LINE 1 ONLY

QUALITY CONTROL REPORT

SHIPMENT NO.

Client Geophysical Service Int. Ltd. (SPEC)

Area Offshore Carolina

Prospect Bermuda Triangle

GSI Party No. 437

Boat m/v Jonsson

Shooting Period from April 15 to April 16 1974

Production summary this period

Total Chargeable Miles (Kms) / Shotpoints 242.61 (390.45) 7809

Reshot Miles (Kms) / Shotpoints — — / —

Total Unusable shots (excluding those reshot) 10

Percentage of total 0.13%

Breakdown of Unusable Shots as Percentage of Total Unusable

8	Autofires	80	%
1	Tape Changes	10	%
1	Instrument faults	10	%
	Other (specify)		%

Number of Tapes in this Shipment: 47

Data sent to:

RECEIVED
MAY 10 1974
COST CENTER
SCIENCE SERVICES DIVISION

Total Chargeable Miles (Kms) / Shotpoints this prospect /

200
3068
4002
5116
6140
7164
8188
9212

LINES 4 + 8

QUALITY CONTROL REPORT

SHIPMENT NO. 437/3/74

Client Geophysical Services Inc.

Area Offshore Carolina

Prospect Bermuda Triangle

GSI Party No. 437

Boat M/V Jonsson

Shooting Period from April 19 to April

Production summary this period

Total Chargeable Miles (Kms) / Shotpoints 292.11 (470.1) / 9402

Reshot Miles (Kms) / Shotpoints — /

Total Unusable shots (excluding those reshot) 121

Percentage of total 1.3 %

Breakdown of Unusable Shots as Percentage of Total Unusable

117	Autofires	96.7 %
	Tape Changes	%
4	Instrument faults	3.3 %
	Other (specify)	%

Number of Tapes in this Shipment: 56

Data sent to: Geophysical Services INC
ATTN: Hugo SINDELAR
4130 SW Freeway
Houston, Texas

Total Chargeable Miles (Kms) / Shotpoints this prospect /

GENERAL

Data Quality

The gravity and magnetics data appears to be satisfactory although spikes appear throughout the magnetics analog charts. These spikes do not mask the values of the earths field which had a value of the order of 52,000 γ.

Seismic data was poor. Feathering angles were not ascertainable, very large Geonav updates up to >2 kilometers occured frequently as a result of virtual non-functioning of Loran C and use of manual velocities, and cable depth variation was commonly of the order of 15-30 feet.

Weather Conditions

Weather conditions varied from sea state 1 to sea state 5. During the rough period we were shooting 'in the troughs' ie parallel to the wavefronts and so noise levels did not reach excessive levels. (see cable discussion)

Offset Calculations

Lead-in	69.84 m
+ 6 Str. Sect.	199.98 m
+ 1 pig Sect.	5.0 m
+ ½ Sect. 48	50.0 m
	324.82 m
− Stern to ¢ Gun	29
	295.82 m

WB/48	180 msec
AG. Delay	− 13.5
	166.5 msec
Spd of Sound ×	1500 m/sec (4920'/sec)
	249.75
½ Sect. 48	50
	299.75

Survey Discussion

The Loran C system (O.N.I) worked satisfactorily but understandably failed completely when its floor mountings failed to keep it upright.

This Loran failure made it necessary for the Geonav operators to key in manually the velocities as the depths encountered for much of the line precluded sonar bottom tracking. Updates of the order of 1km-2km were not at all unusual. On contacting the supervisor and Dallas (M. Cronterek), shooting was not discontinued on account of these updates on their authority.

At shallow depths < 200 fathoms the sonar doppler worked satisfactorily.

In general the survey accuracy for much of this line must be poor. corresponding to the large updates.

SURVEY

Primary system IMDCS [Geonav /Loran C]

System frequency Loran C 100 kc/s.

Survey company GSI (IMDCS),

Secondary system (s)

Location of secondary system (s) antenna with respect to primary

Coverage	3600	%
Shotpoint interval (1 x pop interval)	50	m
Primary antenna height above sea level	25	m
Distance from primary antenna to seismic source	51	m
Lane width in prospect area	n/a	m

Frequencies used for communication with shore stations

Auxiliary equipment in use, e.g. track plotter; print-out, etc.

Geonav Trackplotter, 3 Thermal printers.

Primary calibration points used

n/a

Lines or portions of lines not shot and reasons:

Line # 1 terminated, shallow water and wrecks

FATHOMETER

Manufacturer Simrad

Model number 3H3F

Conversion velocity Not known

Operating frequency 18 khz

Position relative to antenna

Is instrument corrected for draft Yes

Last check date 3 December 1973, Savannah

SERVO-PROFILER

Servo Riter. Ratheon Seismic Recorder PSR 191 OC-8

Source Gp. 47

Record length 6 sec

Hi filter and slope HZ @ db/oct

Wide Band (?)

Lo filter and slope HZ @ db/oct

Gain mode Linear (?)

* Also Benvo/riter II T. I
6 Sec records 18 Hz – 47 Hz filters

Discussion

This line was shot from seawards shorewards i.e. into shallowing water. The fathometer started working from 1200 fathoms depth to the end of line. Fathometer records are good bar the lack of event marker. The Ratheon worked well until the delay box was discused, This may be a coincidence but in shallow water the Ratheon records were useless. The benvo-riter II worked satisfactorily.

AIR-GUNS

A sketch showing sizes and distances is to accompany this report.

Total volume in use	1310	cu. in.
Total spare volume	480	cu. in.
Operating pressure	2000	psi
Operating depth	25	ft/m
Number and type of compressors	2 x Norwalk	
Distance from antenna to center guns	64	m
Distance from stern to center guns	30	m
Average distance center guns to center near group	295	m

Discussion

Gun performance was satisfactory. Operating pressures were maintained between 1700 – 1900 p.s.i.
The total volume was down 18% below 1310 cu. in ~ SP 6720 which caused a circle in order to repair guns.
There were 8 Autofires total

Cable Discussion

There were no weak, dead, or noisy groups as far as can be seen by the paper records. Cable noise levels cannot really be stated as the line was started in a rush and restarted in a rush without calibration strips and noise strips respectively. At the end of line only one trace #45 was out of spec ie exceeded 16 µv., but for a part of the line rough weather almost certainly caused noise levels to be higher than the range at the end of line which was 7-22 µv. Unfortunately the low revving engines of the Jonsson cause front end noise to be low frequency typically 30-40 hz.

The main fault of the cable was a continually high depth variation. The range was typically 15 - 30 feet. Groups adjacent to the depth transducer at groups 41/42 are most affected the readings for this transducer being deep in the region 25 - 30 feet. The rest of the cable looked well ballasted. IMDCS print outs of the cable depth do not correspond to the gauges and the gauges have been taken as being a more correct picture.

The rough weather for a fairly large part of the line and long cable (3600 m), and probably damaged tailbuoy made it impossible to track the tailbuoy on the radar thus no feathering angles could be ascertained.

CABLE DETAILS

Length center to center	3600	m
Number of groups	24 x 100 m. 24 x 50 m	
Group interval	see above	m
Dead section length	None	m
Live section length	3600	m
Number of geophones / group	60 and 30	
Geophone interval	1.1	m
Geophone type	T.I Acceleration Cancelling	
Number of nylon stretch sections in front end	6	
Total length of nylon stretch sections	199.8	m
Location of depth transducers	48, 41/42, 35/34, 28/27, 17/16, 3/2.	
Source of water breaks	At Transducers	
Location of Condeps	" " bar gp 48.	

Location and details of auxiliary section if used

Reel, 6 x 33.3 m. Stretch sections, Pig, Transducer, gp. 48

Cable noise: Variable see streamer μv noise in Cable Discussion.

Consistently noisy groups and reason: No.

Mean cable depth: 55 feet.

Instrument Discussion

Daily tests and all 1's are included with this shipment. D.F.S tests appear to be satisfactory. Two phenomena namely Sync. errors and fairly high parity errors on some tapes occured.

Sync errors were at first exclusive to 'B' transport records and affected to some degree data in groups 24 and 48. The errors occured on record numbers ending in 1 or 5. Later different record numbers were involved and also the 'A' transport records. It is difficult to evaluate how important these errors are and some feedback on this would be welcomed.

At four times during shooting the IMDCS display came out of sync with the DFS display ie Shotpoint numbers came ahead or behind the record numbers without apparently having a no-record. We cannot detect exactly where each discrepancy occured but every effort will be made to find out exactly what the problem is.

Use of the delayed recording module caused a complete loss of waterbreaks wherever used both to the IMDCS and to the Camera. When the delay was removed waterbreaks were picked up on the camera but not on the IMDCS. Work is continuing on this but no print-out of offset is available at the moment on the IMDCS output because of this.

Two other problems with mainly IMDCS software and hardware e non functioning (non-sampling) of the digital bathymetric bottom tracker and malfunctioning of the depth of cable section. The print out of cable depth from IMDCS is not reliable we think.

INSTRUMENT DETAILS

Recording system (including serial numbers)	D.F.S IV Serial No. 110
Number and type of transports	2 x T.I 1010's
Camera	SIE ERC-10-40A (Electrostatic)
Tape format and packing density	712 bpi
Recording method (e.g. odds and evens)	One system (1→48)
Tape speed	22.5 ips
Sample period	4 ms
Record length	6 sec
Hi filter and slope	62 HZ @ 72 db/oct
Lo filter and slope	8 HZ @ 18 db/oct
Gain control mode	I.F.P
Final gain	120 db
Initial gain (range)	n/a db
Trip delay and mode	n/a ms
Gain constant	30 db
Gain expansion rate	n/a db/sec
Upper set limit	n/a %
Lower set limit	n/a %

Dynamic range	>78 db
System noise	< 0.25 µv
Camera polarity	Normal GSI
Tape polarity	Normal GSI

PERSONNEL

Supervisor A. Boudreaux

Party Manager D. Dale

Instrument Engineer (s) James Hunt, Herbert Hixenbaugh, W. E Clow.

Instrument Engineer Trainee (s) Peter Eidson

Quality Control Richard Drake, David Tobins

Air-gun Mechanic (s) C. Grayson, W. Kennedy, A. Thomson
N. Beaton

Administrator R. Olroyd.

Survey Operator (s) C. Fourara, F. Renton, N. Smith
G. Grotz, (Geonav / IMDCS)
R. Simmons (Loran C)

Ship's Captain I. D. Samuel

Ship's Mate P. Thomas

Client Representative None

Survey Supervisor C. Fourara

BOAT

Name M/V Jonsson

Tonnage 1004 Tons.

Length 170 ft.

Beam 35 ft

Draft 16' ft mean

LINE #4

SHOTPOINTS AND WATER DEPTHS

S.P.	W.D. FATH	W.D.	S.P.	W.D. FATH.	W.D.	S.P.	W.D. FTH.	W.D.
1	17	102	1294	218	1308	2093	265	1590
65	18	108	1308	213	1278	2141	276	1656
125	19	114	320	226	1356	2178	262	1572
161	19.2	115.	1326	219	1314	2184	270	1620
240	25	150	1331	210	1260	2194	264	1584
293	25	150	1362	238	1428	2213	274	1644
341	29	174	1372	230	1380	2222	268	1608
393	35	210	1416	247	1482	2283	279	1674
433	34	204	1421	240	1440	2298	285	1710
491	37	222	1425	251	1506	2301	279	1674
520	44	264	1446 – 1510	250 – 258	1500 1548	2310	289	173[illegible]
583	51	306	1522	243	1458	2317	277	1662
633	63	378	1540	262	1572	2322	277	166[illegible]
644	67	402	1552	243	1458	2327	288	172[illegible]
690	83	498	1585	253	1518	2335	283	1698
730	108	648	1632	258	1548	2362	285	1710
790	165	990	1634	268	1608	2366	290	1740
830	219	1314	1643	288	1728	2372	285	1710
873	225	1350	1681	278	1668	2435	294	1764
932	249	1494	1752	270	1620	2442	288	1728
986	240	1440	1758	278	1668	2524	293	1758
1050	231	1386	1800	290	1740	2552	294	1764
1105	225	1350	1849	304	1824	2562	316	1896
1150	220	1320	1909	311	1866	2581	294	1764
1202	226	1356	2006	289	1734	2649	300	1800
1236	207	~~1362~~ 1242	2057	294	1704	2655	308	1848
1260	218	1308	2081	294	1764	2676	307	1842
1274	209	1254	2085	278	1668	2685	322	1932