

REPORT ON MV WHITETHORN CRUISE 75/WH/17

15th August to 2nd September 1975

by J A Chesher

REPORT ON MV WHITETHORN CRUISE 75/WH/07

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Introduction

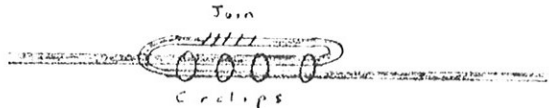
The objectives of cruise 75/WH/06 were to sample the sea bed and underlying strata of the area in the vicinity of Brent, namely 1:100,000 Sheet 61N 01E, during the period 15th August to 2nd September 1975. Prior to this project geophysical coverage of this area had been completed by Marine Geophysics Unit during Aquastar Cruise 75/AQ/06.

Sampling equipment consisted of an electrically operated IGS vibrocorer, gravity corer, shipek grab, and sediment dredge, which were operated during a daylight 12 hour period. Geophysical equipment, namely an ORE pinger, Atlas Deso echo sounder, and 1000 J EG & G sparker and recorder toothbrush array and 263C hydrophone, were run during the night.

Equipment Performance

- i) Shipek grab - Satisfactory except for slowness of Lebus winch to hoist aboard.
- ii) Gravity corer - Satisfactory.
- iii) Sediment dredge - Satisfactory.
- iv) Vibrocorer - Good recovery from 2 to 6 metres was obtained in very tuff clays. Waterlogging of the electric cable for a length in excess of 100 metres resulted in initial malfunction of the vibrocorer and necessitated replacement by a new cable. Initial loss of vibrocorer on 26/8/75

was due to parting of the main lifting cable above splice. Recovery was effected by leading a grapple and wire down foot wire and hoisting both wires simultaneously. During recovery the new electric cable was broken and became waterlogged for 100 metres. The remaining cable on drum was joined to usable section of old cable using a kelams grip to strengthen the joint. This proved ineffective due to difficulty of securing end of grip on cable. A loop was made at the join and circlipped together which proved satisfactory (and when cable parted later it did not occur here at join).



On 28/8/75 main hoist wire on vibrocorer again parted. Successfully grappled vibrocorer on same principle as above but during hoist, main lifting wire again parted and forward part of davit broke off. Effected recovery by transferring leader wire still attached to foot to bow and sliding a specially made gable attached to the anchor cable down the foot wire. Vibrocorer had penetrated up to top of barrel and sheared here during recovery. Legs damaged.

Conclusions - faulty main hoist cable, and weakened davit. Some form of shearing bolts on vibrocorer barrel would facilitate recovery of main body if barrel were to stick in strata.

Geophysics equipment - The ORE pinger and Atlas Deso echo sounder proved satisfactory from the beginning of the cruise. The sparker was inoperable at the outset due to a variety of faults. Lack of spares on board meant repair could not be undertaken until spares were obtained. Once spares had been acquired repair was rapidly effected and results were excellent. Noise and pulse length were reduced by streaming two hydrophones and wiring the two summary boxes in parallel.

Conclusion - The presence of geophysical personnel on board meant faults were quickly diagnosed and repaired and quality control on the records could be maintained throughout the cruise. Lack of any spares on board should not have occurred.

Engineering equipment - Satisfactory.

Other equipment - IGS generator for vibrocorer developed fault in voltage regulator.

Wimpey winch for vibrocorer developed fault in solenoid.

Forward anchor winch developed fault in hydraulic pump, necessitating replacement.

Results

Due to adverse weather conditions a vibrocorer sample from the Forties area en route requested by D Arduis could not be accomplished, and rather

than wait at Forties for good weather and risk wasting time steaming to Brent in fine conditions, the bad weather spell was used to steam to Brent.

From 18th - 20th August bad weather in the Brent area prevented extensive sampling and geophysics was given priority. On 20th August due to continued bad weather and the necessity to collect sparker spares from Lerwick, the decision was made to steam to the East Shetland coastal area where more sheltered conditions would enable sampling of an important suspected Mesozoic basin. Two days from 21st - 23rd August were spent in this region sampling while awaiting the arrival of geophysics spare.

Sampling in the Brent area was continued during 24th to 30th August when weather conditions were now more favourable.

Sampling results during this period were poor due to a variety of factors, mainly faults in equipment and the repeated loss and time involved in recovery of the vibrocorer. Anchoring in deep water was also a slow process. Geophysical records obtained proved very satisfactory and a good line mileage was achieved during the night.

From 30th August to 2nd September the ship spent steaming to Ardrossan.

<u>Statistics:</u> Sample stations occupied:	Brent area 21: E Shetland 10
Number of vibrocore samples:	Brent area 12: E Shetland 1
Number of shipek grab samples:	Brent area 21: E Shetland 10
Number of gravity core samples:	Brent area 11: E Shetland 7
Number of sediment dredge samples:	E Shetland 4
Line mileage of geophysics:	1000 km.

N.B. Engineering tests namely velocity scanning, shear strength, bulk density, dry density and moisture content were carried out on all samples where possible.

Cruise Sheets completed: 61°N 01°E
61°N 00°E
60°30'N 01°E
60°30'N 00°E
60°30'N 01°W

SUMMARY LOG

Friday 15th August

1100 - 2400 In port, Aberdeen: routine port visit.

Saturday 16th August

0000 - 2245 In port, Aberdeen: routine port visit.

2245 - 2400 Departing from Aberdeen to Forties area.

Sunday 17th August

0000 - 2000 Steaming to Forties area at $\frac{1}{2}$ speed due to bad weather. Forward gravity corer broke moorings and was lost.

2000 - 2400 Due to bad weather and forecast, decision was made to steam to Brent area during this period as sampling Forties was not possible.

Monday 18th August

0000 - 2400 Steaming to Brent area, undergoing pinger and sparker trials en route. Sparker summing box and hydrophone were proven faulty but no spares aboard to effect repairs.

Tuesday 19th August

0000 - 0800 Steaming to Brent area at full speed.

0800 - 2100 Routine sampling using vibrocoring in Brent area. Vibrocoring electric cable was faulty due to extensive waterlogging (approx. 100 metres). Replaced cable with new but noted chaffing in outer rubber exposing inner armoured casing.

2100 - 2400 Geophysics traverse with pinger.

Wednesday 20th August

0000 - 0800 Steaming to sampling position in Brent area.

0800 - 1700 Bad weather prevented sampling in Brent area, therefore steamed to East Shetland coastal area, running pinger and echo sounder.

1700 - 2030 Routine sampling East of Shetland.

2030 - 2400 Pinger and echo sounder traverses East of Shetland.

Thursday 21st August

0000 - 0800 Pinger and echo sounder traverses East of Shetland,

0800 - 1100 Routine sampling East of Shetland.

1100 - 2400 Bad weather prevented sampling; pinger and echo sounder traverses run.

Friday 22nd August

0000 - 0800 Echo sounder and pinger traverses East of Shetland.
0800 - 1100 Routine sampling East of Shetland.
1100 - 1700 Steaming to Lerwick to collect sparker spares.
1700 - 1800 Anchored off Lerwick, but spares had not arrived.
Pilot boat brought charts aboard for Captain.
1800 - 2400 Pinger and echo sounder traverses East of Shetland.

Saturday 23rd August

0000 - 0800 Pinger and echo sounder traverses East of Shetland
0800 - 1200 Routine sampling East of Shetland.
1200 - 1300 Vibrocorer winch developed a faulty soleroid;
time to effect repair.
1300 - 1500 Weighing anchors delayed due to forward anchor
sticking.
1500 - 1930 Steaming to Lerwick to collect sparker spares.
1930 - 2200 Workboat ashore for sparker spares at Lerwick.
2200 - 2400 At anchor, Lerwick, to effect ship engine repair,
involving a faulting valve in the manoeuvring
system.

Sunday 24th August

0000 - 1200 Steaming to Brent area.
1200 - 1500 Routine sampling, vibrocoring in Brent area.
1500 - 2215 Hydraulic pump on forward anchor winch repair.
2215 - 2400 Geophysics, sparker and pinger traverses Brent
area.

Monday 25th August

0000 - 0900 Geophysics traverses, sparker and pinger,
Brent area.
0900 - 2000 Routine sampling, vibrocoring, Brent area.
2000 - 2400 Geophysics traverses, Brent area.

Tuesday 26th August

0000 - 0800 Geophysics traverses, sparker and pinger,
Brent area.
0800 - 1030 Routine sampling, vibrocoring, Brent area.
1030 - 1400 Vibrocorer main wire parted above splice.
Successfully grappled vibrocorer by leading
grapple down wire attached to foot. Hoisted
vibrocorer aboard using both foot wire and grapple
wire. Cable waterlogged for approx. 100 metres
length. Joined usable part of cable left on
drum to usable part of old cable using kelams
grip to strengthen join.

Tuesday 26th August (cont)

1400 - 1930 Routine sampling continued, Brent area.
1930 - 2400 Geophysics traverse, Brent area.

Wednesday 27th August

0000 - 0730 Geophysics traverse, Brent area.
0730 - 1730 Routine sampling, Brent area.
1730 - 2400 Geophysics traverse, sparker and pinger, Brent area. Remade joint in vibrocorer cable using circlips to effect strengthening on a U-joint.

Thursday 28th August

0000 - 0730 Geophysics traverse, Brent area.
0730 - 0945 Routine sampling, Brent area.
0945 - 1030 Block broke on vibrocorer davit due to hoisting aboard too severely.
1030 - 1845 Routine sampling, vibrocorer, Brent area.
1845 - 2330 Lifting wire on vibrocorer parted. Successfully grappled vibrocorer leading grapple down foot wire. During hoisting aboard, forward part of davit broke off and main hoist wire parted again.
2330 - 2400 At anchor at vibrocorer station.

Friday 29th August

0000 - 0730 At anchor vibrocorer station.
0730 - 1700 Renewed attempts to recover vibrocorer. Transferred leader wire from foot of vibrocorer to bow. Manoeuvred ship's bow over vibrocorer and slid a specially made grapple on anchor wire down leader wire. Successfully grappled vibrocorer and recovered on board.
1700 - 1900 Routine sampling in Brent area.
1900 - 2400 Geophysics traverses, sparker and pinger, Brent area.

Saturday 30th August

0000 - 0730 Geophysics, Brent area.
0730 - 1230 Routine sampling, Brent area.
1230 - 2400 Geophysics sparker and pinger traverse to Shetland.

Sunday 31st August

0000 - 2400 Steaming en route to Ardrossan.

Monday 1st September

0000 - 2400 Steaming en route to Ardrossan. Geophysical traverse lines run in Minch en route.

Tuesday 2nd September

0000 - 1200 Steaming en route to Ardrossan.
1200 - 2400 In port, Ardrossan.