

Department WATCH LOG
Subject R/V POLAR DUKE, IV-87
Name APRIL 11- MAY 4, 1987
Address _____

43-649



**Laboratory
Research Notebook**

Dennison National Company, Holyoke, MA 01041

orig

4/16/87 Planning Meeting: IV-87 — Palmer Station

Bill Detrick will not need to fish again.

Palmer: scrap needs to be dumped at sea.

⁴
2-25

April

— 5-6 hrs. to load

— 5-6 hrs. to dump

— visit to British station / Faraday

— total → $\frac{48}{\text{hrs.}}$ days.

Depart: 17 April: 1200Z / 0800 L.

Arrive: ⁴2 April: 1200Z / 0800 L.

} ⁷ days for
geophysics

Depart: ⁶2 April: 1200Z / 0800 L.

Arrive: 30 April: 1600Z / 1200 L.

— embarking 22 people.

} 4 days, 4 hrs. for
geophysics

Depart: 01 May: 1300Z / 0900L. (1000 Palmer)

Our option to stay @ Palmer or go to Faraday. We can decide later on.

R/V POLAR DUKE : CRUISE IV-87

001

W
LOCAL

APRIL 11

1015 Depart the dock. Punta Arenas (1315Z)

Scientific Party: Seismic Operations

James Austin, Univ. of Texas Institute for Geophysics

Dale Sawyer, "

John Dunbar, "

John Giltner, "

John Jeffers, Rice University

Wendy Smythe, "

Robert Crimmons, ANS/ITT, air gun technician.

John Hutchinson, " , party chief.

Vince Kelly, " , marine technician.

u/w operations = 12 KHz EPC recorder.

Transiting the Straits of Magellan/Beagle Channel.

DAY

APRIL 12

0000L CHANGE LOCAL TIME BACK ONE HOUR. There is now a differential of FOUR (4) Hours between local time and GMT (0400Z).

~0600L/1000Z Beginning transit of Beagle Channel. Still 11.5 KHz.
under pilot.

1055L/1455Z Started 3.5 kHz system on new EPC 4603 recorder. Record shows extensive reverberation, little power transmitted to water. Booster amplifier is not functioning.

1603Z Austin/Dunbar on geophysics watch. Still in the Beagle Channel. 3.5/12.0 KHz only underway ops.

IV - 87: APRIL 12

002

WATCH LOG

1706Z 3.5 KHZ OFF — LOOKING AT AMPLIFIER.

1709Z 3.5 KHZ BACK ON — SLOWING DOWN TO
DROP PILOTS.

S/C 5.5K
S/C DEAD
SLOW

1725Z DROPPING PILOTS COMPLETED. INCREASING SPEED

S/C

1750Z Deployed magnetometer. Tuning it.

1810Z Maggie tuned and running
Leaving Beagle Channel.

11.1 Kts
130°

1830Z TEST STARTED ON SEISMIC ACQUISITION
PROGRAM — MOUNTED TAPE —

WATCHES CHECK EVERY 15 MINUTES.

(1-CHANNEL, 5 SEC. RECORD, 2 MS. SAMPLING,
SHOT INTERVAL EVERY 0.6 SEC.)

1854Z 3.5 KHZ DOWN AGAIN FOR REPAIRS. JOHN
JEFFERS CHECKING FUSES, ETC. JUST EAST
OF ISLA NUEVA.

1920Z SEAS INCREASING. 12 KHZ BEING AFFECTED.
SPEED REDUCED.

S/C 7.5-8.0
Kts.
HDG: 165°
BRG: 125-13

1954Z Sawyer & Smythe on watch

R/V POLAR DUKE IV -87

WATCH LOG

003

2004Z 55° 15.302' S
66° 18.604' W
Speed 7.8 kts HDG 163.4°

2006 Scan 879 on seismic system
2026Z Scan 1066] 187 scans
20 minutes = 9.35

2100Z 55° 22.775' S
66° 13.036' W
Speed 8.7 kts HDG 163.1°

? Scan 1375 - Tape Length Test
2134Z Scan 1684

(
2200 55° 31.292
66° 06.598
Speed 8.2 HDG 163.4 B164.5
Scan 1935

2230Z Bathymetry Record very poor - readings impossible
240Z Scan 2289 - Tape length Test] 354 sec
40 min
8.85

2300Z 55° 39.504' S
66° 01.219' W
Speed 8.6 kts HDG 164.6°

Scan 2480
2310Z 2564 Scan] 84 scans
10 minutes = 8.4

(
2320Z Scan 2748

R/V POLAR DUKE IV-87

WATCH LOG

004

0000Z 13 April 87

55° 48.900
65° 56.053

Hdg 164.9 speed 9.5
scan 3037

Giltner on watch

0020Z scan 3207 - test for tape size
0031Z scan 3306] 99 scans = 9.0
11 min.

0100Z scan 3571
55° 58.87
65° 52.20
Hdg 165.4 speed 9.3] 283 scans
30 min.
9.43

0130Z scan 3854] 87 scans = 8.7
10 min

0140Z scan 3941

0200Z scan 4119
56° 08.73'S
65° 48.25'W
Hdg 163.7° speed 8.7 Kts] 123 scans
10 min = 12.3

0210Z scan 4242] 60 scans = 6.0
10 min.

0220Z scan 4302
0225Z CHANGE 12 KHz To 2 SEC. SWEEP To IMPROVE SIGNAL
0240Z scan 4484

0244Z scan stops @ 4520

TEST COMPLETE (CA. 9 shots
or scans/min.) = 8 hrs. 14 min

0300Z 56° 18 41'S HDG 164.0 SPEED 9.4 Kts.
65° 43 19'W

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005

WATCH LOG

0400Z Dunbar on Watch

S $56^{\circ} 27.347$

W $65^{\circ} 37.826$

Hdg: 164.6° SPEED: 9.3 KTS

0500Z S $56^{\circ} 37.382'$

W $65^{\circ} 31.945'$

Hdg 166.6° SPEED 9.0 Kts

0545Z AUSTIN ON WATCH
STILL TRANSITING DRAKE PASSAGE. UNDERWAY
OPS MAGNETOMETER (OK) AND 12 KHZ (VERY
Noisy). WEATHER FAIR BUT ROUGH. SPEED: 10.2 KTS.
Hdg: 167° .

0600Z POSITION: $56^{\circ} 46' S$
 $65^{\circ} 27.5' W$

0700Z POSITION: $56^{\circ} 55.4' S$
 $65^{\circ} 21.8' W$

SPD: 10.4
Hdg: 165

WORKING ON 12 KHZ — RECORD
IMPROVING. MAGGIE FINE.

[NB: TO ALL WATCHES: NEATNESS COUNTS IN]
[THIS LOG, SO PLEASE WRITE LEGIBLY!]

[AND LOG ALL EVENTS — e.g. scale
changes/signal characteristics of 12 KHZ]

R/V POLAR DUKE IV-87
WATCH LOG

006

0756Z SAWYER ON WATCH
Maggie Fine, 12 kHz fine, SAIL OK

0800Z Position: $57^{\circ} 04.743$ SP 10.1
 $65^{\circ} 15.836$ HDG 164.6

0900Z Position: $57^{\circ} 13.950$ SP 9.7
 $65^{\circ} 10.570$ HDG 166.1

~~0900Z~~
1000Z SMYTH ON WATCH

POSITION: $57^{\circ} 23.599'S$ SP. 10.4 Kts
 $65^{\circ} 05.346'W$ HDG 164.4°

1100Z
POSITION: $57^{\circ} 33.132'S$ SP. 10.9 Kts
 $65^{\circ} 00.087'W$ HDG. 163.9°

1130Z 12 KHZ PLOT HAS GONE OFFSCALE. (DEPTH HAVE
BECOME MUCH SHALLOWER)

Changed back to ~~12 KHZ~~ 1 SEC SWEEP.

POSITION: $57^{\circ} 42.746'S$ SPEED 10.8 Kts
1200Z $64^{\circ} 55.039'W$ HDG. 164.6°

12 KHZ Changed back to 2 sec sweep because 1 sec
didn't help

1204Z Jeffers + Galtner on watch
Maggie, 12 kHz, sail on temp. +4°C, b.p. 1000. steady
seas. moderate

R/V POLAR DUKE IV-87

007

WATCH LOG

1300Z April 13 57° 51.55'S HDG 164.9°
64° 50.23'W SPEED 11.1 Kts.

large rolling waves,
overcast, but weather fine.

1300Z - checked magnetometer winch; secured cable to
prevent chafing along cover of seismic winch.

1400Z 58° 00.40'S HDG 164.7°
64° 45.25'W SPEED 10.5 Kts.

1450Z switched 12 kHz to center recorder to service other
EPC recorder.

1500Z 58° 10.31'S HDG 166°
64° 39.99'W SPEED 11.1 Kts.

same weather & conditions - winds ~ 10 knots
15

1550Z 12 kHz is essentially unreadable

1600Z 58° 20.29'S HDG 165°
64° 35.16'W SPEED 11.0 Kts.

DUNBAR ON WATCH

- 12 kHz is NOT recording well -

1700Z 58° 30.536'
W 64° 27.877'

HDG = 165.9° SPEED = 11.0 Kts.

1800Z Austin on watch. POSITION: 58° 39.6'S
Middle of Drake Passage. 64° 23.3'W

HDG: 166.4°

R/V POLAR DUKE IV-87

008

WATCH LOG

1851Z WEATHER CHECK: 3°C
 WINDS 6-8 KTS. (RELATIVE)
 SEAS ~ 8-10'
 PRESSURE: 992 mm Hg, falling

1900Z POSITION: 58° 50.4' S HDG: 165.9°
 64° 18.2' W SPD: 11.2 Kts.

2000 Wendy on watch

2000-2011 Changed Bathy to 8 sec sweep
 to check absolute depth. - Dale

2024Z POSITION: 59° 06.041' S HDG: 165.5
 64° 10.706' W SPD: 11.4

2100Z POSITION: 59° 12.798' S HDG: 166.1
 64° 07.423' W SPD: 11.2

2147Z: 12 KHz PLOT DIFFICULT TO READ

WEATHER: 2.5°C
 WINDS 9-12 KTS
~~SEAS~~ ~~SEAS~~
 PRESSURE 987

2158 Sawyer on watch

2204 59° 24.778
 64° 01.510
 11.6 kn 166.2°

Fiddling with 12 kHz to improve record

R/V POLAR DUKE IV-87

WATCH LOG

2300 Z $59^{\circ} 35.614' S$ SP 11.6 Kts.
 $63^{\circ} 56.585' W$ HDG 164.9°

APRIL 14 Jeffers + Giltner on Watch
0000 Z - $59^{\circ} 46.95' S$ SP 11.3 kts
 $63^{\circ} 50.98' W$ HDG 164°

0100 Z - $59^{\circ} 59.12' S$ SP 11.2 kts
 $63^{\circ} 45.21' W$ HDG 165°

0200 Z - $60^{\circ} 10.69' S$ SP 11.2 kts.
 $63^{\circ} 39.30' W$ HDG 164°

0300 Z $60^{\circ} 21.99' S$ SP 11.0 Kts
 $63^{\circ} 33.15' W$ HDG 166°

Changed 12kHz recorder @ 0305 Z. Other
 EPC recorder needs to be serviced.

0400 Z Dunbar on Watch

0500 Z S $60^{\circ} 40.690'$
 W $63^{\circ} 22.723'$

HDG 168.1 SPEED 1.1

We've

~~come~~ come dead in the water -

Not clear why. Ice?

05⁰³ Z slip back up to 10.3 knots.

R/V POLAR DUKE IV-87
WATCH LOG

010

0550Z AUSTIN ON WATCH. STILL TRANSITING THE
DRAKE PASSAGE.

0600Z POSITION: $60^{\circ}49.65'S$ HDG: 166°
 $63^{\circ}15.46'W$ SPD: 10.8 Kts.

WEATHER: $0^{\circ}C$
PRESSURE: 986 mmHg(R)
WINDS: ~15 Kts SW(rel.)
Beam Sea.

0700Z POSITION: $60^{\circ}59.72'S$ HDG: 165.4°
 $63^{\circ}10.54'W$ SPD: 10.5 Kts.

0800Z SMYTH ON WATCH

0800Z POSITION:
 $61^{\circ}10.15'S$ HDG: 167.2
 $63^{\circ}05.15'W$ SPD: 11.1

0900Z POSITION:
 $61^{\circ}19.47'S$ HDG: 164.9
 $62^{\circ}59.882'W$ SPD: 10.8

0953Z SAWYER ON WATCH

1000Z $61^{\circ}29.383$ SP 10.8
 $62^{\circ}55.049$ HDG 165.6

Weather $0^{\circ}C$
Pres. 989 steady
Winds ~20 kts, SW(rel.)

1024Z I see a berg off to starboard!

WATCH LOG

1100Z 61 39.332 SP 10.6
62 50.442 HDG 164.5

Weather 0°C

Bar. 990 R

Winds ~20 kts SW (Rel to ship)

1200Z JEFFERS ON WATCH

1202Z 61° 49.7' S
62° 44.2' W

Spd. 10.7 Kts
Hdg 162°

12 kHz O.K. SAIL Loop O.K.
Maggie running; no chafe on cable

1300 61° 59.02' S SP 10.7 Kts
62° 37.37' W HDG 165°

1400 62° 08.75' S SOG 9.2
62° 30.46' W COG 163.0

Weather -1°C Bar. 992 R

1500Z 62° 19.26' S SP 10.8 Kts
62° 24.03' W HDG 164°

1600Z 62° 29.19' S SP 10.6 Kts
62° 17.71' W HDG 165°

1600Z Dunbar on Watch

1700Z S 62° 40.080' HDG 164.5°
W 62° 13.078' SPEED 10.2 Kts

WATCH LOG

1745Z Austin on watch. Smith Island almost abeam, starboard side. LAND Ho! Will pull Maggie to fish @ 2000Z. [Maggie paper red-lining.]

1800Z Position: $62^{\circ} 50.467'S$ HDG: 164°
 $62^{\circ} 06.913'W$ SPD: 11 Kts.

Smith Island abeam. Visibility 15 mi. or more except in intermitten fog, snow showers.

Pressure: 994 mm Hg.

Winds: ~ 20 Kts SW (relative)

Temp: $0^{\circ}C$ ($\sim -18^{\circ}C$ wind chill).

1839Z Large iceberg less than 100 m off the starboard beam! Low Is. dead ahead. ETA ~ 2 HRS. (FISHING)

1900Z Position: $63^{\circ} 01.103'S$ HDG: 161.2°
 $62^{\circ} 00.807'W$ SPD: 10.6 Kts.

1903Z MAGGIE OUT OF PAPER. Will NOT REFILL NOW, AS WE ARE PULLING AT 2000Z.

2000Z $63^{\circ} 11.58'S$ HDG: 163.2°
 $61^{\circ} 53.97'W$ SPD: 10.7 Kts.

END TRANSIT — GETTING READY TO FISH OFF LOW IS. PULLING MAGGIE. 12KHZ to STANDBY.

// Remainder of April 14 and all of April 15 — Fishing off Low and Brabant Islands //

R/V POLAR DUKE
WATCH LOG

IV - 87

013

APRIL 16

1130Z: TIE UP AT PALMER STATION, ANVERS IS.
TO OFF-LOAD PEOPLE, FISH AND WINTER-OVER
SUPPLIES. SHOULD BE HERE 24-48 HRS.

APRIL 17

1200Z: DEPART THE DOCK, PALMER STATION
TRANSITING TO SOUTHERN BRANSFIELD STRAIT
FOR SEISMIC PROFILING. WEATHER BEAUTIFUL, WITH
WINDS 20-30 KTS. FROM THE SW. TEMP: -2°C .

1400Z: ETA STREAMER/GUN DEPLOYMENT POINT
APPROX. 1200-1400Z, 18 APRIL. WILL DEPLOY
THE MAGGIE AND INITIATE 12 KHZ RECORDING
LATE THIS AFTERNOON - EARLY EVENING, AFTER
EMERGING FROM GERLACHE STRAIT.

2055Z ENTERING CROKER PASSAGE. DEPLOYING MAGGIE. 12 KHZ ON.

SAWYER and SMYTHE ON WATCH

2107Z SAIL ON

2109 Maggie out

2111 LAT $63^{\circ} 49.72' \text{S}$
LONG $61^{\circ} 25.78' \text{W}$

HOG. 43.9°
SPD. 8.0 KTS.

R/V POLAR DUKE IV-87
WATCH LOG

014

2202Z Starting 2nd Tape Length Test on Seismic System

2 ms samples 10 sec Record 12 sec Interval
No Randomizing of shot Time

2204Z $63^{\circ} 42.500' S$ SP: 11.3 Kts
 $61^{\circ} 10.500' W$ HDG: 042°

2300Z $63^{\circ} 34.555' S$ SP: 11.2 Kts
 $60^{\circ} 53.241' W$ HDG: 052°

At present course & speed we will arrive
at Deployment Site at ~~2~~ 0600 GMT or 0200L
Austin Notified of schedule.

2310 SP reduced to 10.5 kn. (only briefly)

2312 Back to 11.2 knots

2315 Speed dropping To 8.0 knots

2327 SPEED 7.3 knots HDG 068°

2355Z JEFFERS & GILTNER ON WATCH

BAROMETER 1000 AND LEVEL
TEMP $-4^{\circ}C$

MAGGIE, 12 KHZ, SAIL SYSTEMS RUNNING FINE.
3.5 KHZ STILL T.U.

0000Z 04/18/87 APRIL 18

$63^{\circ} 30.873' S$ HDG. 070
 $60^{\circ} 38.940' W$ SPD 7.0 kts.

0046Z seismic data acquisition experiment finished: 822 scans
END OF TAPE NOT REACHED

R/V POLAR DUKE IV-87
WATCH LOG

015

0100Z 63° 28.55' S
60° 23.96' W

Hdg: 069°
SPD: 6.8 Kts

0105Z restarted tape exp't - same parameters, using short test tape.

0200Z 63° 26.2' S
60° 09.8' W

Hdg 069° @ 7.1 kts

0300Z 63° 23.8' S
~~60~~ 59° 55.1' W

Hdg 074° @ 6.9 kts

range 53.8 nm to seismic deployment point.

SAIL loop O.K.

12 kHz line; tracker working well

Maggie showing lots of high-amplitude anomalies.

0400Z POSITION,
63° 20.6' S
59° 38.9' W

071 @ 6.9 kts

Dunbar on Watch

12 kHz Appears to be tracking the First Bottom Multiple on the depth display rather than the primary

R/N POLAR DUKE IV-87

016

WATCH LOG

0500Z Position S $63^{\circ}18.016'$
W $59^{\circ}24.367'$
HDG = 69.7° SPEED = 6.9 Kts

Scans still running

0600Z 12 KHz To 1 SEC. SWEEP (0-750 m)
AUSTIN ON WATCH. SCAN 1476 on TEST TAPE.

Position: $63^{\circ}14.55'S$ HDG: 069°
 $59^{\circ}11.16'W$ SPD: 7.0 Kts
Approximately 32 n.mi. to deployment point.

0606Z LAST SCAN ON "SHORT" TEST TAPE
@ 1505. WILL USE ORIGINAL TEST TAPE
AGAIN — NO DICE — F.O.T. AFTER FIRST
SCAN. SAME WITH SHORT TEST TAPE.

* SEISMIC ACQ. PROGRAM WILL NOT
ALLOW DATA TAPES TO BE WRITTEN OVER! * SO,
NO MORE TESTS!!!

0630Z MAGGIE TOW CHECKED BY DUNBAR —
OK. CALLED BRIDGE TO NOTIFY HIM OF
OUR INTENTIONS, BOTH BEFORE AND AFTER.
AUSTIN WATCHED FROM THE LAB.

0700Z Position: $63^{\circ}12.12'S$ HDG: 077° WIND: 6 Kts. (S)
 $58^{\circ}55.68'W$ SPD: 6.8 Kts. TEMP: $-2^{\circ}C$
Approx. 25 n.mi. from deployment point.

WATCH LOG

0754Z WENDY SMYTH ON WATCH.

0800Z POSITION:

LAT 63° 11.07

HDG. 82.7

LON 58° 40.23

SPD. 7.1

17.5 N.M.I. FROM DEPLOYMENT POINT

0900Z POSITION:

S 63° 08.90

HDG. 66.6

W 58° 26.98

SPD. 4.2

11.3 N.M.I. FROM DEPLOYMENT POINT

0935 FROM BRIDGE: WE'VE ENCOUNTERED SOME
ICE. NEED TO BRING THE MAGGIE UP.
VINCE IS BRINGING IT UP DALE ON DECK
TO HELP 0943.

~~0943~~ 0947 MAGGIE OUT OF THE WATER
SAWYER ON WATCH

1000Z 63 07.684

SP 3.3

58 20.407

HDG 075

1004Z * Jamie's Comment at 1606Z about
SEISMIC Not writing over Used
Tapes is Not correct! *

* If this happens - you must simply
turn off the computer and Tape drive.
Turn them back on and they will
then write over tapes. This was the
same problem I encountered last
night! *

R/V POLAR DUKE IV-87

WATCH LOG

018

1016Z I called Bridge. They are heading for
63° 05' N
58° 03' W at 1200Z

This looks OK. We may later want to get
closer to shore along the line extension
but I won't change the orders now.

1053Z Encountering increasing floating sea ice. Grease
ice over \approx 30-50% of surface and many bits
of floating ice. Requiring course & speed
corrections occasionally. 1 piece even had a
lethargic looking seal on it! I suspect
that this much ice will affect seismic
operations significantly.

1100Z 63° 04.729' S SP: 6.2 Kts
58° 08.311' W HDG: 095°

Floating ice now covering much more of the
surface. Ship pushing a lot of it aside.
Chief Scientist awakened.

1127Z Turning NW along line 1. Will try to find area
clear enough of ice to deploy gear.
New heading 340°.

1155Z JEFFERS ON WATCH — 12 kHz running & tracking

1200Z 63 02.8 S 8.1 Kts. 349.6 HDG.
58 07.46 W

Power surge — lost clock and
12 KHz. Back to normal (12 kHz) in ca. 2-3 minutes
Still trying to find clear water.

1207Z Still trying to reset clock. Have SAT. Clock, though.

WATCH LOG

1208Z Clock running again.

1230Z replaced tape drive on acquisition system: testing with Dale's old test tape (the one that wouldn't work last night. Seems O.K. so far)

1245Z reconnected event mark on 12 kHz after 1200Z failure

Waiting to deploy seismic gear — still in 2-4 sec ice, very bits.

1300Z 62 57.0 S 5.3 kts

58 14.2 W 337.7

still waiting for ice to clear, compress on.

1330Z 62 54.9 4.3 kts

58 17.5 302.2

still maneuvering in ice

1345Z changed 12 kHz to 2 sec sweep (685 m water depth)

1348Z in heavy pack ice, 12 kHz read deteriorating rapidly

1400Z POSITION (GPS)

62 53.5 S 0.5 kts, range 34.1 mi to end of line 1
58 20.1 W dead in water.

12 kHz still on, working O.K. except in heavy ice
tape drive running O.K.

TODAY IS PATRIOTS' DAY - THE 212th ANNIVERSARY OF PAUL REVERE'S RIDE!

WATCH LOG

1500Z POSITION

62 50.744 6.6 kts
58 22.843

ice opening a bit; less dense, more leads.

1530Z POSITION

62 48.474 1.9 kts in ice
58 25.345

1600Z POSITION

62 45.921 S 11.2 kts
58 29.737 W

Dunbar on Watch

Mostly clear water with small ice blocks

1610 Slowing to 2-3 knots to deploy GEAR

Stopped Sail Loop

TERMINATED SCAN TEST @ 2208 SCANS

1630 RESTART SAIL LOOP - Streamer going

into the water

62° 42.58
58° 29.58

1650 cycling guns After pulling 2-3 files
on Tape #1

WATCH LOG

1700Z S $62^{\circ} 40.679'$
W $58^{\circ} 30.388'$
HDG 334.7° SPEED 4.9 Kts

HAMCO Gun Not Firing - In the process of pulling it in. Speed 3.3 Kts.

1715Z HAMCO gun on deck. May be a solenoid problem. Have got 60 cycle signal and 12 kHz pulses on scope from streamer, so it appears to be connected properly.

1745Z Disconnected and reconnected streamer to check 60-cycle interference. Worse when disconnected.

1815Z HAMCO gun getting ready to go back in the water.

Position: $62^{\circ} 37.104' S$ HDG: 347°
 $58^{\circ} 38.034' W$ SPD: 2.7 Kts.

1825Z HAMCO gun in the water, but no fire.

1835Z HAMCO gun back out. Checking solenoid connection again. Then, if no luck, will probably switch over to Bow water gun.

1845Z HAMCO solenoid works, but we will disconnect it and bring it in to warm up (probably redeploy it @ end of next transit). Getting Bow gun ready to go in the water.

R/V POLAR DUKE IV - 87
WATCH LOG

022

1900Z POSITION: 62° 35.385'S HDG. 341°
58° 41.085'W SPD: 2.8 Kts.

1930Z TESTED BOLT GUN SOLENOID — OK —
PUTTING IT IN THE WATER.

1943Z START TO CYCLE BOLT GUN.

1953Z TROUBLE TRIGGERING THE BOLT GUN.
WE HAVE A MANUAL TRIGGER BUT NOT
AN AUTOMATIC CYCLE.

2000Z CONTINUING TO FIRE THE GUN MANUALLY
WHILE WORKING ON THE CYCLING

POSITION: S 62° 32.50' HDG. 012.6
W 58° 43.01' SPD. 3.0

2008Z LEAVING A CHARGE OF AIR IN THE
BOLT GUN, BUT SHUTTING DOWN COMPRESSORS.

2042Z GOT AUTOMATIC GUN FIRE ON THE BOLT
USING "GUN 2" SWITCH ON THE HANCO BOX.

2044Z 1ST SHOT, LINE 1.

2054 Maggie not deployed now. We will deploy
at way point 3, Prior to shooting Line 2

2100Z 62 28.678 SP 5.3
58 44.948 HDG 356

2120Z mark on seismic record

WATCH LOG

2129Z:201
SCAN ~~200~~

STOP PROGRAM TO ASSIGN NEW
PARAMETERS. BEGIN 12 SEC firing
interval at Crimmons' suggestion.
RESUMED FIRING. SAWYER MADE CHANGE.

2132Z: GUN ISN'T FIRING. CAN'T FIRE IT MANUALLY
EITHER2138Z: GUN FIRING AGAIN. SCAN 247 WAS FIRST
SHOT.

2205 Intermittent Gun problems

2210 POSITION: S $62^{\circ} 23.20$ HDG. 337.2
W $58^{\circ} 49.03$ SPD. 5.0

2213.15 STARTING PROGRAM OVER W/
15 SEC FIRING INTERVAL.
GUN CONTINUES TO FIRE INTERMITTENTLY.

2220 END OF LINE 1. SCAN 447
POSITION: S $62^{\circ} 22.46$
W $58^{\circ} 49.96$

BEGIN TRANSIT TO BEGINNING OF LINE 2

2240 BOB CRIMMONS BLEEDING THE GUN. GUN
UNCOUPLED.

2300 POSITION: S $62^{\circ} 20.99$
W $58^{\circ} 45.95$

BOLT GUN COMING IN.

2313 BOLT GUN ON DECK. PREPARING TO DEPLOY
HAMCO GUN.

WATCH LOG

0000Z POSITION: S 62° 20.51 HOG. 67.2
W 58° 42.91 SPD. 2.6

IN TRANSIT TO BEGINNING OF 2ND LINE.

0025Z @ HAMCO GUN FIRING EVERY 6 SEC.

0030Z Deploying Maggie

0039Z MAGGIE TAKING DATA

0045Z JEFFERS + GILTNER ON WATCH

0055Z Beginning streamer test - will read segments individually
+ sum a few for awhile

0055Z All channels summed; changed to 2 sec sweep

0103Z 62° 19.67'S HDG: 070°
58° 37.96'N SPD: 4.2 Kts

0105Z Reading streamer channel #1 only WD ~ 450m
Signal - noise looks bad on O-scope

0115Z Reading streamer channel #2 only
Signal - noise appears better on O-scope

0125Z Reading streamer channel #3 only
Signal - noise appears similar to #2

0128Z added TVG on recorder (Amps switched to "SPREADING")
GAIN @ 300 on recorder.

0135Z Reading streamer channel #4 only
more amplitude than 1, 2, or 3; signal - noise o.k. (not great)

0138Z added TVG, Gain @ 300

0145Z Reading streamer channel #5 only.
quieter than previous 3 sections (I think)

0148Z added TVG GAIN TO 300

WATCH LOG

0155Z reading streamer channel #6 only - no data

0200Z 62° 18.10' S HDG: 071°
58° 30.94' W SPD: 4.2 kts.

0202Z Vince completed hourly check, everything O.K.

0205Z Sum all streamer channels except #6

0205Z-0210Z Slowed to 2.0 kts, resumed 4.0 kts.

0215Z Sum channels 1-4

0227Z Sum channels 1-3 only (3 near traces)

0252Z Sum channels 1+2 only — Will use this for the time being.

0300Z Position:
62° 16.361' S SPD: 4.8 kts HDG: 068.7°
58 21.243 W

0309Z HAMCO STOPPED FIRING, ATTEMPT TO REGAIN PRESSURE AT COMPRESSOR.

0315Z GUNX NOT FIRING (NO PRESSURE AVAILABLE)
JOHN H. INVESTIGATING - TRYING TO GET BACK-UP COMPRESSOR STARTED

→ 0300 CHECK - VINCE FOUND & FIXED CHAFING. EVERYTHING ELSE ON DECK IS O.K.
LAB CHECK: SAIL LOOP, MAGGIE, 12KHz Running. Seismic O.K. too

0317Z Pressure returning, gun firing O.K.

0325Z - Compressor overboard - cracked valve to bleed and maintain 2000 psi.

R/V POLAR DUKIE

026

WATCH LOG

0400Z

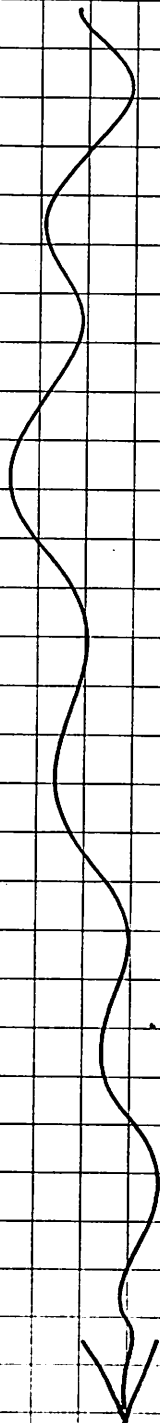
62° 14.68'S

HDG: 072°

58° 12.05 W

SPD: 5.3 KTS

AUSTIN AND DUNBAR ON WATCH. STILL TRANSITING
TO BEGINNING OF LINE 2. HAMCO 100 CM³ GUN
STILL FIRING @ 6 SEC, MONITOR: TRACES #1 AND #2.
12 KHZ, MAGGIE OPERATIONAL.



R/V POLAR DUKE
WATCH LOG

027

0430Z Deck fows checked. OK. (Vince Kelly is checking equipment for us.)

0453Z Switching compressors — bleeding air.
Gun fire intermittent.

0504Z

Position: $62^{\circ} 12.872' S$
 $57^{\circ} 57.205' W$

HDG: 072°
SPD: 5.4 kts

We have approximately one hour to go before the end of this transit.

0600Z $62^{\circ} 11.231' S$
 $57^{\circ} 45.824' W$

HDG: 073°
SPD: 5.9 kts.

0618Z END TRANSIT. BEGIN TURN TO
BEGINNING OF LINE 2.

0630Z TURNING — Position: $62^{\circ} 09.707' S$
 $57^{\circ} 38.071' W$

0647Z START RECORDING LINE 2

Position: $62^{\circ} 10.346' S$
 $57^{\circ} 41.816' W$

HDG: 244.1°
SPD: 5.0 Kts.

We had to shut the system down and reboot from system disk to get seismic acq. program to accept scans. Kept getting end-of-tape errors without doing that. Turn drive on after system is booted.
All fows OK.

R/V POLAR DUKE
WATCH LOG

028

0730Z Gradually increasing gain on seismic monitor to optimize record. Also decreasing threshold.

0800Z LAT: $62^{\circ} 12.734' S$ HDG: 244°
 $57^{\circ} 49.070' W$ SPD: 4.7 kts.

SMYTHE & SAWYER ON WATCH

0815Z Vince checked gear - All OK

0900Z $62^{\circ} 14.270' S$ SP 4.8
 $57^{\circ} 55.720' W$ HDG 241

0908 Vince checking gear - All OK

0909 EOT indicated at scan 1414 on Tape 2.
I tried to restart seismic program without booting but got an immediate tape error and shutdown. I then unloaded tape 2 and turned off whole system. I did cold boot and mounted tape 3. System working normally on Tape 3. First shot on Tape 3 at 0915Z

0925 Adding channel 3 to channels 1 & 2 currently being summed from streamer.

0951 Scan 355 - Tape drive went to "unload" on its own. It rewound and therefore cannot be restarted!

1001 Mounted Tape 4, did cold reboot and system is operating.

R/V POLAR DUKE
WATCH LOG

029

1003 62° 16.195'S SP: 5.1
58° 03.640'W HDG: 240°

1013Z Vince making gear check - All OK

1100Z 62° 18.024'S SP: 5.0 Kts
58° 11.040'W HDG: 241°

1120 Vince making gear check - All OK

1200Z 62° 20.190'S SP: 5.1 Kts
58° 18.791'W HDG: 242°

1203Z JEFFERS ON WATCH. WHERE'S THE GILNER?

12 kHz, maggie o.k., SAIL loop o.k.

Weather 10°C Barometer 989 hPa

Some difficulties with acquisition system reported by Dale: mid-type errors,
false end-of-type errors.

1215Z GPS ON - new position
62° 20.710'S
58° 20.776'W

1230Z Pressure O.K. @ 1850#

1238Z Position 62° 21.466
58° 24.107 GPS

bridge called - slightly off course, correcting slowly. Plots OK

1245Z Checked pressure - 1850 - 1900#

↓ iceberg avoidance
(diverted to north)

WATCH LOG

1300Z Position

62 22.018

58 27.276

speed 5.3

Hdg. 250.1

1315Z Pressure 1800#

1330Z Position

62 23.096 S

5.2 kts

78 31.559 W

Hdg 238

1400Z Position

62 24.073 S

speed 5.4 (4.7 SOG)

58 35.896 W

GPS off @ 1400 - GDR on

1445Z Pressure check ~ 1800#

1500Z Position

62° 26.77

SPD

5.0

58° 46.17

HOG

243

1508Z 12 kHz to 4 sec sweep

1518Z added streamer channel #4 to sum output

1522Z Pressure 1800#

1523Z removed streamer channel #4 from sum output

NOTE: I JUST NOTICED THAT TIME ON SEISMIC ACQUISITION COMPUTER
LAGS GMT BY 3 HRS (CURRENTLY 12:24 on computer, 1524Z)

1550Z Pressure 1800+

R/V POLAR DUKE
WATCH LOG

031

1600Z LAT: $62^{\circ} 28.80'S$ HDG: 242°
 $58^{\circ} 55.03'W$ SPD: 4.9 kts

Austin and Dunbar on watch.

1633Z C/c 232° . Still on Line 1.

POSITION @ TURN: $62^{\circ} 29.984'S$ SPD: 5.0 kts.
 $59^{\circ} 00.022'W$

1642Z E.O.T. #4 @ 4001 scans, as predicted. Normal
rewind.

1648Z 15I scan, Tape #5 — cold reboot of computer,
power up drive, load tape, correct time and increase
of scans to 4500 (John and I checked
just before E.O.T. #4 and there was ca. $\frac{1}{2}$ " of
tape left on the reel and we need to conserve
tape as much as possible.)

1717Z Slowing down a little. Speed was up to 5.5 kts.

1730Z Back to 2.0 SEC. ON 12KHz.

1800Z POSITION: $62^{\circ} 33.680'S$ HDG: 229°
 $59^{\circ} 10.070'W$ SPD: 5.0 kts.

1818Z Noisy Monitor Record. STREAMER OUTPUT NOISY.
GATING OUT VARIOUS CHANNELS (#3, #2, #1 IN
SEQUENCE) TO TRY TO FIND SOURCE OF PROBLEM).
IAN TOLD ME THAT THE SOURCE OF THE
PROBLEM WAS RADIO TRANSMISSION. TOWS CHECKED - OK

1900Z LAT: $62^{\circ} 36.871'S$ HDG: 231.1°
LONG: $59^{\circ} 17.999'W$ SPD: 5.1 kts.

WATCH LOG

1915-1917Z: CHART ADVANCE PROBLEM W/ 12KHZ RECORDER.
CORRECTED BY POWERING DOWN THE UNIT.

1956Z Sawyer & Smythe on watch

2000Z 62° 40.092' SP 5.0 Kts
59° 26.046' HDG 231°

2100Z 62° 43.221' SP 5.0 Kts
59° 33.122' HDG 235°

2200Z 62° 46.123' S SP 5.2 Kts
59° 41.903' W HDG 233°

2300Z 62° 49.023' S SP 5.2 Kts
59° 50.028' W HDG 235°

2317Z Now summing streamer Scan 3894
channels 1 & 2 only -
channel 3 removed, in shallow water

2350Z Deviating slightly from line to avoid iceberg.
REQUEST DENIED!

0000Z 20 APRIL Jellies + Giltner

62° 51.57' S SPD 4.8 Kts
59° 58.22' W HDG 236°

0018Z COMPRESSOR CHECK - 1950 psi

0020Z end of Tape 5 - running on ID60 trigger while
John D. copies seismic disc.

0025:39 Scan #1 Tape 6

R/V Polar Duke IV - 87
Watch Log

033

0045Z Pressure check - 1950 #

0101Z Position 62 54.75 S 4.9 kts @ 224.9
60 07.19 W

SAIL O.K., MAGGIE O.K.
VINCE'S DECK CHECK O.K.
PRESSURE 1950, gun firing well.

0200Z Position
62° 57.631' S 5.0 kts @ 225.1
60° 14.688' W

Maggie, Sail 12 kts fine
Vince checking deck - O.K.

0249Z PAUSE DIGITAL ACQS. @ 1439 scans
CONTINUE TO FIRE GUN & RECORD ON EPC
63° 00.471' S
60 21.00 W E.O.L.

0249Z Beginning slow 180° turn to port.
Continuing analog collection during transit

0255Z Position
63 00.732
60 21.00

0300Z Position
63 00.900 HDG 099 3.3 kts
60 20.511

0310Z Position
63 00.623 HDG 059 4.7 kts
60 19.388

Watch Log

0320Z 63° 00.23'S SPD 4.6 Kts
60° 17.93'W HDG 058°

0330Z 62° 59.812'S Spd. 4.7 Kts
60° 16.446'W HDG 058.6°

0340Z 62° 58.271'S Spd 4.7 Kts
60° 15.026'W HDG 058°

~~0350Z~~

0350Z — Checked pressure — ~ 1800#

0400Z Austin and Dunbar on watch. Still turning (to starboard now) to begin line 3. Seismic acquisition in "pause" mode.

0418Z RESTART DIGITAL ACQUISITION — LINE 3.

Position: 63° 00.075'S HDG: 232°
60° 14 901'W SPD: 5.0 Kts.

0430Z DECK GEAR CHECKED, PRESSURE, TOO — OK.

0512Z DECK GEAR CHECKED, PRESSURE @ 1950 p.s.i.

0515Z Position: 63° 02.912'S HDG: 232°
60° 23.076'W SPD: 5.1 Kts.

0600Z Position: 63° 05.099'S HDG: 232.3°
60° 29.385'W SPD: 4.5 Kts

DECK GEAR CHECKED — OK.
GUN PRESSURE GOOD.

Watch Log

0710Z TOWS CHECKED BY VINCE KELLY. PRESSURE @ 1950 p.s.i.

0730Z POSITION: 63° 09.00 'S HDG: 233.4°
60° 39.70 'W SPD: 5.4 Kts.

0800Z SMYTH & SAWYER ON WATCH

POSITION: 63° 10.11 HDG: 238.9
60° 42.09 SPD: 4.9

0805Z Vince checking gear - All OK Pressure @ 2000 psi

0900Z 63° 13.170 HDG: 246
60° 49.240 SPD: 4.9

0905Z Vince checking gear - All OK Pressure: 1950 psi

0924Z Tape 6 complete. Terminated Normally
Tape 7 mounted. First shot recorded 0929Z

1000Z 63° 15.607 'S HDG 242
60° 57.435 'W SPD 5.2

1100Z 63° 18.190 'S HDG 244
61° 05.360 'W SPD 4.4

1112Z Vince checking gear - All OK Pressure 1900 psi

1200Z 63 20.892 S
61 13.808 W

Jeffers & Gillmer on watch.

Watch Log

1300Z

LOCATION - PREPARE TO CHANGE LINES

(3a) → (A)

AT CROSSING PT.

63° 23.35

HDG 240

61° 21.56

SPD 4.4

1305Z

STOP RECORDING LINE

(3a)

63° 23.59

61° 22.35

Sczn 2170 - E.O.L.

1331

63° 24.64

61° 23.77

1348Z

BEGIN FIRING BOLT GUN AT 12 sec / NO RECORDING

1400Z

63° 25.93

HDG 135

61° 22.51

SPD 2.7

BEGIN ANALOG RECORD

INCREASE SPD TO 5 NTS AND COMPLETE
TURN TO COME ON LINE - (ABOUT 1/2 THERE)

1425Z

- GUN NOT FIRING - ^{AR} LINE KICKS, NO EXHAUST, NO FIRE

1430Z

- POSITION

63° 25.19

HDG 348

61° 20.40

SPD 4.5

1440Z

BRING IN GUN TO REMOVE EXHAUST FLOAT
AND LEAVE EXHAUST LINE ON DECK.

1501Z

63° 23.67

HDG 338

61° 21.65

SPD 3.1

AT CROSSING POINT
OF LINES (3a) & (A)

RE-DEPLOY GUN

1505Z

GUN FIRING AGAIN

1508Z

STOP FIRING GUN -

RE-ARRANGING EXHAUST LINE TO
BLOW AWAY FROM FAN TAIL

1522Z

GUN FIRING AGAIN

WATCH LOG

1535Z POSITION

63° 21.504'

61° 22.774'

5.6 kts

338.2 kts

Begin recording digital data. Line 4

Bridge slowing to 5 kts

1539Z Speed 5 kts

1550Z GUN STOPPED FIRING - STOP RECORDING DATA
CHANGE GLYCOL TANK1555Z Asked bridge to slow again to 3 kts.
Proceeding along line 4 slowly. Refilling glycol
tank. Seismic acq. system in "pause" mode.

1600Z POSITION:

63° 19.464 'S

61° 24.804 'W

Hdg: 339.9°

SPD: 4.0 kts.

1608Z START RECORDING DATA AGAIN - SCAN 87, TAPE 8.
GUN FIRING NORMALLY.

1615Z INCREASE SPEED TO 5.0 kts.

1632Z GUN STOPPED FIRING AGAIN, AFTER SOME MISFIRES.

1636Z GUN STARTS AGAIN ~ 229 - BUT
INTERMITTENT. STILL A PROBLEM W/ GLYCOL,
APPARENTLY1643Z GUN FIRING AGAIN - SCAN 266.
STILL ACQUIRING DIGITAL DATA.

WATCH LOG

1700Z POSITION:

63° 14.451'S

61° 28.485'W

HDG: 335.2°

SPD: 4.9 KTS

1716Z GUN NOT FIRING AGAIN. ~ SCAN 431.

CRIMMONS WORKING ON THE PROBLEM. GLYCOL AGAIN?

1721Z GUN FIRING AGAIN ~ ^{SCAN} 455.

1732Z CHANGE SEISMIC MONITOR TO "SPREADING" (i.e., correcting for spherical divergence) gain from "LINEAR" gain.

1741Z GUN MISFIRE ON TWO CONSECUTIVE SWEEPS, THEN OK AGAIN.

1747Z ~ SCAN 58⁶ GUN MISFIRING AGAIN. CRIMMONS IS CHECKING. RECORDER BACK TO "LINEAR" GAIN.

1752Z SCAN 611 — GUN FIRE. APPARENTLY, GUN IS OPERATING 25-30 MINUTES CONSISTENTLY BEFORE FREEZE-UP. IS GLYCOL FLOWING CONSISTENTLY?

1800Z POSITION:

63° 10.049'S

61° 32.386'W

HDG: 336°

SPD: 4.8 KTS.

1806Z SCAN 679 — NO FIRE again.

1819Z SCAN 746 — computer in "pause" mode. Still no gun fire. Radio interference on seismic monitor again.

1825Z Reduce speed to 3.0 Kts. Replace existing glycol mixture w/ richer mixture.

R/V POLAR DUKE IV-87
WATCH LOG

039

1842Z SCAN 747 — START ACQUISITION AGAIN
GUN FIRING ON RICHER E. GLYCOL MIXTURE. INCREASE
SPEED TO 5.0 KTS.

1900Z POSITION:

LAT: $63^{\circ} 06.232'S$
LONG: $61^{\circ} 36.422'W$

HDG: 332.4°
SPD: 5.1 Kts.

Gun misfire again. ~ SCAN 837.

1909Z SCAN 881 — firing again. Recording throughout.

1950Z SMYTH ~~SAWYER~~ SAWYER ON WATCH

1953Z GUN STOPPED FIRING. PULLING IT OUT
OF THE WATER.
Slowing to 3 knots

2016Z SCAN 1101 Begin recording data
on the small HAMCO gun. Bolt gun
is on deck.
Bring speed up to 5 knots

2030Z $63^{\circ} 00.459'S$
 $61^{\circ} 41.861'W$

SPD 4.7
HDG 333

2034Z Bolt watergun moved to lower lab for
conversion to its airgun mode.

2100Z $62^{\circ} 58.397'S$
 $61^{\circ} 44.004'W$

SPD 4.5
HDG 331

2200Z POSITION: S $62^{\circ} 54.38$
W $61^{\circ} 48.72$

SPD 5.2
HDG. 331.7

R/V POLAR DUKE IV-87

040

WATCH LOG 4/20 - 4/21

2225Z Reducing gain on the seismic monitor from 90 to 40. Water is shallow and the reflections were not well separated.

2240Z Gain on seismic monitor to 30.

2300 POSITION: S $62^{\circ}50.84$ SPD. 4.2
W $61^{\circ}53.62$ HDG. 332.6

0000Z 4/21/87 Giltner / Jeffers on WATCH

POSITION: $62^{\circ}47.099' S$ HDG 329
 $61^{\circ}58.959' W$ SPD 4.9 kts

HAMCO gun firing fine; in H₂O since 0025Z 4/19/87

slowly increasing recorder gain as depth increases

0011Z Vince returned from deck check - everything O.K.

0027Z Pressure over 2000# - compresses ordinarily - bled to 1800# on dump valve on fantail - will keep an eye on pressure.

0035Z Note: summing streamer channels 1 & 2 - will add Channel #3 at ~1250m, channel #4 at 1750m, channel #5 at 2000m

0040Z - checked pressure again - down to 1700# very difficult to regulate. Adjusted valve, more or less stable @ 1900 - 1950#.

0050Z pressure 1850 - 1900#

0100Z $62^{\circ}42.768' S$ SPD. 3.3 kts
 $62^{\circ}03.861' W$ HDG. 331.9

0130Z paper beginning to redline on 12kHz - will replace soon.

WATCH LOG

0200Z SAIL loop O.K., 12 kHz tracker giving good values. Decreasing gain on seismic monitor as water depth shallows.

Also, decreased transmit power on 12 kHz until water deepens.

Position @ 0200 Z: (by GDR)

LAT. $62^{\circ} 38.421'S$ 4.7 kts
 LON. $62^{\circ} 08.244'W$ Hdg. 333°

81.2 mi to pt. 9 (our #8)

0202Z checked pressure: 1950#

0213Z 12 kHz off to change paper - very little change in depth while PDR off

0226Z 12 kHz back on.

0215Z seas getting rougher - Jan dropped in to say it's going to start blowing tomorrow - 50 kts from the NE.

0245Z pressure 1850#

0300Z $62^{\circ} 34.16'S$ 4.8 kts
 $62^{\circ} 13.27'W$ Hdg. 333

0305Z Vint check: O.K., all deck gear.

0310Z making things secure - anticipating storm.

0330Z Pressure check: 1950#

0400Z $62^{\circ} 29.591'S$ 5.2 kts
 $62^{\circ} 17.620'W$ Hdg. 334.9°

Austin and Dunbar on watch. Deck gear checked - OK. Rumor has it a storm w/ 50 mph winds is expected in our vicinity sometime today.

R/V POLAR DUKE
WATCH LOG

042

0500Z POSITION:

62° 25.198'S

Hdg: 337.2°

62° 22.307'W

SPD: 5.1 Kts

Add channel 3 to channels 1 + 2 for signal summing purposes.

0509Z Tows checked by Vince — OK.

0557Z E.O.T. 8

0600Z

POSITION: 62° 20.767'S
62° 26.274'W

Hdg: 341.1

SPD: 4.9

0612Z B.O.T. 9. Had trouble loading tape. 2-SEC. DELAY.

0648Z FIRING UP 2ND SEISMIC MONITOR @ 8 SEC. SWEEP. ACR. PROGRAM DOES NOT CRANK DELAY TO RECORDERS! RECORDERS ARE TRIGGERED BY GUN FIRE.

0700Z

62° 16.672'S

Hdg: 334.4°

62° 30.691'W

SPD: 5.2 Kts.

0702Z Add CHANNEL #4 TO STREAMER SUM.

0709Z NEED TO CHANGE BELTS ON SECOND MONITOR. JOHN DUNBAR OFF TO BED. TOWS CHECKED - OK. PRESSURE OK ON HAMCO.

0714Z 2ND MONITOR BACK IN OPERATION.

0730Z END RECORDING ON 4 SEC. SWEEP, 0 SEC. DELAY MONITOR.

0755 SMYTHE & SAWYER ON WATCH

0800Z 62 12.256

SPD 5.1

62 31.952

Hdg 342

0809 Vince making gear check — All OK

Watch Log

0903Z 62° 07. 811' S SPD 5.1
62° 35. 489' W HDG 331

0907Z Vince checking gear - All OK

0910Z We seem to have leveled out on the bottom of the trench.

0900Z 62° 03.545' S SPD 4.9
62° 38.282' W HDG 324

1007Z Vince checking gear - All OK

1100Z POSITION: S 61° 59.57 SPD. 5.3
W 62° 43.54 HDG. 315.7

1204Z Position
61° 55. 317' S
62 49. 149' W

1200Z restarted primary EPC seismic monitor, printing 4-8 sec
(4 sec sweep, print sweep = 2, sweeps/key = 2)

running 2 recorders simultaneously until record quality is visible.

1210Z Added streamer segment #5 to sum - attempting to get stronger return signal.

1215Z 4 sec record looking good - will stop recorder briefly to realign paper.

1217Z recorder back on.

21 APRIL, 1987

1226 Z increased power on 12 kHz output; switched from short to medium pulse. Switched receiver from slow AGC to manual receive mode.

1245 Z pressure O.K.

1300 Z B-sec sweep record going down for stylus belt change.

POSITION (by GPS)
 $61^{\circ} 51.091' S$
 $62^{\circ} 53.284' W$

1310 Z B-sec record back on, new belt burning in

results of belt change so good, I'll replace belt on 4-sec monitor next hour.

1341 Z stopped 4-sec monitor to change stylus belt

1347 Z back on line.

1350 Z retrieved more spare stylus belts from hold.

1400 Z POSITION (by GORT)

$61^{\circ} 46.770' S$ spd 5.2 kts
 $62^{\circ} 57.965' W$ hdg 337.2°

29.4 miles to end of line (should be there around 1830 Z)

1407 Z pressure high - 2100⁺ - bleeding (profusely)

1415 Z 1800 psi.

1425 Z 1800 psi.

1440 Z Weather check

b.p. 989 mm Hg, sunny, fair skies, gentle winds; clouds on horizons.
 temp. $0^{\circ} C$ seas moderate (~ 1 m)

1445 Z 1850 psi.

21 April 1987

1500Z 61° 41.78 HOG 327°
63° 01.91 SPD 5.5 kts.

1525Z HAMCO gun has now been in water for 63 hrs.

1530Z slowed chart speed on Hsec recorder

1544Z pressure 1850#

1602Z POSITION:

LAT: 61° 37.344'S HDG: 325.6°
63° 06.479'W SPD: 5.3 kts

Austin and Dunbar on watch. Both seismic monitors running - 0-8sec, 4-8sec. Weather excellent.

1710Z POSITION:

LAT: 61° 32.395'S HDG: 324.4°
LONG: 63° 12.555'W SPD: 5.1 kts.

* 1715Z ΔT OF .15 SEC. (APPROX.) BETWEEN 12KHZ TRAVEL TIME AND SEISMIC MONITORS W/ SEISMIC MONITORS EARLIER. PROBABLY SEEING DIFFERENTIAL BETWEEN TRIGGER PULSE TO RECORDERS/GUN AND ACTUAL GUN FIRE/PEAK PRESSURE. THERE IS ALSO THE COMPENSATING EFFECT OF NORMAL INCIDENCE (12KHZ) VS. (SLIGHTLY) NON-NORMAL INCIDENCE (SOURCE-STREAMER) TRAVEL PATHS ($\Delta T > 0$ FOR SEISMIC) AND THE FACT THE SOURCE/STREAMER ARE TOWING DEEPER THAN THE HULL-MOUNTED (12KHZ) TRANSDUCER ($\Delta T < 0$ FOR SEISMIC).

A TRAVEL PATH @ 3400 m water depth between normal incidence and 5-CHANNEL ARRAY is ~.008 sec. (@ water velocity) — causing a frequency notch @ Ca. 625 Hz (We are filtering at 35-120 Hz). This is the level of smearing that we should expect,

WATCH LOG

in deep water. (Of course, that "smearing" gets worse in shallow water, i.e. Brausfield Strait)

1753z Now scoping anti-aliased signal (going to tape) (on the scopes in the lab).

1800z POSITION:

LAT: $61^{\circ} 28.613' S$

Hdg: 332.6°

LONG: $63^{\circ} 16.282' W$

SPD: 5.4 Kts.

1805z Increasing rate of chart advance on 4-8 sec. seismic monitor (#1) in attempt to straighten scale lines. Radio interference again - a daily event.

1815z Still trying to calibrate scale lines on seismic monitor #1.

1900z POSITION:

LAT.: $61^{\circ} 24.110' S$

Hdg: 330.6°

LONG: $63^{\circ} 21.497' W$

SPD: 5.3 Kts.

1903z END LINE 4. START SLOW TURN TO STARBOARD
TO LINE UP ON LINE 5. E.O.T. 9.

1920z PROBLEM WITH GUN FIRE. WE WERE MANUALLY TRIGGERING IN THE LAB DURING CHANGE TO TAPE 10.

1924z GUN BACK IN OPERATION - PROBABLY FROZE UP DURING TAPE CHANGE.

1930z $61^{\circ} 23.410' S$
 $63^{\circ} 18.804' W$

TURNING ONTO LINE 5 - c/c
"PAUSE" MODE
SPEED: 4.9 Kts.

WATCH LOG

1940Z START OF DIGITAL ACQUISITION, LINE 5 (TAPE 10)

209.6° - S/C

POSITION: 61° 24.655' S
63° 19.224' W

5.4 Kts

1955 Smythe & Sawyer on watch

2000Z 61° 26.202' S SPD 5.1
63° 21.186' W HDG 2092100Z 61 31.026 SPD 4.8
63 26.173 HDG 2092102Z John^{Hutchinson} increased air pressure from 1600 psi2105Z whale following ship - gradually passing
on starboard side.

2120Z whale immediately aft of watergun.

2128Z whale still following ship \approx 20 yds back
No noticeable affect on geophysical gear2200 POSITION: S 61° 35.89 SPD 4.2
W 63° 30.90 HDG 217.42300Z 61° 39.811' S SPD: 4.8 Kts
63° 35.679' W HDG: 219°0000Z 22 APRIL 1987 JEFFERS/GILTNER ON WATCH
POSITION

61 44.269 S 5.4 kts

63 41.605 W 218 HDG

0003Z : 8 sec reorder down 3 min for left drive pulley zdj

WATCH LOG

0025Z - 72 hrs. in water for HAMCO gun
 0036Z - Pressure low (~1600 psi) - looking for John H. or Bob.
 0041Z - unseize valve - pressure returning to normal.

0102Z 61° 48.84 HDG 217
 63° 46.97 SPD 5.1

0100Z - gun stopped firing - bled off pressure, repressurized, resumed firing.

0200Z - POSITION (changed GPS - GORT on the hr.)
 61 53.116 S 5.4 kts
 63 52.525 W HDG 214.4

WEATHER

-4°C Wind 15.1 SSW B.P. 1001 R

VINCE'S DECK CHECK O.K.

MAGGIE, 12 KHZ O.K.

GUN STILL FIRING, PRESSURE SLIGHTLY LOW (1600-1700#) -
 PROBLEM WITH DUMP VALVE - WON'T CLOSE COMPLETELY.

→ RELOAD STILL O.K. - PENETRATING TO OCEANIC BASEMENT

→ 2ND ENGR. MAY REPLACE VALVE WHEN SYSTEM IS SHUT DOWN
 NEXT

→ ALSO, SUSPECT OUR AIR DEMAND MAY BE HIGHER (LEAKAGE
 AT HOSE FITTINGS ON GUN)

0230Z - PRESSURE RECOVERED TO 1900 PSI - P.F.M.

BOB WORKED ON VALVE; GOT IT TO CLOSE COMPLETELY

0250Z - VINCE'S DECK CHECK - O.K. PRESSURE ~2000#

0300Z POSITION
 61 57.898 S 5.4 kts
 63 57.456 W HDG 216.1

SAIL LOOP A-OK.

WATCH LOG

0335Z WEATHER (WHERE'S THE STORM):

BAROMETER 1002, RISING

TEMP 0° C

WINDS ARE LIGHT; INTERMITTENT FLURRIES.

0400Z AUSTIN AND "WEATHER" DUNBAR ON WATCH.

POSITION: LAT: 62° 02.338'S
LONG: 64° 03.379

HDG: 212.6°
SPD: 5.4 kts.

0413Z VINCE CHECKED DECK - OK, BUT GUN PRESSURE
@ 1550 PSI. Pressure increased.

0501Z 62° 06.584'S
POSITION: 64° 08.984' W

HDG: 212.9°
SPD: 5.2

0516Z VINCE CHECKED GEAR - OK. GUN FIRING @
JUST UNDER 2,000 PSI.

0600Z POSITION:

LAT: 62° 10.935'S
LONG: 64° 14.738' W

HDG: 209.1°
SPD: 5.0 kts.

0603Z TOWS CHECKED - OK. PRESSURE JUST UNDER 2,000 PSI.

0630Z CHANGE SEISMIC MONITOR FROM 4-8 TO 0-4
SEC TO ACCOMMODATE HERO FZ TRACE.

0653Z CHANGE MONITOR BACK TO 4-8 SEC.

0700Z POSITION

LAT: 62° 15.099'S
LONG: 64° 20.063' W

HDG: 211.2°
SPD: 5.2 kts.

0706Z DECK GEAR/TOWS CHECKED — OK.

WATCH LOG

0740Z COMPRESSORS BLEEDING EXCESS PRESSURE -
NO GUN FIRE FOR SEVERAL MINUTES.

0757Z Sawyer & Smythe on watch

0800Z	62°	19.437'S	SPD	5.0
	64°	24.084'W	HDG	207

0807Z Vince checking gear - All OK

0834 Switching EPC to 0-4 sec from 4-8 sec
Ocean crust is shallowing.

0859 Tape 10 ends

→	62°	23.824	SPD	5.0
0900	64°	28.729	HDG	206

0922 CHANGING TAPE DRIVES. (UNABLE TO LOAD
TAPE.)

0926 RESTART - TAPE 11

0932 changing ~~scan~~ sweep on EPC back to 4-8 sec

0943 Maggie paper changed.

0945 The second tape drive (the lower one) seems to be working fine. The upper one appears to have a mechanical problem. 3 white plastic pieces are sticking up from the spindle. It appears that they should retract when the tape is "unloaded", but they do not. This makes it difficult or impossible to seat the tape reel on the spindle.

Watch Log

1000Z 62° 28.271' S SPD 5.4
64° 33.771' W HDG 207

1009Z Vince checking gear - All OK, Pressure 1700 psi

1100Z POSITION:
S 62° 32.79 SPD. 5.3
W 64° 39.24 HDG. 206.2

1105Z Vince checking gear - All OK

1200Z GILTNER / JEFFERS ON WATCH

62° 37.33 HDG 208
64° 44.83 SPD 5.4

1220Z JOHN H. REPORTED THAT COMPRESSOR IS OVERLOADING. WILL CHECK PRESSURE FREQUENTLY UNTIL STABLE

1230Z BOB C. CHECKING AIR DELIVERY.

1300Z POSITION (GPS)
62 42.205 S 5.5 kb
64 50.522 W HDG. 209

1337Z Scan 1245
TAPE UNLOADED ITSELF
NEW TAPE (#12) started @ 1340Z

1330Z NOTIFIED BOB C. THAT WE WILL DEPLOY BOLT 125m² AIRGUN IN APPROXIMATELY 1 HR. NEED TO CONNECT HOSE, SOLENOID, TOWING LINE.

1400Z 62° 47.17 HDG 210 62° 50.45
64° 56.35 SPD 5.6 65° 00.22

1438Z STOP RECORDING LINE 5 - Scan 1542 tape 12
BEGIN MAKING TURN FOR LINE 6.

WATCH LOG

1500 Z BEGIN FIRING AIR GUN

62° 51.48

HDG 120

64° 59.31

SPD 2.6

1507 Z BEGIN RECORDING LINE 6 → est. 62° 51.64
64° 58.451512 Z 62° 51.81 HDG 113
64° 57.58 SPD 5.71526 Z Changed scale on 4 sec seismic monitor
(record running off top of scale)
Current scale set using 2 sec sweep + "UNCAL" variable knob
to generate ~ 3 sec sweep. Now printing 3-6 sec.1540-1550 Z - playing with variable sweep to playback recorder to 3 sec
sweep. Approximate position of variable knob marked.

1600 Z AUSTIN AND DUNBAR ON WATCH.

POSITION: LAT. 62° 53.890'S
LONG. 64° 48.220'WHDG: 109.1°
SPD: 5.5 KTS1620 Z CRIMMONS SAYS BOLT AIR GUN IS OPERATING
② CLOSE TO 2,000 PSI. GUN WORKING PERFECTLY.1700 Z POSITION: LAT: 62° 55.584'S
LONG: 64° 37.522'WHDG: 108.7°
SPD: 4.9 KTS1800 Z POSITION: LAT: 62° 58.676'S
LONG: 64° 26.270'WHDG: 119.2°
SPD: 6.2 KTS.WINDS NOW GUSTING OUT OF THE NE ② MORE THAN
40 KTS. 12 KHZ RECORD SUFFERING. SEISMIC MONITOR
ON 3-6 SEC. SWEEP HAS "RED-LINED" (PAPER).
1804 Z DAILY RADIO INTERFERENCE.

WATCH LOG

1900Z

POSITION: LAT: 63° 01.084'S

HDG: 114.6°

LONG: 64° 18.289' W

SPD: 4.4 Kts

WINDS GUSTING OVER 40 KTS. 12 KHZ RECORD
 VIRTUALLY UNREADABLE.

1941Z CHANGE 4 SEC. SEISMIC MONITOR TO
 0-4 SEC. SWEEP.

1952Z E.O.T. 12 CHANGE DELAY TO 0.0 SEC.

1955Z B.O.T. 13 STILL LINE 6.

2000Z 63° 04.852'S SPD 4.5
 64° 08.068' W HDG 108

2010Z 12 KHz record readable again.

2100Z 63 06.241'S SPD 4.7
 63 58.130' W HDG 111

2115Z weather - gusts to 45 knots Temp -1°C

2118 John Hutchinson reported that the Bolt air hose
 was slipping a little. After dinner we will
 secure it better and probably pull the
 Harco gun out of the water. John will check
 the latter with Jamie.

2200 POSITION: S 63° 10.12 SPD. 3.6
 W 63° 48.24 HDG. 97.4

WATCH LOG

2219 - SLOWING DOWN TO 3 KTS TO PULL IN
HAMCO GUN

2246 Hamco Gun recovered - Bring speed back
to 5 knots.

2300 63° 11.695'S SPD 5.0
 63° 41.059'W HDG 098

2306 Scan 958 - TAKING OUT CHANNELS ~~4, 5~~
3, 4, & 5. NOW SUMMING CHANNELS
1 & 2 ONLY

0000 Z 63° 13.30 HDG 096
 63° 30.85 SPD 4.0
23 APRIL

0010 Z Vince's deck check O.K.
Pressure very low (1200 psi) → bringing it up to 1800-2000.

0020 Z WEATHER CHECK
B.P. 1006 R
T -1°C

WIND 30-50 kts, gusty NNE
SHIP IS PITCHING + ROLLING, LOTS OF PROP WASH - DOESN'T
APPEAR TO BE AFFECTING SEISMIC DATA TOO MUCH.

JOHN G. TO BRIDGE TO GET WEATHER FAX + TEST GUTS

0030 Z (CHECKED) SAIL LOOP: O.K.
RECORDING AVG. WIND SPEED 45 kts for last sampling interval!

0040 Z STILL PAPER LEFT ON SEISMIC MONITOR - WILL TRY TO MAKE IT TO
LINE CHANGE (APPROX. 2 HRS)

0050 Z SUSPENDING DECK CHECKS BY REQUEST OF BRIDGE WILL CONTINUE
VISUAL CHECKS FROM INSIDE.

WATCH LOG

0100Z POSITION (GPS)
 63°15.754 S 4.6 kts
 63°20.116 W HDG 115

8.7 mi to pt. 10, end of line; ETA 0300Z, 2300 LT

0200Z POSITION (GDR)
 63°19.094 3.9 kts
 63°09.601 114 HDG

2.9 mi to E.O.L., will turn directly to new line

0234Z STOP RECORDING LINE 6 scan = 1995
 63° 20.56' S BEGIN MAKING TURN
 63° 04.13' W FOR LINE 7 (HDG ≈ 060)

0243Z 63° 20.403' S B.O.L. 7 scan = 1996, Tape 13.
 63° 03.003' W

0300Z 63° 19.816' S HDG: 059°
 63° 00.799' W SPD: 4.5 kts

GEAR LOOKS O.K. FROM HERE GUN TOWING CLOSER ASTERN - INBOARD ON NEW COURSE.

0330Z PASSING WILLIAMS ROCK. (ED)

BAROMETER STILL RISING! (1009)
 SUSTAINED WINDS - UPPER 40s, GUSTS OVER 60!

0335Z SWITCHED 12KHz to "LONG" TRANSMIT MODE

WATCH LOG

0400Z AUSTIN AND DUNBAR ON WATCH.

LAT: $63^{\circ} 19.118' S$

Hdg: 067.9°

LONG: $62^{\circ} 52.797' W$

SPD: 3.7 Kts

WINDS STILL STRONG FROM THE NE, BUT DECREASING SLIGHTLY.

0500Z POSITION:

LAT: $63^{\circ} 17.110' S$

Hdg: 053°

LONG: $62^{\circ} 43.797' W$

SPD: 4.6 Kts.

0506Z CHECKED TOWS VISUALLY FROM THE LAB - THEY APPEAR OK. WINDS DOWN TO 20-30 KTS.

0600Z POSITION:

LAT: $63^{\circ} 13.983' S$

Hdg: 56.4°

LONG: $62^{\circ} 34.4816' W$

SPD: 5.7 Kts

0559Z Spontaneous rewind, Tape 13.

0609Z B.D.T. 14. We will try to use this tape until the end of this survey.

0630Z Gun firing @ ~1850 psi. Tows look OK.

0700Z POSITION:

LAT: $63^{\circ} 12.196' S$

Hdg: 53.1°

LONG: $62^{\circ} 28.770' W$

SPD: 4.4 Kts

WATCH LOG

0755Z Sny the & Sawyer on Watch

0800Z 63° 09.881' S SPD 3.5
62° 22.526' W HDG 053

0900Z POSITION: S 63° 07.80 SPD 3.4
W 62° 14.61 HDG 072.2

1000Z POSITION: S 63° 06.10 SPD 4.2
W 62° 06.54 HDG 085.7

1100Z POSITION: S 63° 04.20 SPD 3.3
W 61° 58.26 HDG 065.6

1200Z Giltner/ S 63° 01.767 SPD 5.4
Jeffers W 61° 49.010 HDG 068
on watch → asleep at the wheel

1244Z STOP RECORDING LINE 7 Scan 2376

62° 59.981 CIRCLE AROUND &
61° 41.242 COME ON LINE
JUST NORTH OF pt. (12)

1303Z 62° 58.409 HDG 314
61° 41.642 SPD 5.0

1313Z STOP FIRING BOLT GUN,
DEPLOY HAMCO1326Z BOB PLAYING WITH EG SYSTEM. SWITCHED GUN TO
6 SEL REP RATE ON LONG TRIGGER.1349Z Refilled glycol tank,
attempt to refire gun (Hamco)

1356Z Gun has started firing

WATCH LOG

1400Z 62° 59.752
61° 49.106

HOG 249
SPD 5.1

1400Z IN TRANSIT TOWARD PT. (12) FOR LINE 8
HAMCO GUN IN WATER & FIRING SPD 6.2 ↑

1414Z GUN HAS STOPPED FIRING
CALL CRIMMINS TO CHECK PRESSURE/GLYCOL

1427Z BACK IN BUSINESS
REDUCE REP RATE TO 120 sec.
A few misfires during pressure adjustment

1445Z still firing sporadically

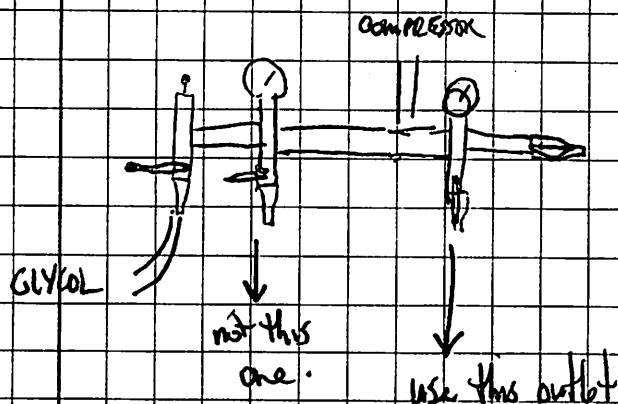
1447Z Bob C. thinks it's fixed - glycol bottle was losing its prime.

1500Z 63° 02.785
62° 01.610

HOG 234
SPD 6.9

Gun firing, hopefully reliably (?)

1505Z MOVED HAMCO AIR SUPPLY HOSE TO CENTER OUTLET TO
ENHANCE GLYCOL FEED.



WATCH LOG

1517Z

63° 04' . 485' S
62 00 . 173' WB.O.L. 8

Sczn 2377, Tape 14.

4.2 kts HDG 134.2°

1533Z a few misfires

1542Z gun not firing — Bob working on it.

1550Z firing continuously again

1600Z AUSTIN AND DUNBAR ON WATCH. GUN NOT FIRING.

1602Z Position:

LAT: 63° 07.667' S

HDG: 138.6°

LONG: 61° 53.071' W

SPD: 5.5 kts

1607Z "PAUSE" MODE, SEISMIC ACQUISITION SYSTEM —
GUN OUT OF GLYCOL.

1616Z Restart acquisition. Gun firing.

1621Z Back in "pause" mode — no gun fire

1626Z Reduce speed to 3 kts — still no
gun fire.

1628Z Back to 5 kts — gun firing.

1630Z Restart digital acquisition.

1642Z Gun fire still intermittent.

1700Z Position:

LAT: 63° 12.659' S

HDG: 137.2°

61° 43.962' W

SPD: 5.3 kts

WIND SPEEDS APPROX. 40 KTS.

R/V POLAR DUKE

WATCH LOG

060

1705Z Ask bridge to slow down slightly.

1800Z POSITION: LAT: $63^{\circ} 17.068'$ HDG: 122.1°
LONG: $61^{\circ} 37.835'$ SPD: 3.9 kts.

1805Z Daily radio interference.

1840Z Request bridge to speed up slightly.

1900Z POSITION:

LAT: $63^{\circ} 19.726' S$ HDG: 118.4°
LONG: $61^{\circ} 29.043' W$ SPD: 4.0 kts

1938Z No gun fire — compressor problem.

1942Z Gun firing again. End of Line 8 / this survey
slightly after 2000Z.

2000Z SMYTH & SAWYER ON WATCH

POSITION: S $63^{\circ} 24.08'$ SPD 5.8 kts
W $61^{\circ} 20.25'$ HDG 138.1°

2005 S $63^{\circ} 24.44'$ END OF TAPE 14
W $61^{\circ} 19.41'$ END OF LINE 8

2020 GUN ON DECK, STREAMER COMING IN

2050 STREAMER OUT OF THE WATER

2100 POSITION: S $63^{\circ} 29.07'$ SPD 11.2 kts
W $61^{\circ} 18.03'$ HDG 195.6°

WATCH LOG

2200 POSITION: S $63^{\circ} 40.16$ SPD 11.8
W $61^{\circ} 27.15$ HDG 192

2206 Sawyer on Watch

2300Z Position: $63^{\circ} 51.395'S$ SPD 11.9
 $61^{\circ} 36.401'W$ HDG 199

24 April (Fri.)

~~2400Z~~ Position: $64^{\circ} 02.401'S$ SPD 11.0
0000Z $61^{\circ} 46.001'W$ HDG 197°

GILTNER ON WATCH

transiting Croker Passage - east of Brabant Island

0100Z $64^{\circ} 13.067'S$ HDG 196
 $61^{\circ} 53.214'W$ SPD 11.0
still cruising...

0200Z $64^{\circ} 22.807'S$ HDG: 219°
 $62^{\circ} 07.224'W$ SPD: 11.4 Kts

0205Z JEFFERS ON WATCH.

0300Z Position,
 $64^{\circ} 30.497'S$ SPD 10.7 Kts
 $62^{\circ} 21.709'W$ HDG 218.1°

0400Z Dunker on Watch

Lat S $64 35.163$ HDG = 242.2
W $62 41.368$ SPD = 9.0

The Plan now is to pull the mag at 0600Z.

0405Z - The Mate "Paul" has decided the mag needs to come in in 15-20 min.

WATCH LOG

Vince is starting the tug Wench now to allow as much time for it to warm as possible.

0418Z May. turned off beginning Retrieval

0430Z May. in, Depth recording off

Stopped sail-loop

Lab shut down.

To date we have collected 186 hrs (Ales) of
Sail loop data and have 18.4 Mgs of Room left on
the Berwick.

1140Z ARRIVAL, PALMER STATION. ALL GEAR SECURE.

4/25/87

Transit to Faraday today; dumping trash from Palmer Sh.

1330Z on dump site

64 54.081 S

63 44.102 W

1800Z ANCHOR OFF FARADAY.

APRIL 26

- 0300Z (APPROX.) - DEPART FARADAY.

1140Z ARRIVE BACK @ PALMER TO DISCHARGE
STATION PERSONNEL AFTER VISIT TO FARADAY

1220Z LEAVE PALMER STATION ENROUTE TO
DEPLOYMENT POINT.

WATCH LOG

1317Z E.O. TEST TAPE @ 4522 scans,
approximately 12.5 hrs.
- 8 sec. records, 0 sec. delay, 10 sec.
rep. rate; 4ms sampling rate.

2051Z Gun moved on deck and rigged. Ready
for deployment at about 2200Z.

2212Z Beginning deployment of Streamer,
Hanco watergun and Maggie at
Waypoint (14) which is BOB 9

2230Z Streamer in water - On 100m of leader.

2240Z Gun firing - Maggie in

2244Z Asked bridge to bring speed to 5 knots

~~2249Z~~ ~~2249Z~~

2249Z BEGIN LINE #9 TAPE #15
S 63° 39.24 HDG 53.1
W 62° 05.20 SPD 5.6

SCAN 3 IS 1st SHOT ON LINE
WATER DEPTH 283 m

2258Z Maggie not plugged in - Hutchinson fixing.

2300Z 63° 38.524'S SPD 5.1 Kts
62° 03.662'W HDG: 041°

Maggie working now

WATCH LOG

2310Z Gun not firing

2311:30Z Gun fired and continued to fire 3-4 times then stopped

2318Z GUN FIRED AND CONTINUES TO FIRE

~~24000000Z~~~~POSITION:~~

0000Z 26 APRIL 1987

POSITION: (GPS on @ 0000Z)

63 35.231' S

5.3 kts

61 52.571' W

Course: 050

0003Z initialized SAIL loop (wasn't on line - why not?)

0008Z: added streamer section #3 to sum.

0010Z: Vince returned from deck - everything O.k.

0025Z ETA's for today's turning pts:

pt. 15	0400Z	(12:00 am)
pt. 16	~0800Z	(4:30 am)
pt. 17	1130Z	(7:30 am)
pt. 18	1730Z	(1:30 pm)
pt. 19	1900Z	(3:00 pm)
pt. 20	0100Z	(9:00 pm)

~~00~~

0100Z	63° 30.973' S	HOG	053°
	61° 44.945' W	SPD	5.2 kts.

0150Z GUN QUIT FIRING

0200Z	63° 27.582' S	HOG	055
	61° 34.022' W	SPD	4.5

0203Z SLOW DOWN TO 2.5 KNOTS UNTIL GUN FIRES

R/V POLAR DUKE

065

WATCH LOG

0227Z PAUSE DIGITAL ACQUIS. AT SCAN ~~1704~~ 1094 UNTIL GUN BEGINS FIRING AGAIN.

0232Z STILL CANT GET GUN TO FIRE, TRY PUTTING IN BOLT AIR GUN.

0259Z BOLT FIRING AWAY

0300Z 63° 25.550'S HDG 060°
61° 30.163'W SPD 2.2 Kts

0303Z BRING SPEED UP TO 5 KNTS AND RESTART DIGITAL ACQUIS AT SCAN 1095.

0348Z E.O.T. 15
E.O.L. 9 Continue recording in analog 3/c
mode. Transit to beginning of line 10. 7 knots.

0357Z Change Bolt gun fire to 6 sec — analog recording only.

0400Z Austin and Dunbar on watch.

POSITION: LAT: 63° 22.357' S HDG: 013.4°
LONG: 61° 21.177' W SPD: 7.2 Kts

0420Z Getting ready to put 2nd HAMCO gun in the water.

0432Z End recording Bolt gun — putting second HAMCO gun in.

0448Z c/s 2Kts. Gun going in —

0456Z Gun firing. Still analog recording.

0500Z POSITION: 63° 16.324'S HDG: 013.6°
61° 18.240'W SPD: 2.3 Kts

0505Z 3/c 7 Kts. Continuing transit

WATCH LOG

0515Z NEW STATUS BELT ON SEISMIC MONITOR #2
(0-DELAY, 4-OR 8-SEC SWEEP MACHINE)

0600Z

POSITION: LAT.: $63^{\circ} 10.058'S$

Hdg: 013.7°

LONG.: $61^{\circ} 15.902' W$

SPD: 7.3 Kts.

0641Z VINCE CHECKED DECK TOWS - OK
WATER GUN FIRING @ 1850 PSI.

0700Z

POSITION:

LAT.: $63^{\circ} 03.505'S$

Hdg: 09.9°

LONG.: $61^{\circ} 12.179' W$

SPD: 7.1 Kts.

0751Z SMYTHE & SAWYER ON WATCH

0800Z

$62^{\circ} 56.185'S$

SPD 6.9 Kts

$61^{\circ} 09.185' W$

Hdg 009 $^{\circ}$

Now 4.2 miles from waypoint 16 - (B.O.L. 10)

0833Z Reduce speed to 5 knots

0837Z Start of Line 10

$62^{\circ} 52.146'S$

SPD 5.2 Kts

$61^{\circ} 06.553' W$

Hdg 053 $^{\circ}$

Water Depth 278m

Summing Channels 1 & 2 only

Vince adjusted airflow for rep. rate change
to 12sec from 6sec.

Watch Log

0900Z

62° 51.169'S
61° 02.699'WSPD 5.1 Kts°
HDG 062°

1000Z

62° 48.757'S
60° 52.475'WSPD 5.0 Kts
HDG 067°

1067Z VINCE CHECKING GEAR ON DECK

1009Z VINCE BACK IN. GUN NOT FIRING

1012Z GUN FIRING. VINCE CLEARED OUT GLYCOL LINE

1030Z Gun not firing

1046Z Gun firing again

1050Z Not firing again

1055Z FIRING INTERMITTENTLY

1100Z POSITION: S 62° 46.38'S
W 60° 42.93'WSPD. 5.1 Kts
HDG. 069°

ASLOWING DOWN TO 4 KTS WHILE
DALE & VINCE WORK ON GUN (TRYING TO REDUCE
~~THE~~ THE EXTENT OF LOST COVERAGE)

1106Z GUN FIRING INTERMITTENTLY. SPD. 3.2 KTS.
BOB CRIMMONS WORKING ON GUN.1111Z REFILLING GLYCOL TANK. GUN PROBLEMS
WERE DUE TO EMPTY GLYCOL TANK.
SPD. 3.4. ~~7.1 KTS~~1120Z GUN FIRING AGAIN. BRINGING SHIP
BACK UP TO SPEED.

1124Z SPD. 5.4 KTS. GUN STILL FIRING.

WATCH LOG

1133Z Speed at 6.4 knots - we asked Bridge to reduce it to 5 knots

1136Z SPD 5 KTS.

1149Z BEGINNING TURN ONTO LINE 11

1151Z END OF LINE 10 970
BEGINNING OF LINE 11 971

POSITION: S $62^{\circ} 44.69'$
W $60^{\circ} 35.40'$

DALE ON DECK WATCHING GEAR AS WE TURN. EVERYTHING OK

1156Z TURN COMPLETE

1200Z $62^{\circ} 45.066'S$ HDG 156°
 $60^{\circ} 34.380'W$ SPD 5.1 KTS.

JEFFERS & GILTNER TO THE RESCUE.

12 kHz paper redlining.

1300Z: POSITION (GPS)

$62^{\circ} 49.757'S$ SPD. 4.9 kts
 $60^{\circ} 28.936'W$ HDG. 157°

1322Z: 12 kHz recorder off for stylus belt - paper change

1331Z: 12 kHz back on

NOTE: we missed a prominent high feature, crossed at approx. 1328Z, 205m.

1350Z: crossed another high: huge mag high, too.

1400 Z POSITION (GDRT)

62° 54.357' S SPEED 5.0 kts
60° 24.771' W HEADING 157.4 for 153.1

19.8 mi. from E.O.L 11

12 kHz record looking much sharper now

Primary seismic monitor looking O.K. - will change stylus belt during transit tonight

Secondary seismic monitor looking fuzzy - needs stylus belt very soon
Maggie doing well - lots of action around Deception Island
Sail loop fine

Weather:

Temp. 0°C

Bar. 978, level

breezy, seas a little choppy

skies clearing; nice view of Deception + Livingston

Deck check:

All taws look good

Air pressure ~1850 p.s.i.

1412 Z: ~~PR~~ Secondary seismic monitor off to reshape stylus

1414 Z: secondary monitor back on.

1420Z 12 kHz having trouble on steep slope — switched to medium transmit mode, increased transmit power

1458Z Gun has stopped firing

1500Z 62° 58.072' S HDG 156°
 60° 19.639' W SPD 5.0 Kts

1502 Z Gun ~~was~~ firing again

WATCH LOG

1510Z GUN STOPPED
1525Z RESTARTED

1528Z DEVIATION IN TRACK TO CLEAR ICE
Trace ≈ 2073 (SCAN)

LAT. $63^{\circ} 00.735'S$ HDG 186°
LONG. $60^{\circ} 17.322'W$ SPD 4.9 Kts

1540Z A FEW MISFIRES - CONTINUING GLYCOL PROBLEMS WITH
HAMCO

1555Z AUSTIN AND DUNBAR ON WATCH.

1600Z Position:

LAT: $63^{\circ} 02.775'S$ HDG: 207.4°
LONG: $60^{\circ} 17.783'W$ SPD: 5.4 Kts

Running along the edge of pack ice.

1624Z SEAS 6-8' Streamer getting noisy. Will increase
length of leader when we transit to start of offshore
grid. Speed down to 4.0 Kts. 9/54 Kts.

1640Z Varying chart speed on secondary seismic monitor in
attempt to clarify record. Speed back up close to 5 Kts.

1700Z Position:

LAT: $63^{\circ} 06.877'S$ HDG: 209.1°
LONG: $60^{\circ} 23.268'W$ SPD: 4.7 Kts

17:45 Bridge swinging line back towards North
and cone 13 to avoid increasing ICE PACK.

R/V POLAR DURE

071

WATCH LOG

1745Z current Position S $63^{\circ} 10.375'$ E.O.L. 11
 W $60^{\circ} 25.350'$

SPEED: 3.3 Kts HDG = 252.4°
 Running through patches of Pack — TURNING
 TO GET ON LINE 13 — WHICH WILL NOW BE
 LINE 12.

1800Z Position: Still turning to LINE 12 (NEW).

LAT: $63^{\circ} 10.277'S$ HDG: 272.6°
 LONG: $60^{\circ} 27.412'W$ SPD: 3.5 Kts.

1821Z STEADY ON COURSE, LINE 12 — SCAN 2921 SPEED: 5 Kts

1900Z Position:

LAT: $63^{\circ} 08.376'S$ HDG: 309.1°
 LONG: $60^{\circ} 35.370'W$ SPD: 4.1 Kts

WINDS STRONG OFF THE PORT BOW. WAVES 8-12'

2000Z Smythe & Sawyer on watch

$63^{\circ} 03.084$ SPD 3.4
 $60^{\circ} 42.372$ HDG 308

2104 GUN NOT FIRING. VINCE & JOHN HUTCHINSON
 WORKING ON IT. BOB CRIMMINS COMING.

2105 POSITION: S $62^{\circ} 58.70$ SPD. 3.9
 W $60^{\circ} 52.53$ HDG 295.4

2110 GUN FIRING AGAIN

2111 MISFIRE — FIRING WEAKLY

2121 STILL FIRING

WATCH LOG

2130 GUN NOT FIRING

2142 GUN FIRED. CRIMMINS HAS BEEN WORKING ON IT

2200Z	62° 55.392	SPD 6.0
	61° 00.254	HDG 315

2203Z Requested bridge to reduce speed to 5 knots.

2205Z Gun Failed

2212Z Gun firing again

2240Z	END OF LINE 12	SCAN = 4215
Position:	62° 51.802	SPD 5.2
	61° 06.493	HDG 314

2243Z Requested bridge to proceed to next waypoint. Switched guns to trigger each 6 sec on internal trigger.

2252Z DALE ON DECK WORKING W/ GUN
JAMIE COMING BACK IN 10 MIN. TO LENGTHEN
STREAMER

2300Z	POSITION: S 62° 50.64'	SPD 4.3
	W 61° 09.05'	HDG 235

JAMIE DISCONNECTING STREAMER TO ADJUST
LENGTH

IN TRANSIT TO WAY POINT 21 AND BOL 13.

2332 SLOWING TO BKTS. TO DEPLOY BOLT GUN.

2344 BOLT GUN DEPLOYED & FIRING. STREAMER
RECONNECTED.

POLAR DUKE IV - 1987
WATCH LOG

073

0000Z 28 April 62° 53.175 HDG 224
61° 17.472 SPD 3.1

GILTNER/JEFFERS TO THE RESCUE

Bolt gun in water + firing, pull Hamco,
+ increase speed for transit to pt. (21).
In shallow water ~100m, analog record not
very good.

0009Z Change to 12 sec fire interval

0100Z Position (GPS)

62° 55.111 S 5.7 kb
61° 28.609 W spd

Hdg. 261.4

Maggie ok

12 kHz record is spotty, depends on pitch + roll

SAIL LOOP working

Air pressure a little low - closed valve slightly

0145Z Pressure OK.

0200Z Position (GDRF)

62° 55.797 S HDG. 291.4°
61° 42.622 W SPD. 7.0 Kts

1.4 mi. to B.O.L. 13.

0209Z 62° 55.255 S HDG: 303°
61° 44.669 W SPD: 5.0 Kts

Begin digital record of line 13 - scan 2

0300Z 62° 53.112 S SPD 4.6 S.O.S.
61° 52.469 W HDG 304

WATCH LOG

0400Z POSITION:LAT: $62^{\circ} 50.626' S$
LONG: $62^{\circ} 00.071' W$ HDG: 303.2°
SPD: 5.1 KtsAUSTIN AND DUNBAR ON WATCH. LINE 13.
Bolt AR GUN FIRING, SUMMING CHANNELS 1+2.0500Z POSITION: LAT.: $62^{\circ} 48.389' S$
LONG.: $62^{\circ} 07.635' W$ HDG: 300.6°
SPD: 4.5 Kts

0530Z VINCE CHECKED TOWS - OK. GUN PRESSURE @ 1800 PSI.

0600Z POSITION:LAT.: $62^{\circ} 46.170' S$
LONG.: $62^{\circ} 14.350' W$ HDG: 306.9°
SPD: 4.5 Kts.

0640Z VINCE CHECKED TOWS - OK. GUN FIRING @ 1800 PSI.

0700Z POSITION:LAT.: $62^{\circ} 43.218' S$
LONG.: $62^{\circ} 22.228' W$ HDG: 306.2°
SPD: 4.9 Kts.

0750Z TOWS CHECKED - OK. GUN PRESSURE @ 1800 PSI.

0755Z Smythe & Sanger on watch

0800Z

 $62^{\circ} 40.099' S$
 $62^{\circ} 28.215' W$ SPD: 4.4 Kts
HDG: 297°

WATCH LOG

0900Z 62° 37.859'S SPD: 3.5 Kts.
62° 35.695'W HDG 288°

1000Z 62° 35.725'S SPD 4.5 Kts
62° 44.325'W HDG 288°

1100Z 62° 33.512'S SPD 3.4 Kts
62° 53.203'W HDG 298°

Gun stopped at about 1058Z

FIRING AT 1107Z

1113Z Asked bridge to increase speed to 5 knots

1115Z Guns stopped again

1119Z Firing again

1120 Channel 3 added to scan at scan 2756

1130 GUN PROBLEMS. DALE WORKING ON DECK
TRYING TO KEEP THE GUN FIRING.

1145 WE'RE BEING FOLLOWED BY A WHALE!

1158Z JEFFERS ON WATCH

1200Z POSITION

62° 30.376'S

SPD 5.0 Kts

63° 03.241'W

HDG 303°

1203Z CHANGED primary sens. manbr to 3-6 sec surge

1205Z GUN STOPPED - changing glycol

1220Z new glycol - gun firing

WATCH LOG

1224Z Secondary seismic monitor off for belt change

1231Z Secondary monitor back on, 4-8 sec. sweep

1300Z POSITION (GPS)

62° 26.915' S

63° 12.178' W

Speed 5.0 Kts. Hdg. 300.9

S.O.G. 4.8 C.O.G. 327.3

1323Z changed scale on primary monitor to 4-8 sec.

Added sections 4 & 5 to streamer sum output

1400Z POSITION (GDRT)

62° 24.303' S

63° 20.785' W

HOG 303°

SPD 5.0 Kts

Gun firing O.K.

1500Z POSITION (GDRT)

62° 21.848' S

63° 20.627' W

Speed 4.0 kts

Hdg 298.7

15.1 mi to E.O.L.

Maggie O.K.

SAIR loop O.K.

12 kHz breaking up in rough seas

Gun firing O.K. - no mistakes last 1/2 hr.

WATCH LOG

1535Z Gun still O.K. - pressure a little low (1650-1750 psi), but
This seems to maintain glycol flow better.

ETA'S TO WAY PTS. ± 30 min, ~~1000~~ 5 lbs.

22	1700Z / 28 APRIL
23	2200Z
24	0500Z / 29 APRIL
25	1300Z
26	2000Z

1600Z POSITION:

LAT: $62^{\circ} 18.417'S$

Hdg: 302.1°

LONG: $63^{\circ} 36.408' W$

SPD: 3.3 Kts

AUSTIN AND DUNBAR ON WATCH. STILL LINE 15. APPROXIMATELY
10 N.MI. TO GO.

1654Z BLEEDING GLYCOL DOWN GUN LINES - LOW AIR
PRESSURE, NOT MISFIRES.

1700³Z POSITION:

LAT: $62^{\circ} 16.373'S$

Hdg: 299.1°

LONG: $63^{\circ} 44.408' W$

SPD: 4.5 Kts.

1709Z E.O.T. 17. NORMAL REWIND. NO GUN FIRE.

1714Z B.O.T. 18. INTERMITTENT GUN FIRE

1716Z CRIMMONS + GUN PROBLEM = CONSISTENT SOUND SOURCE.

1800Z POSITION:

LAT: $62^{\circ} 13.027' S$

Hdg: 299.9°

LONG: $63^{\circ} 53.021' W$

SPD: 5.0 Kts

WATCH LOG

1805Z RF INTERFERENCE

1822Z E.O.L. 13 c/c To LINE 14. STOP
DIGITAL ACQUISITION @ TAPE 18, SCAN 341. c/cPOSITION: @ E.O.L.
62° 12.1'S
63° 56.0'W1835Z REFILLING GLYCOL TANK. NO GUN FIRE — STILL
TURNING TO LINE 14.1846Z GUN FIRING AGAIN — STILL TURNING.
JOHN D. WATCHING TOWS — OK.1855Z B.O.L. 14. BEGIN DIGITAL ACQUISITION.LAT: 62° 11.064'S
LONG: 63° 54.978'WHDG: 213.9°
SPD: 4.2 KTS

1915Z GUN NOT FIRING. BOB WORKING ON THE PROBLEM.

1920Z GUN FIRING AGAIN. 12 KHZ UNREADABLE DUE TO SHIP'S
ROLL.

1950Z Sawyer & Smythe on watch

2000Z Position 62 15.893 SPD 5.2
63 59.853 HDG 220

2035 Change 4 sec EPC to 0-4 sec scale

WATCH LOG

2100Z 62° 19.812'S SPD 4.9
64° 04.049'W HDG 221

2102Z changed 4 sec EPC back to 4-8 sec.

2120Z 12 kHz Bathty visible again

2200Z Position: 62° 23.992 SPD 5.3
64° 09.929 HDG 216

2300Z POSITION S 62° 28.63' SPD 5.4 kts.
W 64° 15.71' HDG 211°
BATHYMETRIC RECORD IS VERY POOR.

2309Z CHANGED 4 sec EPC back to 0-4 sec.

2330Z changed 4 sec EPC to 4-8 sec.

2351Z POWER FAILURE. WE HAVE TO RESTART
ALL THE EQUIPMENT. GUN IS FIRING
ON INTERNAL (EVERY 6 SEC).
GUN IS STOPPED NOW. VINCE WORKING ON KEEPING
THE PRESSURE DOWN.

18
TAPE UNLOADED.

LOADED TAPE 19 - ON LINE

RESET SURGE PROTECTION.

REBOOTED SEISMIC PROGRAM.

COMPUTER & TAPE READY.

0000Z 62° 33.037 'S HDG 205 restart 591-loop.
64° 20.593 'W SPD 4.6

29 April

0014Z

0015Z

Gun started firing - change to 12 sec rep.
Tape started back up Scan 2, tape 189
S/C increase speed to 5 knots.
recording was interrupted for 25 minutes
after power outage.

0031Z

62° 35.069 'S
64° 22.512 'W

scan 81 - E.O.L. 14
begin making turn for line 15.

0036Z

Checked all electronics

computers all o.k.

magne o.k.

12 kHz overloaded, reset @ 0016Z

SAH loop getting data from all modules

0052Z

62° 34.658 'S scan 82, tape 19
64° 22.120 'W

0058Z

A FEW MISFIRES

0100Z

62° 34.411 'S
64° 20.750 'W

HDG: 073°

SPD: 5.8 Kts

0109Z

Making good progress - seas calmer on new course.

0132Z

Changed 4-8 sec marker to 3-6 sec.

0200Z

62° 33.988 'S
64° 10.004 'W

HDG: 069°

SPD: 5.3 Kts.

WATCH LOG

0300Z POSITION

62° 31' 359" S
63° 59' 300" WHDG: 069°
SPD: 5.1 Kts

21.7 mi to E.O.L

Everything working fine, gun O.K. for a long time now

0309Z A FEW MISFIRES

0331Z Pressure steady @ 1750-1800 psi. Gun firing O.K. again

0347Z changed scale on primary seismic monitor: 4-8 sec

0355Z AUSTIN AND DUNBAR ON WATCH. STILL LINE 15.

0400Z

POSITION:LAT: 62° 29.971' S
LONG: 63° 48.448' WHDG: 67.4°
SPD: 5.1 Kts.

0420Z VINCE CHECKED TOWS — OK. TWEAKED UP GUN PRESSURE, WHICH WAS @ 1700 PSI.

0500Z POSITION: LAT: 62° 27.987' S
LONG: 63° 37.464' WHDG: 66.6°
SPD: 5.1 Kts

0550Z VINCE CHECKED TOWS — OK. GUN PRESSURE TWEAKED AGAIN. GUN FIRING VERY RELIABLY.

0600Z POSITION:LAT: 62° 26.134' S
LONG: 63° 27.488' WHDG: 59.2°
SPD: 4.5 Kts.

R/V POLAR DUKE

082

WATCH LOG

0700Z Position:LAT: 62° 24.522 'S
LONG: 63° 16.300 'WHDG: 77.7°
SPD: 5.2 Kts.

0711Z

E.O.L. 15 = 62° 24.506 'S
63° 12.772 'W

c/c Port.

0742Z

B.O.L. 16 = 62° 24.610 'S
63° 14.049 'W

s/c

0753 Sawyer & Smythe on Watch

0800Z Position: 62° 26.015 'S SPD 5.4
63° 14.425 'W HDG 20212 kHz record poor to uninterpretable on
new course.0900Z Position: 62° 30.600 'S SPD 5.1 Kts
63° 15.366 'W HDG 198°

GUN STOPPED FIRING

~~0900Z~~ 0910Z FIRING AGAIN0918Z CHANGING TO 0-4 SEC SWEEP ON
4 SEC EPC1000Z Position: S 62° 35.07'
W 63° 16.21' SPD. 5.0 KTS
HDG. 197°1031Z GUN STOPPED FIRING. DALE ON
DECK TO WORK ON IT.

1033Z FIRING AGAIN.

WATCH LOG

1100Z POSITION: $562^{\circ} 39.60'$ SPD. 4.3
 $W 63^{\circ} 17.28'$ HDG. 196

1200Z GILTNER / JEFFERS $62^{\circ} 44.124$ SPD 5.0
 $63^{\circ} 18.492$ HDG 197

1234Z GEAR CHECK

- ALL TOWED GEAR LOOKS OK.
- GUN STOPPED FIRING 1228-1330Z → RESTARTED EASILY
- SAIL LOOP OK
- MAGGIE O.K.
- 12 kHz record barely readable; ship rolling 15-20°
- ALL ELECTRONICS SEEM O.K.
- BOTH EPL SEISMIC MONITORS LOOK GOOD

STREAMER: STILL SUMMING 1-5; will remove section #5 soon, @ ~2000m W.D.

1244Z SCAN 3482 - removed streamer section #5 from sum output

1251Z SCAN 3520 - removed streamer section #4 from sum output

1300Z $62^{\circ} 49.564'S$ HDG 189°
 $63^{\circ} 19.283'W$ SPD 4.9 Kts

1255Z gun misfiring; restarted

1330Z Changed scale on secondary seismic monitor to 0-4 sec.

1400Z POSITION
 $62^{\circ} 55.166'S$ Spd. 5.1 kts
 $63^{\circ} 19.563'W$ Hdg. 186.9°
 9.9 mi. to E.O.L.

WATCH LOG

1419Z SCAN 3959 : remove channel #3 from sum
 summing channels 1 & 2 only now.

1500Z POSITION:

63° 00.913' S

Speed 5.0 Kts

63° 21.847' W

Hdg. 191°

4.1 mi to E.O.L. 16

1536Z E.O.L. 16

C/C STARBOARD.

63° 05.030' S

63° 21.946' W

E.O.T. 19

Bob C. changing glycol - Bottle ~ 1/2 Full
 (or was it 1/2 empty?)

Firing gun on LXGO trigger during transit

1600Z AUSTIN AND DUNBAR ON WATCH. STILL TURNING TO
 LINE 17

POSITION:

63° 06.342' S

Hdg: 309.1°

63° 22.906' W

SPD: 3.3 Kts

1623Z

B.O.L. 17, B.O.T. 20

SPD: 54.4°

4.9 Kts

C/C

LAT: 63° 04.969' S

63° 21.981' W

WATCH LOG

1642-1647z No gun fire — problems with glycol feed from the tank to the gun.

1700z Position:

LAT: $63^{\circ} 03.346'S$

Hdg: 54.2°

LONG: $63^{\circ} 17.229'W$

SPD: 4.9 Kts.

1800z Position:

LAT: $63^{\circ} 00.506'S$

Hdg: 56.7°

LONG: $63^{\circ} 07.323'W$

SPD: 4.2 Kts.

1807z RF INTERFERENCE.

1900z Position:

LAT: $62^{\circ} 57.524'S$

Hdg: 58.2°

LONG: $62^{\circ} 57.756'W$

SPD: 5.1 Kts.

1949z Smythe & Sawyer on Watch

2000z $62^{\circ} 54.887$

SPD 5.5

$62^{\circ} 48.288$

Hdg 055

2010z GUN STOPPED FIRING. DALE ON DECK TO WORK ON IT. CRIMMINS COMING.

2020z FIRING AGAIN.

2100z POSITION: S $62^{\circ} 51.86'$
W $62^{\circ} 37.40'$

SPD. 5.0

Hdg. 052

2200z Position

$62^{\circ} 48.775$

SPD 5.2

$62^{\circ} 27.741$

Hdg 053

WATCH LOG

2300Z Position: $62^{\circ} 45.800'S$ SPD 4.9
 $62^{\circ} 18.556'W$ HDG 061

0000Z 30 April $62^{\circ} 42.959'S$ SPD 5.2
 $62^{\circ} 09.709'W$ HDG 072

0100Z $62^{\circ} 40.551'S$ SCN 2591
 $62^{\circ} 00.146'W$ E.O.L. 17

begin pulling gear / slow to 2-3 knots

~~terminate~~

terminate seismic, & sail-loop programs. Begin

transit to Palmer Station.

1630Z Arrive Palmer Station — will load cargo and non-winter-over personnel.

1 May

1305Z Coast off from Palmer Station. Begin transit back to Punta Arenas.

1356Z Maggie in water and operating for transit across Drake passage starting 12 kHz recorder.

1400Z POSITION

LAT: $64^{\circ} 51.486'S$
 LONG: $64^{\circ} 13.721'W$

HDG: 262°
 SPD: 12.3 Kts.

WATCH LOG

1403Z JEFFERS TO THE RESCUE

RUNNING MAGGIE, 12kHz, SAIL loop

1430Z ENABLED REMOTE EVENT MARK ON 12kHz

1500Z POSITION (GDRT)

64	51.395	S	SPD	10.7
64	38.054	W	HDG	313.7

581.9 mi. to way pt. #2

1517Z WEATHER

T 0° C

BP 993 F

WIND GAUGE T.U.

OVERCAST, LIGHT INTERMITTENT SNOW

SEAS 1.5-2 m, CHOPPY, SOME WHITE WATER.

1530Z TUNED THE MAGGIE

1555Z AUSTIN ON WATCH. TRANSITING TO PUNTA ARENAS.
MAGGIE AND 12kHz OPERATIONAL.1600Z POSITION: (GDRT)

LAT: 64° 41.017 'S

LONG: 64° 46.008 'W

SPD: 354.4°
HDG: 10.5 Kts

1700Z POSITION: (GDRT)

LAT: 64° 30.125 'S

LONG: 64° 50.440 'W

HDG: 355.7°
SPD: 10.8 Kts.

R/V POLAR DUKE IV-87

089

WATCH LOG

1800Z POSITION: (GDRT)

LAT: $64^{\circ} 19.265$
LONG: $64^{\circ} 54.169$ HDG: 354.6°
SPD: 10.1 Kts.

1900Z POSITION (GDRT)

LAT: $64^{\circ} 07.706$ 'S
LONG: $64^{\circ} 58.923$ 'WHDG: 355.4°
SPD: 11.6 Kts.TOW CHECKED VISUALLY FROM THE LAB - OK.
SMYTH:2000Z POSITION: S $63^{\circ} 57.04'$
W $65^{\circ} 05.84'$ SPD. 11.9
HDG. 3552100Z POSITION: S $63^{\circ} 46.66'$
W $65^{\circ} 09.38'$ SPD. 11.6
HDG. 354.22156Z POSITION: S $63^{\circ} 36.26'$
W $65^{\circ} 11.52'$ SPD. 11.6
HDG. 3572300Z POSITION: S $63^{\circ} 23.86'$
W $65^{\circ} 13.50'$ SPD. 11.7
HDG. 3570000Z 2 May $63^{\circ} 12.12$ 'S
 $65^{\circ} 15.81$ 'WSPD 12.0
HDG 3570100Z $63^{\circ} 01.26$ 'S
 $65^{\circ} 17.29$ 'WSPD 11.6
HDG 3570200Z $62^{\circ} 49.67$ 'S
 $65^{\circ} 19.69$ 'WSPD 11.8
HDG 3580300Z $62^{\circ} 37.102$ 'S (GDRT)
 $65^{\circ} 21.34$ 'WSPD 11.8
HDG 357

Watch Log.

0400Z Dunbar on Watch

S 62° 26.836' HDG = 356.2°
 W 65° 23.864' SPD = 11.7 kts

0500Z

S 62° 16.005' HDG = 356.2°
 W 65° 22.965' SPD = 11.7 kts

0600Z

S 62° 02.894' HDG = 356.6°
 W 65° 24.659' SPD = 11.8

0700Z

S 61° 57.714' HDG = 357.6°
 W 65° 25.646' SPD = 13.9

0755Z Sawyer on Watch

0800Z 61° 39.790'S SPD 11.8
 65° 26.990'W HDG 356

0828Z I switched 12 kHz to 4 sec sweep
 I am worried about scales on earlier
 picks. I believe depths after this time are
 unambiguous - before this they are probably not.

0900Z 61° 27.677'S SPD 11.6 kts
 65° 29.098'W HDG 357°

1000Z 61° 15.683 SPD 11.7 kts
 65° 30.775 HDG 357°

12 kHz record unreadable - still on 4 sec sweep

1031Z Switching 12 kHz back to 2 sec sweep in hopes
 of picking up a return.

Earlier depths - OK.
 We crossed spreading
 center/zone.

NO.

WATCH LOG

1046 Z Still no returns on 12 kHz

1100 Z 61° 03.722' S SPD 11.5 Kts
 65° 32.335' W HDG 357°

1130 12 kHz returns are sporadic.

1200 Z JEFFERS ON WATCH

POSITION (GPS)

60° 52.009' S

SPD. 11.7 Kts

65° 34.083' W

HDG. 357°

MAGGIE O.K

SAIL LOOP O.K

12 kHz looks terrible - increased transmit power & pulse length in attempt to recover some data

1205 Z Changed 12 kHz sweep to 0-4 sec.

1211 Z Returned 12 kHz to 0-2 sec sweep
 Returns are ~ 4-5 sec (3000 - 3750 m)

1300 Z POSITION (GPS)

60° 40.155' S

HDG 357°

65° 35.693' W

SPD 11.5 Kts.

12 kHz looking better - depths around 3000 m, close to top & bottom of record

1400 Z POSITION (GDR)

60° 28.527' S

HDG 357°

65° 38.016' W

SPD 11.7 Kts

WATCH LOG

1500Z POSITION (GDRT)

60° 16.882' S
65° 39.378' WHDG 356°
SPD 11.6 kts

1600Z AUSTIN ON WATCH.

POSITION=
(GDRT) 60° 05.233' S
65 41.613' WHDG: 357.2°
SPD: 11.7 kts.MAGGIE TOW OK. SAIL LOOP OK. MORE THAN
HALFWAY ACROSS DRAKE PASSAGE.

1700Z

POSITION: 59° 53.732' S
(GDRT - updated from last fix) 65° 42.057' WHDG: 357.7°
SPD: 11.3 kts.

1800Z

POSITION: 59° 42.181' S
(GDRT - no update from last fix) 65° 43.159' WHDG: 357.2°
SPD: 11.7 kts.12 KHz PAPER RED-LINED @ 1730Z — MAKE IT GO
AS LONG AS POSSIBLE.

1900Z

POSITION: 59° 31.068' S
(GDRT - updated from last fix) 65° 44.062' WHDG: 357.1°
SPD: 11.5 kts.

1930Z MAGGIE TOW CHECKED VISUALLY — OK.

WATCH LOG

SMYTH

2000Z POSITION:	S 59° 19.49'	SPD. 11.4 Kts
	W 65° 44.86'	HOG. 356°
2100Z POSITION:	S 59° 08.20'	SPD. 11.5 Kts
	W 65° 44.65'	HOG. 357°
2200Z POSITION:	S 58° 57.12'	SPD. 11.2 Kts
	W 65° 44.58'	HOG. 358°
2300Z POSITION:	S 58° 46.53'	SPD. 10.4 Kts
	W 65° 44.76'	HOG. 353°

HAVE LOST BATHYMETRIC RECORD. SCALE WAS
~~1500 m - 3000 m~~ WHEN LOST.
 3000 m - 4500 m

0000Z	3 MAY	S 58° 36.852' S	SPD 10.6 Kts
		W 65° 49.494' W	HOG 355°

GILTNER ON WATCH

0010Z CHANGE PAPER ON 12 KHz RECORDER
 STILL NO RECORD - 2 sec sweep

0100Z	58° 26.729' S	SPD 10.5 Kts
	65° 53.806' W	HOG 354°

0200Z	58° 17.521' S	SPD 10.1 Kts
	65° 56.59' W	HOG 352°

SAIL LOOP / MAGGIE TOW ALL O.K.

~~FAST SWEEP UPDATE 0204Z~~ STILL NO RECORD ON 12 KHz

0235Z Try 4 sec sweep on 12 KHz

0300Z	58° 07.73' S	SPD 7.6 Kts
	65° 59.61' W	HOG 352°

change back to 2 sec sweep - record still
 no good

Dunbar

Water Log

0400Z S 57° 57.645' SPEED = 9.6 Kts
W 66° 01.627' HDG = 355.1°

0500Z S 57° 47.491' SPD = 9.1 Kts
W 66° 03.530' HDG = 354.4°

Noticed that the EDO 12 kHz OVERLOAD/
RESET light was on - Reset this and
began GETTING a Regular Pulse again.

- Bottom still not SEEN

Tried to turn up the Transmit and
Receive gain, but this did not help.

0600Z S 57° 37.399' HDG = 354.2°
W 66° 06.474' SPD = 10.2 Kts

0700Z S 57 25.935' SPD = 13.4 Kts
W 66 04.361' HDG = 355.6°

0748Z Sawyer on Watch

Ship motion is significantly greater than
previously. Bridge has reduced speed
accordingly. 12 kHz record unreadable.

0800Z 57° 15.843'S SPD 9.3 Kts
66° 06.066'W HDG 354°

0820Z 12 kHz record readable again.

WATCH LOG

0900Z 57° 05.800'S SPD 10.3 Kts
66° 07.875'W HDG 355°

1000Z 56° 54.865 SPD 10.8 Kts
66° 09.291 HDG 356°

1100Z 56° 43.253 SPD 10.5 Kts
66° 10.815 HDG 357°

1200Z JEFFERS ON WATCH

POSITION (GPS)

56° 31.872'S

66° 12.386'W

Speed 10.2 Kts.

Hdg. 354°

12 kHz record O.K.

SAIL loop O.K.

Maggie working tow looks good, in tune.

1300Z

POSITION (GPS)

56° 20.430'S

66° 15.212'W

Spd. 11.5 Kts

Hdg. 354°

1400Z

POSITION (GDR)

56° 08.577'S

66° 17.931'W

Spd. 12.0 Kts

HDG 355°

1500Z

POSITION

55° 56.001'S

66° 19.821'W

Spd. 12.0 Kts

Hdg. 359.4°

WATCH LOG

1515Z: Checked all equipment - everything O.K.

Depth ~ 370m

Will stop data collection when we reach the shallow platform (<100 fm on the chart)

1545Z Austin on watch. Will stop all data collection @ 1700Z. Pilots ca. 1900Z.

1600Z

Position:
(GDRT)

LAT: 55° 40.949'S
LONG: 66° 17.325'W

Hdg: 355.7°
SPD: 12.0 Kts.

1700Z

Position:

LAT: 55° 30.503
LONG: 66° 20.218

Hdg: 357.2°
j/c SPD: 6.5 Kts.

STOP 12 KHZ AND MAGGIE RECORDING. APPROACHING CHILEAN TERRITORIAL WATERS. SAIL LOOP SHUT DOWN @ 1657Z.