GETTING A VERY GOOD SIGNAL FROM GUN;
AMPL. IS DECREASED, PULSE SHAPE BROADENED *
GUN OR PHONE ?

0658Z : GUN MISFIRING; GETTING I.T.B.O ON DPS
- MISSING SHOTS *

0702 : DEAD SLOW BOTH ENGINES.
DEMUXR IN TEST

0705 : Disengage port engine... dead slow stbd.
Ty pulling port gun...

0718 : Will circle for ~ 1 Hr. to repair port gun...

0721 : Start turn, will circle back to 0630Z position
to restart MC-34... Ty will try to fix PORT gun...

~0726 : Resume 5.5 kts...

0737Z C/S 3K

0741Z C/S RESUME 5.5 k

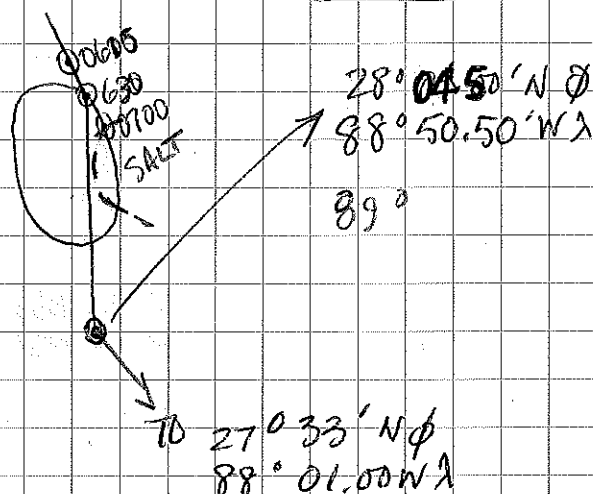
0744Z - port gun fixed - O-rings - +
Bubble Suppressor out - second time - *
gun ~~on~~ under fire - will continue
circle to come back on line -

TURN SINGLE CHANNEL MONITOR ON

27 JULY 83 TRANSIT TO START MC-35.

0807Z: Transit to 0630Z position ($28^{\circ}10.56'N\phi$, $88^{\circ}55.24'W\lambda$)
to start new line MC-35

0809: first shot MC-35 is 9754 @ 0809Z.



0911 starting turn to come back on Line MC-34

1015Z EOL MC-35 last shot 0055
SOL MC-36 first shot 0056
starting $3^{\circ}/\text{min}$ turn to port to course of 140°

1021Z completed turn to 140° true.

1131Z - Gun is going bad - shot 0239

1137Z Starting $3^{\circ}/\text{min}$ turn to port to next way
point, $^{\circ}$ course $\sim 126^{\circ}$

1137Z gun is gone

1141Z Disengage port engine, dead slow on starboard

1142Z Port gun offline

1143Z turn complete

27 July 1983

69
119

1148Z Demuxr shut down
Ty estimates 15min to fix gun

1203Z resuming speed
port gun back in remote

1207Z Demuxr back up - First shot acquired
is 0327 at 12:07:57

1300Z New Watch (Bill, Cathy & Tom)

13:30Z KC Schuss (3) & Western Boat in Area
Firing. NO MUTUAL CONTACT AS of
yet i continue o/c
See same
Firing nearby
Permanently to an streamer in water (Area 14:00Z)

14:12Z Shot LAD's LORAN C off. CAGE readings
very poor SNR. TOTALLY useless AS IS
(Perhaps needs to be readjusted?)

1451Z We lost the gun firing (start shot 0718 -

1453Z ~~dead slow~~ to check gun compressor

1457 ~~SPD~~ Compressor was shut down. Thus we stopped
Firing. Due to DEAD slow o/c while
compressor was being repaired. Int pump bad
on screw compressor

15:17 Resume Firing. shot 781. ~~shot~~ shot lost
Resume 5.5 lbs. 63

27 July '83

70
120

1700Z WALTERS, SHAUZ, CROWE ON WATCH

2000Z LORAN HAS BEEN SHOWING ~6.0 KTS, AVERAGING ~5.7,
5.8 KTS DUE TO CURRENTS. ALREADY GOING DEAD SLOW
ON BOTH ENGINES.

streamer running very deep — 80-90' —
even near D.T. — due to strong following
currents & W. winds — speed up to 6 kts —
going dead slow on 2 engines

2105Z - Start Line MC-37 (LAST Line of FM1801)
(1st shot ~~2110~~ 1618)

2105Z - Start to turn

2137Z - Turned off BATHYMETRY to change
PAPER.

2159Z - Start TRUE heading of 586°.

2352Z - Switched MAGNETOMETERS —

* 2358 AFTER our turn at 2105Z our
Records still show a lot of noise. This seems
to be due to the fact that we are going
against ~~the~~ a strong current. We are going
7.0 Kts (approx) in the water. —

~~Depth~~
streamer back up to ~50' — hand on
equipment? —

on stationary reel
trying out new magnetometer — Texaco? Gift
seems OK — possibly a little quieter ??
same figure as other one. — will run to end of line

27 July '83

121 71

Kes's Missy discovered that trances 16 & 17 were identical - were exact mimics of each other - same signal - but seem different that rest of signals - may be two trances wired together? - so give merged signal - may not be good signal - may have to delete in processing.

X
X
X

X

this adds up to poss. quite a few trances to delete

1-4 - noisy -?

5 - bad -

16 & 17 - (above) ↑

19 - bad

25 - bad due to synd. problem in Demux - on print - of course

27 - bad -

47 - come & goes

11 trances -

+ 30 - occasionally bad

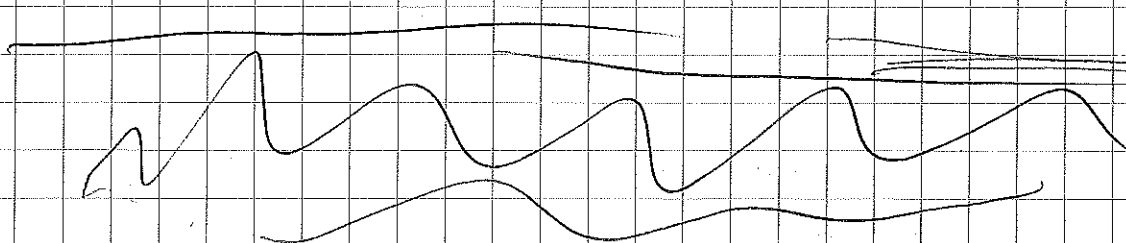
28 July '83

0035Z - discovered tag line off port gun - will stop & put back on

0055Z - slow on port disengage starboard engine.

0055Z - shut down Demux. (temporarily)

going to pull in port gun & put tag-line on will prob. take a 20-25 min -



0105Z with slow down middle portion
of streamer is deeper than 100 ft.
Far end @ 90' / inboard end @ 20'.

0119Z All but the inboard part of the
streamer (ch 39-40 & up) are
below 100'. The inboard part is @
17'.

0123Z port gun in remote
increase speed back to normal

0130:17 1st shot 2253 on Resumed line
MC-37. With resumption of
speed, streamer up to 40-50'.

0456 C/C to 2830

0500Z WALTERS, SHAW, CROWE ON WATCH

SATNAV SHOWING "ERR 6" MESSAGE;
IT'S NOW WORKING ON A SATELLITE FIX,
SO THE ERROR CAN'T BE REACHED. MARK'S
STANDING BY.

0537Z LAB LORAN C UNSTABLE. REQUESTING
STATION ASSIGNMENTS. CHECKED WITH
BRIDGE ABOUT THEIR SLAVE SET UP. OUR
SET DOES NOT DISPLAY ANY STATION NUM-
BER, ONLY 2 STRINGS OF ZEROS. WE
WILL USE BRIDGE LORAN (LAB DISPLAY &
DATA LOGGER) UNTIL HELP AVAILABLE

28 JUL 83

123⁷⁸

0607Z THE CAPTAIN WORKED W/ SATTAN,
GOT A "TEST" ACCEPTED;
DISPLAY CHANGED TO "EPR R".
ENTERED ANOTHER IBE SELF TEST
NOW DISPLAY IS CLEAR. LAT/LONG
DISPLAYED HAVE BEEN REASONABLE.

0640Z MAG RECORD VERY NOISY

0650Z " NOISE DIED OUT;
INTERFERENCE W/ STREAMER?

0835Z c/c 275° HEADING FOR FINAL PT
THUNDERSTORMS IN AREA,
MAY LOSE LORANCE.

0900Z - Dan Jim and Missy on watch

0945 - Requested bridge to steer to starboard
to maintain course. Bridge reports currents,

1106Z - END of Line — MC-37

last shot — c/c — south — to clear

other seismic vessels —

Maggie ^{off} beam to pull IN

Data logger on 5 min.

shutting down compressors — ^{port}

1112Z — Dead slow to pull ^{port} gun —
turning to port 60°/minute

11130 - Disconnect jumper cable from streamer
Southeasterly course

11:45Z - Coming around to an Easterly course 6.6 knots,

12:05:30 Going to stern controls

12:08 - ALL stop on engines - bringing in streamer

12:15 - 1.8 knots bringing in streamer - drifting with current and wind

1548Z, From ~~1531Z~~ 1531Z to 1547Z,

data logger printer doesn't work (kent fixed it)

1513Z, pull in all the streamer gradually speed up to 10.1 kts
Ready to go home. thanks ^{to} God!

1700Z JEANNE ON WATCH

NAV & BATHY M; BOTH SYSTEMS NORMAL

IN TRANSIT to Galveston

0652Z: 29 JULY 83

from 2100Z
28 JULY
to 0600Z
29 JULY 83

$$\left(\frac{108.3 \text{ mi}}{9 \text{ hr}} \right) = 11.59 \text{ kts avg. speed since 2100Z 28 July 83}$$

0800Z - Don Haston on watch

10:15 Z - Starboard engine down - repairs being made -

11:00 Z - occasional evidence of gas on Bathymetry E.P.C.

12:01 - After deck reports that the starboard engine should be working in 20 minutes

12:52 - After deck reports 15-20 minutes more for completion of repairs.

13:23 - after deck's ^{50%} starboard engine having problems - water pump out engine back on line - up to full speed -

1900 Retrospective on DemuxR lost trace problem:

A mistake in the program (in the section which builds the demuxed fraces before sending them to tape)

caused us to lose one seismic channel. tapes 180001-180013 do not have this problem;

126 ⁷⁸
29 July 83 cont

tapes 17 to some other number,
as I recollect, within several hours,
later, do not, and tapes 180368-
480 do not (24 July ~ 0700). So,
tapes ~ 30 ish to 368 replace DFS
seismic channel 25 with an internal
timing trace, and call it channel
25. These tapes may be identified
by the absence of the word
"SYNC" in the lower left hand
corner of the printed tape label,
ie

UT/IG reel 180210

Cruise	Line	Date	Source Data
FM18-01	INC-	1210:83	Demultiplex DFS-IV
Shot Numbers	Record Numbers	Operator	
5938 - 5945	0181 - 0188	Mark W	
SEG0 Data Type	Unit/Dr	Wrt Err	Density
2byteQuat	0/A	000	11600bpi

→ ~~all~~ all tapes with this condition,
except 180189, 210, 211, which
were re-demuxed with a Fixed
version of the program, will
have this problem.

29 July 03

29 July 83

Status of computer systems on the Fred H. Moore, and their performance during the Mississippi Canyon cruise, July 1983

This is a short report on the state of shipboard processing of data acquired during the cruise. So far as this recent cruise is representative of multi-channel data collection efforts, it is a prediction of how much a PI can expect to accomplish while at sea. An outline of the current role of each computer system is presented. Areas of weakness or needed development are suggested.

There are three computer systems on the Moore, the Data Logger, Demuxr, and the General Purpose Computer. Each system has a restricted scope of operation, such that failure of one will not impact too severely the operation of another. Both the Data Logger and Demuxr are data collection systems only. The data from either is recorded on magnetic tape, and these tapes physically moved to the GPC for quality control and analysis. This occurs only when a suitable amount of data has been recorded. For Demuxr, this is about once per hour; for the Data Logger, once per day. The GPC is the only system which does any interpretation of collected data. So far, there has been no attempt at close integration of these systems. This is potentially a problem, since feedback about collected data will be delayed by one tape.

The QC for all recorded data tapes occurs in three steps. Firstly, is the data readable on a different tape drive? Secondly, does the data recorded obey internal consistency requirements? Thirdly, do plots made from the data look reasonable? These steps are described in "Shipboard Data Processing" (a separate document available from the Data Archives group) for Data Logger tapes, and only briefly here for the Demuxr tapes. The latter QC protocol has been tested and refined as a result of the experiences of this cruise, since none had ever been done before. Most mistakes have already been made.

The Data Logger is charged with recording any slow data source which might be of value in later processing. Currently, it records the lab master clock to the millisecond, a satellite clock, the shot point number, the DFS record number, Loran C position and quality of fix data, and one magnetometer. These sources are recorded at one or five minute intervals, or each shot point. The Logger worked fairly reliably during this cruise. Its tension arm tape drives worked very reliably. The printer jammed only infrequently. The program crashed for no obvious reason about 20 times, and on occasion, was difficult for watchstanders to understand or control. It hung up several times when a connector to the magnetometer vibrated loose. The boot up protocol REQUIRES that two switches be changed from

their usual data gathering position; this causes crashes to lose more data than they would otherwise, since the program will crash again if the operator does not know this. Multi-line comments did not work as expected, and the number of characters able to be typed on a single line was 8 fewer than documented (so some comments were truncated). The printer uses too much paper; it is hard to stack or keep track of it all.

Demuxr is the data collection system which records seismic data from the DFS-IV acquisition system on half inch tape. This data is usually demultiplexed before it is recorded. Time, shot point, and other lab data, as well as watchstander comments are recorded with the seismic data. This was the first major cruise where Demuxr was the primary recording device. 480 reels of 48 channel, 10 to 13 second, 4 millisecond data were recorded. For the most part, Demuxr worked as expected. There were problems ranging from severe to nit pickings.

The (only) major software glitch caused a trace to be lost. This resulted from incomplete testing of a change made just before the trip. Proper QC (as suggested below) would have detected the problem within an hour. For a number of reasons (none of which seem sufficient in hindsight) full shot QC plotting was not done, and the lost trace was unnoticed for 75% of the trip. (This problem was fixed by changing a 'P' to a 'D' in one place in the program. For want of a nail...) The next most severe problem was hardware. The vacuum column tape drives were extremely unreliable for several days. This was traced to the inter-drive cabling. This was eventually fixed, and only an extreme sensitivity to any kind of dirt marred the drives' performance. Each drive had to be cleaned very carefully, perhaps with three times the care one would use in a computer room, to assure reliable recording. We demonstrated this time and again. The problem with grease in the lab is much reduced by the addition of an adequate sales exhaust fan, but there is enough sunk in the air to make extremely careful cleanings essential. Once the cable problem was attended to, the average was several retries in about 7200 traces per tape. Some concern was caused by extensive read retries on the GPC (sometimes as many as 1 in 10) during the QC passes. The extent of this problem is not known, yet.

There were also less important problems which occurred in both software and hardware. Demuxr hung up for no obvious reason three times, missing tens of shots each time. The problem occurred once on the May student cruise. Although all watch persons were warned about the possibility, none caught it immediately. An attempt to allow Demuxr to catch its own hangs ups falsely detected several hangs ups, and was shelved for a more appropriate and permanent fix. Demuxr also did not alert the watchstander

to occurrence of internal time breaks, as it was documented to do (this has been fixed). The keyboard for the operator console became inoperable due to internal failure, and was replaced by a spare terminal. The integrated circuit responsible was located, but no spare was on board. Demuxr never crashed while taking data, but did hang (noted above) and did get very confused when the DFS was placed into TEST mode in the middle of a shot. Sometimes it recovered its sanity after such, most times it was re-booted. There is a suspected problem, yet unconfirmed, with side effects of the COMMENT command. HELP restores pre-HELP command status improperly in some cases (fix is known). Tape labels seem to be difficult for some watchstanders to remove from the waxed paper backing; sometimes the alignment was thus incorrectly set and the next reel's information printed between labels. The log printer jammed several times and was not immediately fixed. The tape drives were threaded incorrectly several times, which caused a very high error rate, since no data was properly written to tape. On one occasion the density switch apparently internally faulted so that 800 bri was selected. These switches will be replaced by a less error prone scheme.

There were three short intervals where the backup one inch drives were used. One such was not recovered since the overlap was only four shots; the other two, comprised of six one inch tapes, were demultiplexed to three half inch tapes during the transit to Galveston. The only information believed to be lacking on these tapes is the time, since the shot point counter was manipulated to obtain the correct shot points, and all other information was recorded on the one inch tapes.

The most egregious errors in Demuxr have already been fixed. On the basis of our tape drive problems, a new command to exercise offline blank tapes should be added to verify drive cable integrity. Actually writing a worst case data pattern to every new tape as it comes online would catch improperly threaded reels. An audible alarm for every error will be a switch selectable option, beeping until the watch person cancels it. An external watchdog timer may be added to sound the alarm if Demuxr fails to reset it every minute or so (on the presumption that Demuxr has crashed and needs to be rebooted). New documentation on how to clean and load a tape drive will be added. Documentation will be updated for specific problem areas observed.

The General Purpose Computer's lack of a catchy name reflects its ill defined role within the lab. This trip was the first to keep it substantially occupied; it averaged probably 75% of capacity, over 24 hours, during shootings. During peak times, it was overused and could not keep up with the desired processing. It was used routinely for Data Logger navigation, magnetics and bathymetry processing; Demuxr quality control, and checking blank tapes for bad

spots before use. The 18.5 inch Versatec plotter was connected and used, as was the tektronix 4051 desktop computer, in its 4010 graphics terminal emulation mode. In addition to the NGSDC/Data Loader programs elsewhere described, the following programs are usable on the GPC.

SEGDRQ is the first pass Demuxr quality control. It checks readability, internal consistency of tape format, and a limited number of expected event sequences. For example, it knows that record number and shot point number should increment by one each shot. It produces a summary report for each tape which lists all such discrepancies found. These disk files may be used during subsequent processing. This program MUST be run on each tape. It takes about 7 minutes per tape, if there are few errors.

NTPLOT is a second pass Demuxr quality control. It allows any one channel from a tape to be plotted, with or without asc, on either the 11 or 18 inch plotters. Each trace is labelled with record and shot numbers. It was used to plot the one second of data around the water bottom as a sampled ac for neartrace quality and airgun signature stability. This took about 20-30 minutes for the 120 traces on a tape. This program probably should be run on every tape.

QCPLT plots selected channels from selected shots from Demuxr tapes. Due to moveout, less than 3 seconds is usually not useful. Its output is similar to NTPLOT, except each channel is labelled, and shots are plotted independently. 3 seconds/54 traces takes about 25-35 minutes. This program should sample at least one shot from each tape at the water bottom or at the D wave.

TAPCHK writes a worst case data pattern to a blank tape, and records the number of errors observed. We found about 10 tapes of 480 which were not usable in any manner. One was wound on the reel backwards, oxide out! It is not known whether this will always be advisable or not. It takes about 7 minutes per tape.

PLTDAY interactively uses the Tektronix to preview any NGSDC parameter plotted against hour of the day. This is useful to find stray points before editing the data. These plots can be sent to the 11 inch plotter currently, but extension to the wide plotter is easy. It will not currently handle less than a 5 minute interval, due to internal array space limitations.

LORANC is a prototype real-time navigation plotting program. The desired track is plotted on the Tektronix, and the current position from the lab loranc is plotted as a point each 2-3 seconds. In principle, data from the satnav and the loranc could be plotted together, with standard error I beams, to derive some real time estimate of fix

error.

Most of these applications involve plotting in some form. We currently use a flexible but very slow plotting package. It converts vectors to the dot matrix required by the electrostatic plotters in software. This was a real impediment to proper QC of the data. Clever programming can work around this problem, but a better solution is either a faster computer, or a raster box such as used on the Vax. SEGDQC and TAPCHK use hardly any cpu time, but rely heavily on rapid access to their tape. After QCPLLOT and NTPLLOT get the needed data from tape, they are completely CPU bound for 15 to 20 minutes. Thus, an optimum sequence for 10 second/4 millisecond /54 trace data at 25 second rax rate might be:

10 20 30 40 50 minutes

1..QCPLLOT from previous..1

1..SEGDQC..1

1..NTPLLOT for current..1

1..TAPCHK..1

1..QCPLLOT for current....1

etc.

If any other processing is done, it will of course slow the schedule badly, so care must be taken to allow a little slop in the schedule. We did not do QCPLLOT regularly, so we had enough left over for some program development and navigation processing. Whenever both were attempted at the same time, we ran behind, sometimes as much as 4 tapes (one whole watch).

15 Jul 83

71
52

7/15/83 —

1540Z — Monitor Records showing cross-tails from other ships in area —

talked with MARK — he has developed another program to ACC the single trace plot — is now checking out — can then give plot more like a true single-ch. monitor record — great *

going over streamer yesterday shows need of some type of program to plot position — course etc in real time —

1610Z c/c ~~1540~~ 2 degrees to port
new course 154° true

1639Z Gun went down

1639Z. Starboard Gun went down and that was our trigger gun so we lost data since nothing was being triggered.

1644Z switched trigger to port gun, getting data again

1647Z Ship going to dead slow to check guns
starboard
- gun may be only being towed from tag line

1657Z disengage starboard engine
engaging starboard engine to go up to speed

Harness chain on gun broken being towed by tag line. — BANG IN SH. GUN

1700Z New watch course Lin Kantenkemper

15 JUL 83 '57

1047Z 0947L 15 JULY 83 0400/0800 WACTH

1104Z: REEL 180117~~40~~ SEGDOC'd normally with the proper reel number.

1222: MAGGIE CHART RECORDER FUNCTIONING ABNORMALLY. DLOGGER VALUES OK.

1226: 3.5 KH offline; no apparent reason

1239: 3.5 KHZ BACK ON LINE (THANKS KEN!)

1259: MAGGIE ALARM SOUNDED AFTER CHECKING PAPER.

1412Z Spokes off — getting too deep — not getting any good records —

earlier — yesterday — when went over trail buoy seemed to have sighted it — now seeing strobe light

*

1530Z — tape 180124 showed 180123 in header —
? poss. bug in program that goes too fast —
happened earlier on 118

for the record — Mark has developed two Quality Control programs — first — SEGDOC — looks thru tape & looks for errors — run on every tape — second — single trace plot — from 1-3 secs of data — takes long time — same as collecting tape — so running on every other tape —
program = NTPLOT

1542Z - shift monitor to 2 sec delay -

17 Jul 83 86
61

1600Z - weather

sl. overcast - wind ESE 15-16 kt

hazy - seas SSE - 2-5'
swell 3-5'

visibility ~ 10 mi

1617Z c/s 5.5 kts try-? weather calmer

streamer not as noisy - place to

break line in processing *

Mark has devised program to check tapes before using - earlier seemed to run into a bad tape - thus the reason - will try to run tapes & put on rack

Mark also wrote program to plot data from daily MER tape of NAV/NAT program - need way of quickly editing ~~the~~ magnetic, bathymetry & shot points w/ files - instead of visually trying to check map - this way can plot & look for excursions - needs to be documented & implemented - but looks like it works -

Mark also has been working on way to plot a single trace strip record for several tapes - with AGC - to get something similar to seismic record - ? status -

1634Z - checker camera records - streamer looks much quieter - no weather calmer - seems ok at 5.5 kts - weather was choppy all during note - streamer very noisy - need to watch when processing *

Range point at 26°32.6'N 88°23.8'W - Begin turn there

RV #. The Fred Moore uses a (well known) field system to condition and digitize seismic multi-channel data, and our own computer based demultiplexing system, DEMUXR, to record this data on magnetic tape. DEMUXR has been field tested in over ~~one month of data acquisition~~ ^(2500+ nm) Demuxr?

Analogs data is filtered, amplified and digitized by a Texas Instruments DFS IV, and then recorded on (1600 bri 9 track tape) as SEG-D demultiplexed (16 bit floating point data samples) by DEMUXR. The program will accept any DFS sample rate (1,2,4 ms at 24 channels, 2,4,8 ms at 48 channels, 4,8 ms at 96+ channels) up to 128 channels. Recording lengths of up to 15 seconds may be set in increments of one second by the DFS. Longer records may be recorded by provision of appropriate hardware clocks. The total length may be limited by internal storage or formatting constraints; typically, up to 45 seconds of 48 channel data is permissible at 4 millisecond sample intervals. Over 110 shots of 10 second, 54 trace 4 millisecond data fit on a 2400 foot reel.

Information recorded on the SEG-D tape each event includes the DFS record number, a shot point number, the date and time to the nearest millisecond, and whether the DFS triggered normally. Comments of 4 lines of 64 characters may be recorded by the operator each shot in addition to these implicitly recorded values.

An 8.5 x 11 inch ~~printed~~ acquisition log is produced automatically by the program. It includes the time of each event (Shot Acquired, Internal Time Break, Comment, etc.) as well as information specific to each event. Operator comments of considerable length may be logged at any time.

Self adhesive tape reel labels are printed with tape sequence number, date, shot and record numbers, and tape format ^(write err) information. These are generated automatically after normal tape changes, or can be produced by the operator for special purposes. ^{new R}

The operator uses single keystroke commands to control acquisition and program behavior. These may be entered at any time while acquisition proceeds; any necessary synchronizing is performed within the program. "Dangerous" functions are verified in a multi-stroke sequence to reduce the chance of improper entry. All other entry is checked for plausible values before use. A short paragraph describing the use of any keystroke is available at any time while a keystroke function is in progress. The operator may also use HELP to obtain more detailed information about entry errors, or to display information about the exact kind of entry required during a function.

The system is documented with an introductory tutorial, and a comprehensive list of the meanings and ordinary corrective action to be taken for every error message or error condition which may occur.

~~The operator must only clean the tape drives, load blank tapes, and make appropriate comments during normal acquisition.~~ ^{course/speed changes} Operator comments are entered to note gun mis-fires, vessel navigational changes, and other events which may affect the recording or interpretation of the data.

^{processing}
The DEMUXR system is supported by several read after-write-utilities running on another computer. ~~These identify and anomalies in the tape format, and selected shots or channels, and write analog (or multiple) channels to another tape reel for later processing.~~ This suite of routines assures that problems in the source or recording system are detected promptly. If the primary system malfunctions, data may be recorded in a multiplexed mode on 9 track tape, or the backup DFS one inch ^(21 tracks) digital drives may be used. Data recorded in this way can be played back and demultiplexed during later periods of transit.

In addition to the PDP 11/34 central processor/demultiplexing system, RV Fred H. Moore also supports a PDP 11/03 central processor, used for underway data logging, and a PDP 11/34's General Purpose Timesharing Computer (GPC), used for underway data reduction and quality control.

PDP 11/03-DATA LOGGER

The present PDP 11/03 data logger system is configured as shown in Fig. 1. Data may be selectively sampled and written to 9-track tape at intervals of one or five minutes (transit mode), or at every shot-point when triggered by the DFS (acquisition mode). During multichannel acquisition, the PDP 11/03 records the following data at every shot:

- 1) Julian day,
- 2) shot-point number,
- 3) DFS field record number (octal and decimal),
- 4) time to the millisecond (Systron Donner, Loran C, and/or satellite time clocks),
- 5) Loran C position (lat./lon. and time delays, signal to noise ratios, warning flags),
- 6) satellite clock position (accuracy of satellite time),
- 7) and total field magnetic anomaly from one magnetometer.

If both the lab and bridge Loran C units (approx. 40 and 160 feet source antenna offset, respectively)* are in "stand-by" mode or temporarily malfunctioning, satellite fixes and dead-reckoned positions (approx. 155 feet source to antenna offset)* may be manually recorded and written to tape at any desired interval.

* THESE MIGHT BETTER BE PLACED IN THE OUTLINE...

The Data Logger program, like Demuxr, automatically prints an 8.5 x 11 in. acquisition log with all the information in 1-7 above, in addition to any comments entered by the operator (e.g. changes in ship speed or headings, etc.). Routinely, logger tapes are changed every 24 hours at 0000 GMT and then processed and reduced to National Geophysical and Seismological Data Center (NGSDC) Merged-Merged format on the PDP 11/34 GPC.

SOLAR

PDP 11/34-GENERAL PURPOSE TIMESHARING COMPUTER

The GPC supports a VAX 11/780 compatible RSX-11M operating system and utility programs which process, analyze, reduce and perform quality control checking of both Demuxr and Data Logger magnetic tape output. Two Versatec plotters (11 and 18.5 inch paper widths) and a Tektronix 4051 desktop computer are used to output hardcopy and graphic displays of processed Data Logger navigation and/or analysis of SED-D tapes recorded by Demuxr.

Data Logger Processing/Quality Control

Reduction of Data Logger navigation to NSGDC format is accomplished by the execution of eight programs which reformat and/or perform operations on the raw data after the logger tape has been copied to the GPC disk. Four additional programs expedite the editing and error checking process during initial, intermediate and final stages of the entire reduction and processing stream (program listings for both Data Logger and Demuxr are briefly described in App. 1). The final Merged-Merged navigation file for each day may be plotted on the pen-plotter at any suitable scale as a final error check, and then appended to a file containing all of the previous NSGDC day files for the entire cruise. Each NSGDC file contains the following data, when applicable:

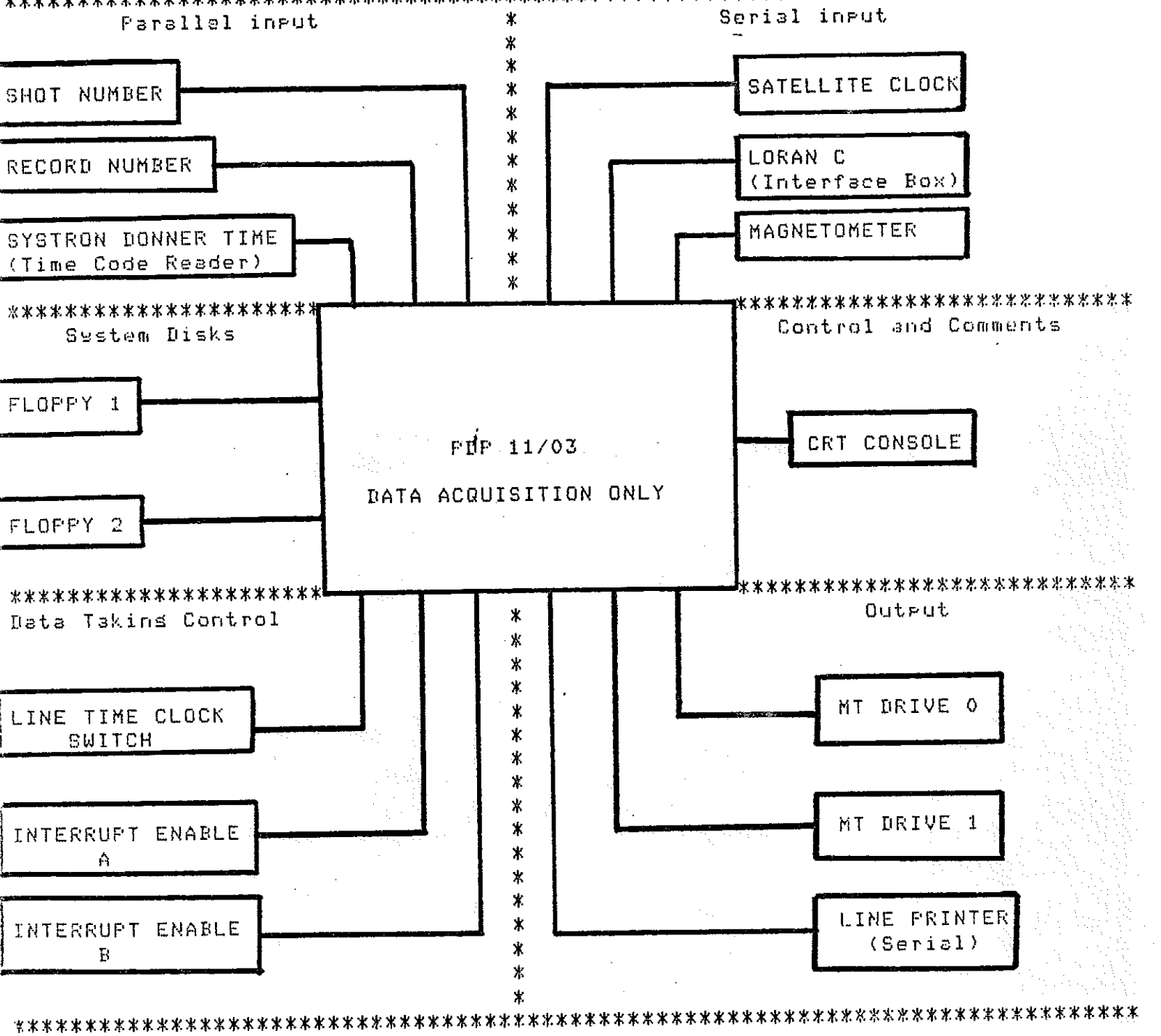
- 1) device identification

- 2) month/day/year,
- 3) time (to tenth of a minute),
- 4) Loran C latitude/longitude,
- 5) bathymetry: uncorrected fathoms and corrected meters (via Maththew's Tables),
- 6) Matthew Zone,
- 7) total field and residual magnetic anomaly (using 1980 harmonic coefficients),
- 8) shot sequence number.

Demuxer Quality Control

As mentioned previously, Demuxr is supported by four utility programs: one which assures that Demuxer receives properly formatted blank tapes for data acquisition, and three read-after-write programs that report anomalies in the recorded SEG-D tape format, or plot selected shot-gathers or single channel monitors. The read-after-write utilities are executed immediately after a tape is dismounted from Demuxer and provide, within 25-35 minutes, very valuable information regarding the DFS, airguns, airgun source signature, and streamer (see program listings, APP.---).

RV FRED H. MOORE DATA LOGGER SYSTEM



APPENDIX --

DATA LOGGER PROCESSING - QUALITY CONTROL PROGRAMS

necessary?

LOGNAV- Reformats logger tapes to NGSDC format.

MAXMIN- Tests for time series errors, spurious lat./lon. data.

RESMAG- Calculates residual magnetic anomaly (1980 harmonic coeff.).

MBENTR- Manual entry of 24 hour bathymetry data.

MBEDIT- Reformats bathymetry file to proper format for merge.

DEPTH2- Merges bathymetry with NGSDC data file.

MERNGS- Merges daily NGSDC Merged-Merged formatted data files.

SHRINK- Creates NGSDC data file by sampling entire logger file every even five minutes.

CHART - Plots annotated navigation track at any scale to pen-plotter.

PLTDAY- Plots any NGSDC parameter (i.e., lat., lon., shot, bathy., etc.) against hour of day.

OGRAY - Zeros shot sequence numbers between two zulu times in NGSDC files.

SHOTO - Zeros total field and residual magnetic anomaly values between two zulu times in NGSDC files.

LORANC- Plots (real-time) lab Loran C position as a point with respect to desired track between two waypoints every 2-3 seconds.

DEMUXER QUALITY CONTROL

TAPCHK- Writes a worst case data pattern to a blank magnetic tape and records the number of format errors found.

SEGQOC- First pass of Demuxr quality control. Checks tape readability, internal consistency of the recorded tape format, and a limited number of expected event sequences. Produces a summary report for each tape listing all discrepancies found. These disk files provide invaluable information during subsequent data processing.

NTPLOT- Second pass of Demuxr quality control. Produces a near trace plot, or plot of any one channel from a recorded tape. Plots may be directed to either the 11 or 18.5 inch plotter, with or without automatic gain control (AGC) and are annotated with reel number, trace record number, shot number and AGC reference level, if AGC was requested by the operator.

QCFLLOT- Plots selected channels from selected shots on a recorded tape. All channels for one to several shots on a reel may be plotted. Output is similar to NTPLOT except that each channel is labeled and entire shot gathers are plotted independently.

RESEARCH VESSEL FRED H. MOORE: OVERVIEW OF SHIP SYSTEMS

The R/V FRED H. MOORE was donated to the Institute for Geophysics by Mobil Oil Corporation in December 1978.

A 165-foot ship of the flat bottom "mud boat" design, the MOORE has been upgraded and equipped with the instrumentation necessary to make it one of the most effective seismic ships in the U.S. academic fleet. In addition to its use for multichannel seismic acquisition, the MOORE is also used as a platform for ocean bottom seismometer research.

Length	165'	Beam	38'
Draft	11.4'	Height	79'
Gross Tonnage . . .	297	Net Tonnage	202
Berths - Crew . . .	10	Berths - Scientists . .	23
Cruising Speed . . .	10 kts.	Full Speed	11.5 kts.
Endurance	26 days	Range	6,000 nm
Fuel Capacity . . .	62,200 gal.	Water Capacity . . .	58,000 gal.

Equipment

- Main engines - Caterpillar D398C: 765 hp (2)
- Compressor System - Two Garder-Denver SP 600 compressors (100 psi/600 cfm. each) feeding into two Gardner-Denver MDY booster compressors (2000 psi/600 cfm. each)
- Generators - 100 kw capacity (2); 50 kw capacity (1); emergency?
- Communications - Single sideband radio; 11 channels, 225 watts
 - Single sideband radio; 40 channels, 150/1000 watts
 - VHF radio; 55 channels, 25 watts
 - ATS-3 satellite receiver
- 48-trace streamer reel, hydraulic
- 6-trace streamer reel, hydraulic
- Magnetometer cable reels, hydraulic (2)

Equipment (cont'd)

- Navigation - Decca 914 radar (2)
 - Sperry Universal autopilot
 - Benmar DR28 fathometer
 - Sperry Mark - 227 gyrocompass, (repeater)
 - Northstar 6000 LORAN C (2)
 - Omega navigation receiver
 - Magnavox 1107 Satellite navigator.
- BRIDGE (160 foot source to antenna)
LAGS (40 " " " ")

Multichannel Seismic Data Acquisition

Sound Source

- Two 2000 in³ 2000 psi Bolt air guns, powered by (a) Gardner-Denver compressor system.)

Receiving System

- Litton Resource Systems, Inc. streamer; 48 traces, 70 m group intervals [30.5 m active sections (one hydrophone each 3 m acceleration-cancelling), 39.5 m dead sections]. Total length (including 300 m leader and 150 m line to catamaran tail float) is 3.8 km. Six (6) depth indicators (1 every 8 groups) and 15 depth-control birds. Near trace monitored on EPC flatbed recorder.
- Sonobuoys; Yagi antenna mounted amidships. Sonobuoy receiver currently single-channel FM receiver: signals digitally recorded on DFS IV auxiliary channel and on EPC flat-bed recorders.
- Texas Instruments DFS IV and Realtime Demultiplexing System; *DATA CHANNELS*
 - 48 channels of reflection data *62*
 - 62 channels recorded including auxiliary channels
 - 2, 4 or 8 msec sample intervals
 - PDP-11/34 central processor, 128 kb MOS memory (DEMUXR)
 - 1 5 Mb semiconductor disk (DEMUXR)
 - 1 Mb floppy disks (2) (DEMUXR)
 - 800/1600 bpi 125 ips ^{9 TRACK} magnetic tape drives (4) (DEMUXR)
 - ~~800/1600 bpi~~ 21 TRACK MAG TAPE DRIVES (2)
 - video control console with keystroke commands (DEMUXR)
 - reel label maker (DEMUXR)
 - log printer (DEMUXR)
 - digital and serial interfaces
 - *color camera*

Multichannel Seismic Data Acquisition (cont'd)

Echo Sounding & Magnetics

- Hull-mounted 3.5/12kHz systems
- Raytheon PTR transceivers
- EPC flat-bed recorder
- Dual Varian magnetometers

Data Logging

- Automatic logging of navigation and magnetics on 9-track tape
- PDP-11/03 central processor, 64 Kb MOS memory
- 0.5 Mb floppy disks (2)
- 800/1600 bpi 45 ips magnetic tape drives (2)
- video control console
- log printer
- digital and serial interfaces

General Timesharing Computer System

- PDP-11/34 central processor, 256 Kb MOS memory
- 4 Kb cache memory, floating point processor (0.3 Mflop/sec)
- 160 Mb winchester type disk
- 0.5 Mb floppy disks (2)
- 800/1600 bpi 125 ips magnetic tape drives (3)
- terminal ports (8)
- 11" 100 dots per inch electrostatic printer/plotter
- 20" pen plotter
- 60 cps character printer
- RSX-11M multitasking realtime operating system
- FORTRAN-66 compiler
- BASIC interpreter

Multichannel Seismic Data Acquisition (cont'd)

General Timesharing Computer System (cont'd)

- Calcomp compatible plotting package
- Navigation data reduction programs (To NSDC format)
- Near trace and quality control plotting of seismic data