

FINAL REPORT

**SUPERVISION OF FIELD SEISMIC OPERATIONS.
MARINE SURVEYS.**

**INVESTIGATOR 2D AND 3D AUSTRALIA.
JOB NO. #1999-035C-EH**

December 05th 1999 – April 06th 2000

for

Woodside Energy Limited

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Report No. 1051

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1.0 INTRODUCTION

The scope of this report covers the seismic quality control of the Woodside Energy Limited, (from here-on referred to as Woodside), Investigator 2D and 3D Surveys, as produced by the on board Client Representatives, Ken Haig and Matthew Ulvr-Green.

The approximate centre of the 3D area was located at approximately 39° 01'S and 142° 54'E, 24.5 nautical miles off Port Campbell, on the Victorian southern coast. The closest point of the survey to landfall was approximately 14.5 nautical miles. The survey area is incorporated inside the offshore Permit Areas, Vic P/43 and Vic T/30-P.

An additional seven 2D lines were located in the immediate vicinity of the 3D survey area. Not all 2D lines were acquired due to time restrictions placed on the vessel. Lines located inside Vic P/43 were not acquired.

Refer to [Appendix A](#) for charts depicting the survey area and location.

Water depths in the survey area varied from approximately 63 metres in the north to 163 metres. There was a deep-water shelf-break occurring at approximately 10 kilometres from the southwest corner of the prospect.

Charts depicting the location and survey layout are included as [Appendix A](#) to this report.

Most of the available time spent on board was fully utilised for real-time data quality control, including compilation of daily quality control reports and survey line analysis logs, and a comprehensive final report. Computer hardware and software was provided by the client representatives to enhance the quality control effort. Daily reports generated by the client representatives were e-mailed to the Woodside representative in Perth, Mr. Christopher Carpenter.

The five main objectives for the survey were as follows:

- The overall objective was to conduct and complete a single vessel, eight streamer, dual source 3D survey, whilst maintaining the highest acquisition and safety standards possible.
- The acquisition objective was to acquire 92 fold coverage over the designated survey area.
- The geophysical objective was to acquire high quality data from target zones
- The primary positioning objective was to position the vessel and towed systems accurately, within industry standard operating specifications.
- The health, safety and environmental objective was to conduct and complete the survey in the safest manner possible according to internationally recognised standards, whilst maintaining the health standards of all involved parties, and with little or no disruption to environment.

All reports and times were logged in local Victorian (EST) time, (UTC + 11 hrs). At midnight on 25th March, local time was retarded by an hour, ending daylight saving (UTC +10 hrs).

The authors have deliberately omitted detailed descriptions and theories of operation for the seismic contractors and third party equipment. This has been done so that the report retains its purpose of being a factual document rather than a carbon copy of already well documented textual information.

2.0 SUMMARY

The Investigator 3D survey followed on from two earlier surveys for Woodside, Brecknock South, and Indian 3D which was incomplete at this time. The same vessel and towed equipment was utilised for all surveys. There were parameter alterations, plus streamer and array configuration changes between all three surveys. The information in this report pertains only to the Investigator 2D and 3D surveys.

Under instructions and information received from Woodside due to technical reasons and delays, Indian 3D survey was not completed, and on 5th December, the vessel commenced the transit to the Otway Basin. Time charges for the Investigator 3D commenced on 5th December at 16:00 hours local West Australian time.

Due to operational difficulties the following contractual changes were made prior to, and during acquisition of, the Investigator survey:

- Removal of the CRS from multi-shot mode from 23rd December.
- Reduction of record length to 4.5 seconds.
- Reduction of the number of streamers from 8 to 6.
- Increase of streamer depth allowance specification range to 4.5metres – 7.5 metres. Nominal target depth of 6 metres remained in place throughout.
- Instructed not to acquire lines in corridor 5, the most north-west lines (1162-1006)
- Instructed not to acquire line W00INV 1174 (H. Dupuy).
- Instructed not to acquire any minor infill after 1st April 2000 (H. Dupuy)
- Instructed to acquire 2D lines only in T/30-P – co-ordinates supplied by Woodside.

The dual energy source performance was acceptable. Misfires were minimal and within contract specifications. The contract called for a timing window of ± 1.0 milliseconds and most of the guns were able to maintain this specification, while those that fell outside were generally within ± 0.2 milliseconds of the target.

Repairs and array maintenance were ongoing. During the course of the survey, at least one gun array had to be recovered for either general maintenance or repairs on most line changes.

Streamer front-end separations were reasonably consistent and were within the requisite specification 100 metres $\pm 10\%$ for all lines.

The recording system's performance was checked on a daily basis and the instruments were found to be operating within the specifications of the manufacturer.

Prior to and during the early stages of the Investigator 3D acquisition, numerous tests and assessments were made on the CRS (Continuous Recording System), in multi-shot mode. It proved to be unreliable and on instructions, was finally removed from the system configuration and not utilised in multi-shot mode. A notice of agreement to this was received via e-mail on 23rd December.

Although tailbuoy feather was fair, inconsistencies did exist. Overall the tailbuoy feather was moderate to high up to 9.5° at times. The estimated infill target of 20% was exceeded to attain acceptable overall coverage. Actual infill acquired was 40.85% of the total prime kilometres.

Weather and sea state were the major contributing factors to lost production time. At times winds were reported up to 40 knots with a combined sea and swell above 6 metres.

The weather and sea conditions made logistics difficult, particularly in the planning and execution of crew changes, refuelling and re-supply throughout.

The vessel performed well throughout the survey, receiving fuel on a number of occasions, from the supply vessel SMIT LLOYD 28 and whilst alongside whenever possible.

- 7th December - 400 cubic metres transferred from SMIT LLOYD 28 at anchor off Fremantle.
- 2nd January – 300 cubic metres taken using the ‘in-line’ transfer from the SMIT LLOYD 28.
- 20th January – 300 cubic metres whilst alongside in Portland.
- 15th February – 200 cubic metres from the SMIT LLOYD 28 whilst underway and alongside.
- 21st February – 386.5 cubic metres loaded whilst alongside in Portland.
- 20th March – 200 cubic metres taken using the ‘in-line’ transfer from the SMIT LLOYD 28.
- 26th March - 250 cubic metres taken using the ‘in-line’ transfer from the SMIT LLOYD 28.
- 29th March – 460.70 cubic metres loaded whilst alongside in Portland.

The ship’s crew and personnel were experienced and diligent in the execution of their duties. Crew morale was fair and safety awareness throughout was acceptable.

All personnel held valid safety passports and had attended basic sea survival courses and Helicopter Underwater Escape Training, (HUET) as a minimum requirement. Current Medical Certification was also a requirement.

HSE attitudes and awareness of all personnel involved was of an acceptable standard. The Master and officers of the vessel, in conjunction with the Coordinators and HSE adviser, were diligent in their checks of all safety equipment. Any deficiencies with either equipment or procedures were addressed promptly.

Safety drills and meetings were conducted throughout the survey period on a regular basis.

To comply with the Environment Plan and Woodside instructions, soft start procedures were employed at the start of all lines. This procedure initiated a minimal number of guns in the array gradually increasing up to full volume.

A supply vessel, the MV SMIT LLOYD 28 was used as a support and supply vessel during the survey. A second chase vessel, the MV PERFECT LADY, from Port McDonnell in South Australia, was also chartered for the duration of the survey, as it was anticipated there would be considerable fishing activity and other vessel traffic in the area. A third chase vessel, the MV PATRICIA J, was released from duties on 17th December at 18:00 EST, during early mobilisation and start-up operations.

The survey was prematurely abandoned on 5th April, 2000, on information received from Woodside and Western. At this time a number of prime lines had not been acquired, and a reduction in infill had also been instructed by Woodside. A revamped and reduced acquisition programme of the 2D lines had been acquired prior to the completion date.

3.0 **PROGRAMMEME DESCRIPTION**

3.1 **SURVEY AND GENERAL INFORMATION**

3.1.1 *Survey Site*

The 3D survey area was located in the offshore Victorian Permit Block Vic P/43. The centre of the prospect approximately 50 kilometres south of Port Campbell, Victoria and the closest landfall to the area was 30 kilometres.

With an in-line orientation of 009°/189° degrees, the sail-line area was bound by the following corner co-ordinates:-

Investigator 3D Block Boundary Co-ordinates for 6 Streamer Boundary

Point	Easting	Northing
1	649973.01	5682748.52
2	652442.72	5698341.65
3	666764.20	5696073.35
4	672656.93	5691887.49
5	670871.62	5680615.50
6	675759.30	5676955.84
7	670890.28	5646214.04
8	648988.29	5649682.98
9	653800.61	5680066.74

Investigator 2D Pre-plotted Line Co-ordinates

Line	SOL		EOL	
	Easting	Northing	Easting	Northing
1	645414.8	5679437.7	671017.5	5715957.1
2	644394.9	5681508.5	700839.7	5679012.6
3	669814.1	5662251.9	697725.0	5687632.2
4	672839.9	5621976.1	682619.4	5671876.9
5	654571.9	5650839.9	675953.1	5622689.1
6	658589.0	5651535.0	690408.9	5637882.8
7	667576.4	5626489.6	670705.1	5646243.4

Seven 2D lines were included into the coverage, and the purpose of these was to tie in previously drilled wells in the region. These lines were positioned on the outer extremities of the 3D area with some line portions passing inside the boundary. Refer to [Appendix: A](#) for a chart depicting all line locations.

The approximate position for the centre of the prospect area was 39° 01'S and 142° 54'E.

2D lines 001, 002 and 003 were not acquired during the period of operations.

Survey Description

The 3D survey initially consisted of 66 prime sail-lines, with a line spacing of 400 metres, equating to approximately 1035.780 square kilometres. The programmeme entailed shooting each sail-line with one seismic vessel, eight (reduced to 6) streamers and a dual source array. This equated to a total of sixteen (reduced to 12) sub-surface lines being acquired with each vessel pass, bringing the total number of CDP sub-surface lines to 1056 and the total sub-surface coverage to 41,722.400 full-fold kilometres (calculated). The grid orientation was such that the lines were shot in a direction of 009.0°, and the reciprocal of this, 189.0°.

Due to time restrictions, not all the survey was completed with a total of 38,757.7750kilometres, (968.9444 square kilometres) being acquired. On instructions from Woodside, the outstanding lines, W00INV1174 through to W00INV1006, were deleted from the survey as were 2D lines 001, 002 and 003.

From 2nd January 2000, the survey area had been recomputed to accommodate acquisition for towing with a reduced 6 streamer configuration. This increased the number of prime sail-lines from 66 to 88.

Calculated sail-line km excluding run out	2,607.65 (8 streamer)
	3,509.26 (6 streamer)
Calculated sail-line km including run out	2759.45 (8 streamer)
	3,711.66 (6 streamer)
Calculated full fold CDP km excluding run out	41,722.40 (8 streamer)
	42,111.15 (6 streamer)
Calculated full fold CDP km including run out	44,151.20 (8 streamer)
	44,539.95 (6 streamer)
Calculated full fold square kms	1,035.78 (8 streamer)
	1,052.78 (6 streamer)

In Zone 1 of the survey area, line numbers 1846-2050 were acquired using the anti-parallel shooting technique, where adjacent sail-lines were acquired in opposing directions. For the remainder of the survey lines were acquired in the more traditional race track technique.

Line Numbering

After recomputing for the 6 streamer configuration the sail-lines were re-numbered, starting at 1006 in the west of the prospect, increasing to 2050 at the eastern extremity. The sail-line numbers incremented/decremented by twelve, such that the line numbering of the twelve sub-surface lines incremented/decremented by one. The sail-line name referred to the sixth sub-surface line in each group of twelve. The sail-line co-ordinates reflected the line traversed in the middle of the twelve sub-surface lines.

The 3D line numbering convention used was as follows:-

W00INVnnnncs

where:-

W00INV	-	indicates the Woodside survey identifier for Investigator 3D
nnnn	-	was the sail-line number
c	-	was the last code for the line type (P: Prime R: Reshoot I: Infill)
s	-	was the attempt number for the sail-line and line type (1 to 9)

The following explanation is for the 'c' line type code:-

P: Prime	Used to signify any portion of a line that was to be chargeable
R: Reshoot	Used for any line portion that was reshot but had already been charged for.
I: Infill	Used for any line that had already been previously shot and charged for, that was re-acquired in order to bring the coverage up to specification

No sequence numbers were to be input to the line numbering on tape but could be used for normal identification purposes.

The 2D line numbering convention used was as follows:-

WINVnnnncs

where:-

WINV	-	indicates the Woodside survey identifier for Investigator 2D
nnnn	-	was the sail-line number
c	-	was the last code for the line type (P: Prime R: Reshoot)
s	-	was the attempt number for the sail-line and line type (1 to 9)

The following explanation is for the 'c' line type code:-

P: Prime	Used to signify any portion of a line that was to be chargeable
R: Reshoot	Used for any line portion that was reshot but had already been charged for. No. sequence numbers were to be input to the line numbering on tape but could be used for normal identification purposes.

3.1.4 Shotpoint Numbering

The shotpoint numbering was designed so that lower shotpoint numbers would be at the south of each line, increasing to the north. Shotpoint numbering decremented when traversing in the opposite direction, i.e. north to south.

The NRP (Navigation Reference Point) was designated as the centre of the main navigation mast at sea-level. The first chargeable shotpoint of each line was designated as the point where the CMP (the Common Mid Point, halfway between the source and nearest active group) was positioned over the start co-ordinate of the line (i.e. the first cell at the edge of the grid). This occurred when the NRP position was the equivalent distance of 30 shotpoints (375.00 metres) further on from the start of the line. This situation, also meant, an extra 30 shotpoints were added on to the end of the line. In addition, a 184 shotpoint overlap was traversed at the end of each line in order to achieve full-fold coverage to the edge of the grid. The lines shot north, had incrementing shotpoint numbers, whereas lines shot towards the south, had decrementing shotpoints.

3.1.5 3D Grid Definition

The grid covering the area was divided into cells or bins. Each bin had a width of 25.00 metres and an in-line length of 6.25 metres. There were eight/six lines of bins either side of each sail-line, totalling sixteen/twelve for each sail-line. Each CDP line fell in the centre of a bin line. To cover the entire area, there were a total of 1056 bin lines acquired, within the 66 prime sail-lines. The combination of the grid configuration, the shotpoint interval and streamer channel spacing, dictated an effective fold of 92 (9200%).

With the reduction from 8 to 6 streamers, new block, line co-ordinates and way-points were supplied by Woodside via EDR Hydrosearch to the vessel on 2nd January, 2000. The reduction in deployed streamers, meant the sub-surface coverage was reduced for each sail-line from 16 CMPs to 12.

3.1.6 General Survey and Geodetic Parameters

General Information

Client:	Woodside Energy Limited
Survey Name	Investigator 2D and 3D Seismic Surveys
Survey Area	Block Vic P/43
Survey Vessel	MV WESTERN PRIDE
Party Number	140
Type of Survey	Seismic 3D and 2D / six streamer / dual source

Survey

Total Coverage Area	1,035.78 km ² (8) 1,052.78 km ² (6)
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Total Sail-lines	3D – 66/88 2D - 7
Total Sail-line Kilometres	2,607.65 km excluding run outs (8 streamer) 3,509.26 km excluding run outs (6 streamer)
Total CDP Sub-surface Lines	1056
Total CDP Sub-surface Kilometres	41,722.40 km (8 streamer)(calculated) 42,111.15 km (6 streamer)(calculated)

Recording

Recording Instruments	MSX seismic recording system
Recording Media	IBM 3590
Recording Format	De-multiplexed (8058) SEG-D 4 byte
Record Length	5120 ms (5.0 s) sequence 1-3 4608 ms (4.5 seconds) from sequence 4
Shotpoint Interval	12.50 m
CRS Multi-shot Record Length	Single shot mode
Sample Rate	2 ms
Low Cut Filter/Slope	2 Hz at 12 dB/O
High Cut Filter/Slope	206 Hz at 264 dB/O
Pre-amp Gain	6 dB
Recorded Channels	Total: 2376 Seismic: 2208 (368 per streamer) Water-break: 24 (4 per streamer) Auxiliary: 36 near field phones

Streamer

Streamer Type	Sentry solid streamer system
Number of Streamers	8 streamers for sequences 1-8 6 streamers for sequences 9-147 1 streamer for sequence 148
Active Streamer Length	8 and 6 x 4600 m
Active Streamer Groups	8 and 6 x 368
Group Interval	12.5 m
Group Length	17.7 m
Shotpoint Interval	12.50 m
Streamer Towing Depth	6.0 m \pm 1.0m
Streamer Lateral Separation	100.00 m between each streamer (700.00 / 500m total spread)

Energy Source

Energy Source	Dual airgun array
Energy Source Type	Sleeve guns
Nominal Pressure	2000 psi
Total Volume	2250 cu in
Total Number of Subarrays	2 arrays - 3 strings per array
Total Number of Guns	24 total, (24 active elements 0 spares)
Synchronisation Tolerance	\pm 1.0 ms
Energy Source Depth	5.0 m \pm 0.5m
Source Separation (Centre to Centre)	50.00 m (string separation 6 m)

Navigation and Positioning

Primary Navigation	Racal Multifix dGPS
Secondary Navigation	Fugro MRdGPS
QC System	PS Multiref dGPS
Navigation Computer System	SPECTRA
3D Binning System	REFLEX
Acoustic Positioning	DigiCOURSE PRO 2000
Compass / Levellers	DigiCOURSE PRO 2000
Laser Positioning	MDL Fanbeam
Head/Tailbuoy Positioning	PosNet
Shotpoint Interval	12.50m flip / flop

3D Coverage Binning

CDP Lines per Sail-line	16 / 12
3D CDP Line Separation	25.000 m
3D Bin Length	6.25 m
3D Grid Orientation	009° / 189°
Nominal Fold	9200%
Streamer Segment Group Allocation	Seg 1: 25% Seg 2: 25% Seg 3: 25% Seg 4: 25%
Required Minimum Coverage	Seg 1: 90% Seg 2:80% Seg 3: 70% Seg 4: 60%

Other Systems

Seismic QC System	Omega seismic processing system
Navigation Processing	Unavchk
Echo Sounder	Simrad EA 500
Gyro Compass	SPERRY MK 227
Acoustic Control	Digicourse PRO2000
Streamer Depth/Compass Control	Digicourse PRO2000

Geodetic Information

The following parameters were used for all positioning data, survey, and line co-ordinates. All data was acquired in AGD-84 datum.

Map Projection

Projection	UTM
Zone	AMG Zone 54 S
Central Meridian	141° E
Latitude of Origin	0° N
False Northing at Origin	10000000.000m
False Easting	500000.000m
Scale Factor on CM	0.9996

Survey Datum Details

Spheroid Name	Australian National Spheroid (ANS)
Datum Name	Australian Geodetic Datum 1984 (AGD 84)
Semi-major Axis	6378160.0m
Semi-minor Axis	6356774.7m
Inverse Flattening	298.25

Datum Transformation Details

Shift From	World Geodetic System 1984 (WGS 84)
Shift To	Australian Geodetic Datum 1984 (AGD 84)
	This follows the Bursa Wolffe Convention
Shift DX	+116.00m
Shift DY	+ 50.47m
Shift DZ	-141.69m
Rotation X	-0.230 s
Rotation Y	-0.390 s
Rotation Z	-0.344 s
Scale Factor	-0.0983000 ppm

3D Grid Specifications

Total Proposed Full-Fold Area	1035.78 km ²
Total Full-Fold CDP Kilometres	41,722.40 km excluding run out
Full-Fold Sail-line Kilometres	2759.45 km including run out
Number of Sail-lines	66 – 8 streamers/ 88 – 6 streamers
Number of Sub-surface Lines	1,056
Sub-surface Lines per Sail-line	16 for 8 streamers / 12 for 6 streamers.
Sub-surface Line Separation	25.00 metres
3D Bin Length	6.250 metres
3D Grid Orientation	009° / 189°
Nominal Fold	92 (9200%)
Streamer Segment Group Allocation	Seg 1: 25%, Seg 2: 25%, Seg 3: 25%, Seg 4: 25%
Required Minimum Coverage	Seg 1: 90%, Seg 2: 80%, Seg 3: 70%, Seg 4: 60%

Nominal Offsets

Nav. Ref. Point to Centre of Source	315 m (in-line)
Centre of Source – Centre of Near Group	125 m (in-line)
Navigation Reference Port to Centre of Near Group	445 m (in-line)

3D Grid Definition (Western Reflex System)

The Concept Systems, Reflex System, used a predefined set-up

Survey Area

Orientation	009° / 189°
Grid Origin	643880.9 E 5647960.7 S
Bin Grid Extension	X= 53587.5 Y= 27475.0
Bin Size	X= 25.00 Y= 12.50
Bin Increment	X=1 Y=1
Bin Number at Origin	X= 801 Y= 978
Number of Segments	4 per streamer
Discreet Offset Steps	1150 m
Near Offset	440 m (navigation reference point to near group)
Bin Width	25.000 m
Bin Length	6.25 m
Bin Expansion	No flexing applied during acquisition. 100% at near offset tapered to 300% at far offset

Segment	Offsets	Coverage	Required	Hits	Required
1 Nears	1-92	90%	90%	15	13
2 Near Mids	93-184	80%	80%	15	12
3 Far Mids	185-276	70%	70%	15	10
4 Fars	277-367	60%	60%	15	9

The binning requirements specified by Woodside, were the preferred flexing of 0, 0, 1, 2 bin widths, with a tolerance of 1, 1, 2, 3 for holes remaining. Coverage was assessed using the preferred flexing method, with any holes greater than one bin width, being filled subject to the location on the survey block.

3.1.7 Significant Dates

Date	Comments
December 1999	
2 nd	On instructions from Woodside – commence transit to the Otway Basin. The Indian survey will be left incomplete at this time.
4 th	Commence final attempt at achieving 56.25metre gun array separation.
5 th	Retrieve streamers and sources – all offsets and separations have been achieved and are acceptable, albeit somewhat unstable.
5 th	Continue transit to the Otway Basin.
13 th	Complete transit - arrive at streamer deployment location – commence streamer deployment – chase boat on location.
14 th	Continue with streamer deployment – first day of the crew change.
15 th	Continue with streamer deployment – last day of crew change
16 th	Delay deployment of 8 th streamer due to weather.
18 th	Commence repairs to streamers 2, 3, 4, 6, 7.
22 nd	Acquire first acceptable line W00INV2048P1 (8 streamer).
23 rd	Notification the CRS will not be used in multi-shot mode.
30 th	Port vane parted from tow wire during streamer recovery.
30 th	Port baro-vane lost during recovery of streamer 8.
31 st	Baro-vane spotted by Smit Lloyd, alongside for recovery.
January 2000	
1 st	Baro-vane recovered, commence deployment of streamers.
2 nd	Receive new way-points and line co-ordinates for 6 streamers.
3 rd	Successfully configured to six streamers, commence acquisition.
11 th	Port vane tow wire parted, streamers recovered.
14 th	Port vane recovered, following loss on 13 th .
17 th	Streamers fully deployed, acquire infill line before recovering for crew change.
18 th	Streamers fully recovered, heading for Portland. Alongside.
19 th	Complete crew change – re-supply in Portland. Load 300 tons of fuel.
21 st	Remain in Portland on weather standby.
22 nd	Depart Portland for the survey area.
24 th	Commence streamer deployment.
26 th	Commence production but forced to abandon due to fishing activity.

- 27th Approval to extend cable depth control limits to 4.5 metres and 7.5 metres
- 31st Approval given to acquire swathe 2, 3 and 4 in ‘race-track’ mode.

February 2000

- 20th & 21st Recover all equipment due to weather. Travel to Portland for crew change
- 22nd Complete crew change formalities and resupply in Portland
- 23rd Depart Portland for the survey area, return to Portland (port barovane).
- 24th Arrive in Portland, repairs to barovane, depart that afternoon.
- 28th Production resumes.

March 2000

- 14th Completion of second swathe acquisition. Moving over to west.
- 28th Recover all equipment for crew change in Portland.
- 29th Complete crew change formalities and resupply in Portland.
- 31st Advised to restrict acquisition to focus on remaining prime lines to fill the gap between swathes 3 and 4 (Henri Dupuy).
- 31st Advised not to acquire any infill unless gaps of more than 4 CMP’s are apparent (Henri Dupuy).

April 2000

- 2nd Advised to acquire 2D line W00INV006 (Henri Dupuy).
- 4th Advised to acquire remaining 2D lines in T/30-P – co-ordinates and plan supplied by Woodside (H. Dupuy).

3.1.8 Modifications To Contractual Specifications

Date	Modification
November 18 th	Approval to use shore-based calibrated sections from the streamer manufacturers. E-mail from SIEP and Woodside. (Streamers 3, 4, 7, 8)
November 18 th	Gun dropout specifications as per SIEP standards to be used. E-mail from SIEP.
December 12 th	Timing errors between 1millisecond and 1.5milliseconds to be logged but not edited from the data. Timing errors above 1.5milliseconds classified as misfires and to be edited as bad shots.
December 23 rd	Record length changed from 5 seconds to 4.5 seconds. CRS multi-shot mode with-drawn by WGC.
December 31 st	Received verbal approval to configure to 6 streamer spread.
January 2 nd	Receive new line co-ordinates for 6 streamer configuration (e-mail)
January 6 th	Received verbal approval to continue with streamer 4 module 20 inoperative.
January 28 th	Received verbal approval to continue with 3 adjacent bad traces in streamer 1.
April 1 st	Received verbal approval to acquire data with cables displaying higher than normal levels of noise and exhibiting poor depth control.
April 1 st	Received verbal instruction not to acquire any further partial infill.
April 2 nd	Instructed to attempt 2D line W00INV006 – single source, shot interval 25 metres, record length 6 seconds. (H. Dupuy).

April 4th

Instructed to acquire remaining 2D 004, 005, 006, 007 lines. (H. Dupuy).

3.2 SURVEY TECHNIQUES

3.2.1 Vessel and Equipment

The Investigator 3D and 2D surveys were acquired using the MV WESTERN PRIDE, of Baker Hughes/Western Geophysical (from here on referred to as Western), towing eight identical 4600 metre long seismic streamers, and firing a dual 2250 cubic inch source array. Each streamer consisted of 368 hydrophone groups that were spaced at an interval of 12.5 metres. The source array consisted of point sources, each consisting of 3 strings, with each string containing 8 compressed airguns, firing at a nominal pressure of 2000 pounds per square inch. The vessel was required to travel along the pre-plotted lines of the 3D grid, towing the trailing equipment, with nominal separations of 100.00 metres between each of the streamers, giving a 700.00 metre spread.

Due to operational problems and considerable incurred technical downtime it was agreed that from 2nd December the remainder of the Investigator 3D survey and 2D lines would be acquired using 6 streamers in place of the originally tendered 8. This resulted in an additional 22 sub-surface having to be acquired. The spread was reduced to 500 metres, and sub-surface CMP coverage reduced from 16 to 12.

The 2D lines acquired in block T/30-P were acquired with a single streamer, single 2250 cubic inch source, 6 second record length and 25 metre shotpoint interval.

Refer to [Appendix C](#) for the Survey Parameter and Equipment Report and [Appendix G](#) for the Vessel specifications.

3.2.2 Seismic Recording

On each shotpoint, every 12.50 metres, the reflected seismic data would be collected by the 368 channels in each streamer, and recorded using the MSX recording system, using a 2 millisecond sample rate and a 4.5 second record length. The filtering used was a 2 Hertz low-cut, with a slope of 12 decibels per Octave, and a 206 Hertz high-cut, with a slope of 264 decibels per Octave.

Due to operational problems and considerable incurred technical downtime the Continuous Recording System, (CRS) operating in multi-shot mode was withdrawn from the instrument set-up and contract requirements on 23rd December 2000. This followed discussions and agreement by both Western and Woodside management.

At the same time the recorded data length during acquisition was reduced from 5 seconds to 4.5 seconds, again with approval from both Companies.

For 2D acquisition, record length was increased to 6 seconds, over a 25 metre shot interval.

3.2.3 Energy Source

A dual, sleeve gun source array was utilised as the energy source. A single array consisted of 3 strings, each containing 8 elements (airguns), firing at a nominal pressure of 2000 pounds per square inch and of 2250 cubic inch capacity. A total of 6 strings were deployed, with the outer strings used for positioning. Array drop-out specifications used, were those supplied by Western and accepted by SIEP following modelled array analysis.

Shotpoint interval was 12.50 metres, with the arrays fired in the flip/flop method.

Separation between arrays was 50.00 metres, with 6 metres between individual gun strings.

For the 2D acquisition a single 2250 cubic inch source was deployed.

Refer to [Appendix C](#), for Survey Source Information and [Appendix F](#), for the Array Dropout Criteria and Source Layout schematics.

3.2.4 3D Acquisition Method

Each streamer was logically divided into 4 primary offset segments of equal lengths, each of 1150 metres. The coverage would be assessed using separate fold criteria for each segment, with higher coverage required for the front segment than from the far one. The offset distribution during each shotpoint was used to update the real-time Reflex QC binning system grid database, which in turn was used to assess the offset distribution for each segment, within each bin. The survey would be considered complete when certain percentage criteria were met for the coverage in all the grid bins. The nominal fold was 92.

The lines in swathe 1 were acquired using the anti-parallel shooting methodology, but this was relaxed for the remaining swathes due to fishing and logistical problems involving tighter than normal turns which added extra tension on to the towed systems.

Swathes 2 and 3 were shot concurrently using the regular 'race-track' method while 3 and 4 were also combined and acquired in similar fashion.

Swathe 5 was not acquired.

3.2.5 Navigation and Positioning

Refer to the Navigation Report for this project prepared by EDR Hydrosearch. The report supplied by EDR should include all matters pertaining to Prime navigation system performance, compass, acoustics, GPS and tailbuoy operations.

3.2.6 Quality Control and Processing

The quality control of the acquisition activities occurred through the use of a number of onboard devices. Equipment, such as computers, video displays, status panels, printers and plotters, were used by on board personnel to check the quality of data, and process raw data. Seismic processing and navigation processing systems were onboard for real-time and post-line analysis.

A seismic acquisition consultant from Exploration Consultants Australia, and a navigation consultant from EDR Hydrosearch, were onboard to provide an independent check of the quality and validity of both the data and the methods used to acquire the data.

3.2.7 Gravity and Magnetometer

There was no requirement for the recording of gravity or magnetic data.

3.2.8 Chase Boats

The MV SMIT LLOYD 28 had been chartered to act as supply and chase boat for the duration of the survey. Overall condition of the vessel was good and co-operation between the vessels and crews was of a high standard. The MV SMIT LLOYD 28 was also utilised when required, to transfer personnel from shore.

The MV SMIT LLOYD 28 had been used on two earlier surveys, and had transited from Western Australia, arriving on location some days after the MV WESTERN PRIDE having completed a port call in Portland to bunker and resupply.

A second chase vessel, the MV PERFECT LADY, mobilised from Port McDonnell, in South Australia.

This vessel had been chartered to assist in acquisition as it had been anticipated there may have been problems with cray-fishing and general fishing activity in the area, plus the possibility of coastal shipping en route to, and from, the Port of Melbourne via the Bass Strait.

The MV PERFECT LADY was on location at the pre-determined cable deployment location at 18:30 hours on 13th December. She had previously departed Port McDonnell in South Australia at 11:30 hours the same day.

Refer to Appendix H of this report for a breakdown of both the vessels' daily operations whilst in the field.

3.2.9 Helicopter Operations

14th and 15th December 1999

It had been the intention to use a helicopter for the December crew change and subsequent crew changes in this region, and a special flight had been arranged to depart from Western Australia on Sunday 12th December arriving in Adelaide 13th December; and then travelling on to Portland to arrive on 14th December for that specific purpose.

The crew change was scheduled to take place out of Portland, Victoria over 2 days, the 14th and 15th December.

Weather and sea conditions at the time were fair with winds variable up to 13 knots and a southerly swell from 1 to 2 metres.

A number of tests on various headings and courses were made so as to position the vessel on the most favourable course where minimum pitch and roll were indicated prior to the arrival of the helicopter from shore.

Current weather conditions, payload and passenger manifests were completed prior to the departure of any flights from Portland. Radio communications, location beacon, emergency fire-fighting and emergency equipment were also tested prior to the arrival of any aircraft on deck.

No other helicopter crew changes or flights were made to or from the vessel.

3.3 CONTRACTORS

Western Geophysical

The primary survey contractor was Western Geophysical Company (WGC) a subsidiary of Baker Hughes, which provided the seismic survey vessel MV WESTERN PRIDE, together with all necessary geophysical exploration equipment and personnel to complete the seismic survey. Marine party chief and co-ordinators were onboard the vessel to co-ordinate all seismic operations and liaise with the onboard client representative. Shore supervisors were provided for shore-based logistics at Western's offices in Perth and Singapore. These persons also arranged for the provision of any technical back-up that was required throughout the survey.

Western Geophysical,
2nd Level, Sheraton Court
207 Adelaide Terrace, East Perth
Western Australia 6004

Total Marine

Western contracted the ship's crew from Total Marine. This crew comprised the ship's officers, engineers, cooks, stewards and able-seamen, who were primarily concerned with the day-to-day running of all the ship's standard marine resources.

Exploration Consultants Australia Pty Ltd

Exploration Consultants Australia Pty Ltd (ECA) was contracted to supply the full time services of experienced seismic acquisition consultants (from here on referred to as the client representatives) to oversee all seismic acquisition operations on behalf of Woodside. The client representative reported primarily to Christopher Carpenter of Woodside on a regular daily basis, or as appropriate, regarding all aspects of the operation. On board the vessel, by nature of being in a position to have an overall view of the project, the final acceptance of line data and survey completeness was the responsibility of the client representative. A comprehensive final report covering all aspects of the survey was to be supplied to Woodside upon survey completion.

Exploration Consultants Australia Limited
Level 1, 610 Murray Street
West Perth, WA 6005
Australia

EDR Hydrosearch Pty Ltd

EDR Hydrosearch Pty Ltd (EDRH) was contracted to supply the full time services of an experienced Navigation Consultant (from here on referred to as the Client Representative) to oversee all navigation acquisition operations on behalf of Woodside.

EDR Hydrosearch Ltd,
Level 3, 267 St. Georges Terrace
Perth, WA 6000
Australia

3.4 OVERVIEW OF OPERATIONS

The vessel arrived at the streamer location point at 21:00 hours local Victorian time on 13th December. The second chase boat the MV PERFECT LADY, rendezvoused with the MV WESTERN PRIDE at 18:30 hours the same day. Meanwhile the MV SMIT LLOYD 28 was en-route to Portland to bunker and resupply before coming out to the survey area. A third chase boat, PATRICIA J was operating in Corridor One of the prospect area scouting and clearing any crayfish pots or other obstructions in the area.

Weather at the time of arrival in the area was fair, with winds variable, up to 15 knots, and a sea and swell combined up to 2 metres. A number of tests in various directions were made, to check the pitch and roll factors of the vessel in the swell, to ensure that it was safe for helicopter landings over the next 30 hours to complete the change of crew.

The first of the flights departed Portland at 17:30 hours on 14th December, and by noon on the 15th December, all personnel had been relieved. A total of 6 flights were made between the vessel and Portland, Victoria. During this period deployment of streamers continued.

The MV SMIT LLOYD 28, departed for crew change and resupply, on the evening of 28th December, returning to the prospect on 30th December.

During recovery operations of streamer 8 on the morning of the 30th December, the port baro-vane was lost, when the tow wire parted while the baro-vane was alongside for streamer repairs. A spotter plane was mobilised and continued searching till dusk but with no success. The vane was eventually spotted by the MV SMIT LLOYD 28 which had returned from port on the 31st December. The WESTERN PRIDE, having completed recovery of all streamers following delays due to weather, eventually recovered the vane back onboard on the afternoon of 1st January 2000.

The streamers were deployed again, and configured for 6 streamer mode and production resumed on 3rd January. Acquisition continued through to the afternoon of 11th January until the port baro-vane tow wire parted at the sheave on deck, resulting in the loss of 400 metres of tow wire which was still attached to the vane. The port lead-in took up the tow strain of this vane, while the remaining streamers were recovered again. During the recovery of streamer 5, the vane tag line parted and the vane floated free. The position was

marked by the MV SMIT LLOYD 28. Attempts were made to recover the vane on 13th January, but without any success, due to unsuitable sea conditions. The port baro-vane was successfully recovered on the afternoon, of 14th January and the streamers deployed again.

Production commenced on the morning of 17th January with one infill line being completed before the vessel recovered all trailing equipment for a crew change in Portland between the 18th and 19th January. The crew change and resupply period in Portland was extended as considerable transfer of spares and equipment was necessary to and from the vessel. By the evening of 20th January all loading had been completed and the vessel stood by alongside in Portland but departure was delayed until 06:20 hours on 21st January, due to a forecast of extended periods of bad weather and rough seas.

On departure, conditions and swell were still unsuited to production and so streamer deployment was delayed till the morning of the 24th and continued through until early morning of 26th January. During this time, downtime was incurred due to problems associated with streamer 3.

With all six streamers and source arrays deployed and tested, production was able to continue in moderate sea conditions in the morning of 26th January.

Unfortunately the production period was short as a disabled fishing vessel drifted directly across the line that the MV WESTERN PRIDE was attempting to acquire. This necessitated the abandonment of the line and non-acceptance of any data. A second fishing vessel had also been narrowly averted after being at anchor some 4 kilometres prior to the start of the line location.

All vessels had been contacted by VHF, but there was little co-operation from either vessel. Finally a third vessel came and commenced a tow of the disabled vessel back to Port Fairy. Meanwhile the MV WESTERN PRIDE continued her circle back to restart the line. During this turn, 2 depth indicators were replaced and debris was removed a 3rd depth-controller.

The 2 chase boats had contacted the vessels prior to our arrival and the MV PERFECT LADY had scouted the line to which we were approaching and advised us that on 2 passes no fishing buoys had been observed. Visibility was at the time severely reduced due to rain and low cloud.

With an improvement in weather and sea conditions, good production was finally underway late January and maintained through until the first week of February. Some equipment and source downtime was incurred, but overall operations ran smoothly. Fishing vessels were still operating in the region but the rapport and assistance from these vessels had improved.

On 11th February weather and swell deteriorated again and the vessel went back to weather standby until conditions improved. During these periods of standby it was impossible to control the cable depths in the rough conditions. The situation became quite severe and the MV WESTERN PRIDE was unable to turn safely for at least 30 hours, placing it a long way from the survey area once conditions improved. During this period it was necessary to recover the baro-vanes for streamer repairs and it was reported that both vanes had been damaged and hair-line cracks were observed in the towing frame brackets. The cracks were temporarily welded and additional bracing was also welded onto the frames. With the repairs completed the systems were deployed but they would be replaced at the earliest opportunity.

Meanwhile weather continued to improve, and production was again underway on 15th February. This continued until 20th February, when all equipment was again recovered due to forecasts of impending bad weather and the conditions experienced at the time. A decision was then made to take the vessel into Portland at this time to complete a scheduled crew change on 22nd February. During the time in port, equipment repairs and refuelling would also be undertaken.

The vessel finally departed Portland on 23rd February for the survey area with only one streamer deployed, when the port barovane hit the bottom, resulting in severe damage, which required the vessel to return to port for barovane replacement / repairs. The vessel finally departed Portland on the evening of 23rd February. The streamers were fully deployed by 28th February and production resumed.

Acquisition on the second swathe (zones 2 and 3) continued through to 3rd March with the finalisation of the prime lines. From 3rd to 14th March, the vessel acquired a number of infill passes to complete the second swathe, mainly for far and far-mid deficient coverage. Nearly half of this infill period was lost to swell-related downtime, with a number of acquired sequences having to be reshot.

The vessel moved from the second swathe of lines on the 14th March, having completed sequence 112, and moved west to the second set of lines, in zones 3 and 4 of the block. Acquisition continued in this area, with the main interruptions being for weather and only minimal downtime being incurred for equipment failure.

Operations came to a halt on the evening of 27th March when, following the acquisition of sequence 141, the trailing equipment was recovered for crew change. Expected bad weather from 29th to 31st March, saw the vessel arriving in port on 29th March.

The vessel departed later the same day (29th March) and experienced a very large southerly swell up to 3 metres immediately after clearing the Portland harbour entrance. The swell slowed deployment times but acquisition was underway again in the early morning of 1st April. At this time conditions were marginal but on advice of Woodside, production continued even though swell noise bursts were high and cable depth control was erratic.

Production continued steadily for the following days and, although weather and sea conditions were the cause of poor cable depth control and excessive swell noise, good production rates were maintained until 2nd April when it was advised that the survey would be abandoned the following day. This date, was later extended till 5th April, to allow for final acquisition of priority 2D lines in Block T/30-P.

A revised 2D survey plan was supplied to the vessel on 3rd April, (by H. Dupuy), which restricted acquisition to 100kilometres inside Block T/30-P. The lines were acquired with a single streamer and single source. The array volume was 2250 cubic inches, shot interval 25 metres and the record length was 6 seconds.

The last valid 3D line sequence, sequence 147, line W00INV1342I1, was acquired on 3rd April at 10:42 hours. This brought the total sail-line production to 4716.4875 kilometres, which consisted of a prime production of 3348.4875 kilometres, and infill production of 1368.000 kilometres, with an infill percentage of 40.85%. Sub-surface coverage for prime production was 40,717.0500 kilometres and 15805.050 kilometres for infill.

The last valid 2D line sequence acquired, was sequence 152 line, W00INV005 on 5th April at 14:41 hrs. This brought the total sail-line production of 2D prime acquisition to 129.259 kilometres.

Following this, all equipment was retrieved and the vessel travelled back to Portland the survey completed. The vessel arrived at the Portland Pilot Station at 07:30 hours on the morning of 6th April, then proceeded alongside to load stores and equipment which had been in storage in Portland. It was at this time, 08:30 hours the client representatives prepared to depart the vessel.

4.0 STATISTICAL DATA

4.1 PROGRAMMEME STATISTICS

Following is a list of the Time and Production Breakdowns logged during the 3D and 2D acquisition of the Investigator Survey. All times were recorded using the Exploration Consultants Australia Survey Management System Software, ISMS.

Where applicable descriptions of some lost production and operational times have been more fully detailed.

Report for the Period 5th December, 1999 to 6th April, 2000

This report section covers only the Investigator 3D (3D MSS) acquisition.

	Period	(%)	Survey	(%)
Recording	457.550	16	457.550	16
Line Change	222.583	8	222.583	8
Sea	764.950	26	764.950	26
Fishing Interferences	35.333	1	35.333	1
Instrument	24.033	1	24.033	1
Source	30.250	1	30.250	1
Streamer	85.917	3	85.917	3
In-sea Positioning	52.450	2	52.450	2
Ship	6.733	0	6.733	0
Transit	181.500	6	181.500	6
Travel to and from Port	55.533	2	55.533	2
Port Call	149.883	5	149.883	5
Resupply	3.800	0	3.800	0
Human	2.533	0	2.533	0
Demobilisation	1.917	0	1.917	0
Infill	192.633	7	192.633	7
Towing Equipment	217.083	8	217.083	8
Infill Line Change	110.683	4	110.683	4
Deploying	239.267	8	239.267	8
Recovery	53.517	2	53.517	2
Total :	2,888.150	100	2,888.150	100
	Period	(%)	Survey	(%)
Production	983.450	34	983.450	34
Standby	30.833	1	30.833	1
Weather Downtime	1,001.433	35	1,001.433	35
Breakdown	206.550	7	206.550	7
Resupply	151.367	5	151.367	5
Error	2.533	0	2.533	0
Miscellaneous	26.500	1	26.500	1
Transit	181.500	6	181.500	6
Deployment	172.783	6	172.783	6
Recovery	61.750	2	61.750	2
Source Seprn	16.833	1	16.833	1
Lead-in Failure	9.750	0	9.750	0
Streamer Separation	24.683	1	24.683	1
Debris Damage	4.500	0	4.500	0
RGPS	9.433	0	9.433	0
Maintenance	4.250	0	4.250	0

	Total : 2,888.150	100	2,888.150	100
	Period	(%)	Survey	(%)
Prime	457.550	16	457.550	16
Operations	333.267	12	333.267	12
Standby	1,126.333	39	1,126.333	39
Contractor	386.833	13	386.833	13
Mobilisation/Demobilisation	11.750	0	11.750	0
Infill	192.633	7	192.633	7
Resupply	139.867	5	139.867	5
Transit	181.500	6	181.500	6
Western	58.417	2	58.417	2
	Total : 2,888.150	100	2,888.150	100

Sailed Kilometres

	Period	(%)	Survey	(%)
Prime	3,592.0000	69	3,592.0000	69
Infill	1,478.2875	28	1,478.2875	28
Infill (Percentage of Prime)	41	41	41	41
Reshoot	156.5875	3	156.5875	3
	Total : 5,226.8750	100	5,226.8750	100

Charged Sailed Kilometres

	Period	(%)	Survey	(%)
Prime	3,348.4875	71	3,348.4875	71
Infill	1,368.0000	29	1,368.0000	29
Infill (Percentage of Prime)	41	41	41	41
	Total : 4,716.4875	100	4,716.4875	100

CDP Kilometres

	Period	(%)	Survey	(%)
Prime	40,717.0500	72	40,717.0500	72
Infill	15,805.0500	28	15,805.0500	28
Infill (Percentage of Prime)	39	39	39	39
	Total : 56,522.1000	100	56,522.1000	100

Square Kilometres

	Period	(%)	Survey	(%)
Prime	1,017.9263	72	1,017.9263	72
Infill	395.1262	28	395.1262	28
Infill (Percentage of Prime)	39	39	39	39
	Total : 1,413.0525	100	1,413.0525	100

Fullfold Sailed Kilometres

	Period	(%)	Survey	(%)
Prime	3,187.5125	71	3,187.5125	71
Infill	1,296.7250	29	1,296.7250	29
Infill (Percentage of Prime)	41	41	41	41
	Total : 4,484.2375	100	4,484.2375	100

Fullfold CDP Kilometres

	Period	(%)	Survey	(%)
Prime	38,757.7750	72	38,757.7750	72
Infill	14,977.3500	28	14,977.3500	28

Infill (Percentage of Prime)	39	39	39	39
Total : 53,735.1250	100	53,735.1250	100	

Fullfold Square Kilometres

	Period	(%)	Survey	(%)
Prime	968.9444	72	968.9444	72
Infill	374.4337	28	374.4337	28
Infill (Percentage of Prime)	39	39	39	39
Total : 1,343.3781	100	1,343.3781	100	

Report for the Period 5th April, 2000 to 6th April, 2000

This report section covers only the Investigator 2D acquisition.

	Period	(%)	Survey	(%)
Fishing Interferences	0.533	1	0.533	1
Instrument	4.450	8	4.450	8
Demobilisation	2.150	4	2.150	4
2D Production	12.500	22	12.500	22
Deploying	11.467	20	11.467	20
Recovery	14.150	25	14.150	25
2D line change	11.100	20	11.100	20
Total : 56.350	100	56.350	100	

	Period	(%)	Survey	(%)
Standby	0.533	1	0.533	1
Breakdown	4.450	8	4.450	8
Configuration	21.700	39	21.700	39
Miscellaneous	2.150	4	2.150	4
Deployment	3.917	7	3.917	7
2D Production	23.600	42	23.600	42
Total : 56.350	100	56.350	100	

	Period	(%)	Survey	(%)
Standby	22.233	39	22.233	39
Contractor	8.367	15	8.367	15
Mob/Demob	2.150	4	2.150	4
2D Prime	12.500	22	12.500	22
2D Line Change	11.100	20	11.100	20
Total : 56.350	100	56.350	100	

Sailed Kilometres

	Period	(%)	Survey	(%)
2D	164.4750	100	164.4750	100
Total : 164.4750	100	164.4750	100	

Charged Sailed Kilometres

	Period	(%)	Survey	(%)
2D	129.2500	100	129.2500	100
Total : 129.2500	100	129.2500	100	

CDP Kilometres

	Period	(%)	Survey	(%)
2D	129.2500	100	129.2500	100
Total : 129.2500	100	129.2500	100	

Square Kilometres

	Period	(%)	Survey	(%)
2D	3.2313	100	3.2313	100
Total :	3.2313	100	3.2313	100

Fullfold Sailed Kilometres

	Period	(%)	Survey	(%)
2D	110.8500	100	110.8500	100
Total :	110.8500	100	110.8500	100

Fullfold CDP Kilometres

	Period	(%)	Survey	(%)
2D	110.8500	100	110.8500	100
Total :	110.8500	100	110.8500	100

Fullfold Square Kilometres

	Period	(%)	Survey	(%)
2D	2.7713	100	2.7713	100
Total :	2.7713	100	2.7713	100

4.1.1 Fishing Activity and Shipping Interference

Incurred Downtime: 35.333 hours during 3D acquisition
00.533 hours during 2D acquisition

26th December, 1999 – 4.500 hours

Installed a replacement lead-in on streamer 1, which had suffered damage to the outer skin and fibres some 150 metres from the end. The damage was coincident with that caused by debris or fishing equipment.

9th January 2000 - 3.967 hours

Sequence 21, W00INV1990P1, was terminated due to an anchored fishing vessel on line ahead. LGSP 2040. The following line change took 03:57-07:55 hours as the vessel was forced to circle to avoid a fishing boat anchored on line ahead. (ARTIC GULL).

26th January 2000 – 6.817 hours

Whilst attempting to get on to line sequence 31, W00INV1918R1, the MV WESTERN PRIDE had to divert around a fishing vessel anchored very close to the start of line. Once clearing this vessel there was a second vessel, this time disabled, drifting across our pre-plotted track. We did not have room for clearance and had to abandon the line attempt and circle while both vessels relocated. The disabled vessel received assistance from a third vessel and was towed to Port Fairy.

27th January 2000 – 3.00 hours

During the closing stages of a period of weather standby, a crayfish pot was found tangled around streamer 2. Streamers 3 and 4 had to be 'stacked' to allow access for the recovery of the front end of streamer 2 for repair.

28th January 2000 – 6.75 hours

Continued deployment and clearing of the crayfish pot from the previous day and prepare for acquisition. One depth controller had received superficial wing damage and required replacement.

20th February 2000 – 10.300 hours

Recovered gun strings 1 and 2 and repaired front-end Posnet GPS system which was badly damaged and showed signs of being hit by fishing gear. No fishing gear was recovered.

5th April 2000 – 0.533 hours

During the reshoot of line W00INV006, a number of crayfish pots were reported during the line change, and so course changes had to be made to clear and avoid the pots. No damage was incurred.

4.1.2 Time Sharing and Seismic Interference

A French research vessel, L'ATLANTE was believed to be conducting a bathymetric survey off the continental shelf, in the vicinity of VicP/43. A number of lines to be acquired by the vessel, passed directly through and adjacent to the Investigator prospect. Charts and anticipated dates of arrival of the vessel were supplied.

The vessel was not sighted and there was no interference of lost production time incurred.

Refer to Appendix: A for copies of the track of the L'ANTLANTE during her time in this region.

Incurred Downtime: Nil: hours

4.1.3 Crew Change - Extended Line Change14th to 15th December, 1999 - Helicopter

The first of the scheduled crew changes in this area was completed using a helicopter supplied by Woodside. All crew were ferried between the vessel and Portland over 2 days. No production time was lost during this period.

18th to 19th January, 2000 – alongside in Portland, Victoria

The vessel broke from survey on the 17th January in order to be in Portland 18/19th January for a crew change and resupply. The vessel was ready for departure on 20th January but departure was delayed until the 21st, due to unfavourable weather forecast for the survey area. Deployment of the streamers commenced on 23rd January, with production continuing on 28th January, after incurring additional weather and fishing interference standby.

22nd February, 2000 – alongside in Portland, Victoria

The vessel broke from survey on 20th February to be in Portland 21st/22nd for a crew change and resupply. Prior to this weather forecasts had indicated at least 48 hours of conditions where production would not have been possible. With the crew change complete, fuel, supplies loaded and the repairs completed the vessel departed Portland on the 23rd February. Cable deployment commenced that morning.

29th March 2000 – alongside in Portland, Victoria

The vessel broke from survey on 27th March to be in Portland 29th March January for a crew change and resupply. Prior to this weather forecasts had indicated conditions over the next 48 hours were not conducive for helicopter flights or continuing production. Copies of weather forecasts had been forwarded to Woodside offices in Perth for their information. With the crew change complete, fuel, supplies loaded and repairs completed, the vessel departed Portland on 29th March at 22:50 hours. Cable deployment commenced at 03:00 hours on 30th March.

Transit Time:	181.500 h
Travel to/and from Port:	47.033 h
Port Call:	149.883 h
Demobilisation:	04.067 h

4.2 CONTRACTOR DOWNTIME

4.2.1 Cable Repairs

Incurring Downtime: 85.917 h
Towing System Downtime: 217.083 h

4.2.2 Source Repairs

Incurring Downtime: 30.250 h

4.2.3 Instrument Downtime

Incurring Downtime: 24.033 h during 3D acquisition
04.450 h during 2D acquisition

4.2.4 Human Error

Incurring Downtime: 2.533 h

4.2.5 In-sea Positioning Repairs

Incurring Downtime: 52.450 h

4.2.6 Ship

Incurring Downtime: 6.733 h
Port Call: 149.883 h

4.2.7 Resupply

7th December, 1999: An un-scheduled port call to the anchorage off Fremantle during the transit from the Indian 3D survey, resulted in 11.50 hours of lost transit time. During this time 400 tons of fuel and supplies were transferred between the MV SMIT LLOYD 28 and the MV WESTERN PRIDE.

Incurring Downtime: 11.50 hours.

10th January, 2000: The MV SMIT LLOYD 28 was brought alongside for essential cargo resupply between 12:36-16:34 hours. Incurring Downtime: 3.80 hours

15th February, 2000: The MV SMIT LLOYD 28 came into position at 10:45 hours to attempt in-line refuelling with the MV WESTERN PRIDE. Weather and sea conditions at the time were fine and acceptable to attempt this operation. The tow line had been secured between both vessels and the fuel line had been passed from the MV SMIT LLOYD 28 to the MV WESTERN PRIDE and was secured at the bow but had not been connected to the main onboard fuel lines.

On taking up the slack on the tow line between the vessels, it was found that the tow line was longer than the deployed fuel line and as the tension was applied the dry-break coupling on the fuel line broke and fell into the ocean. Pumping had not started and there was no fuel in the line. No fuel was spilt overboard.

At 11:24 hours the attempt was called off and the tow line released and retrieved by the MV SMIT LLOYD 28, while both vessels maintained a safe clearance.

At 14:25 hours the MV SMIT LLOYD 28 was recalled and this time came alongside the MV WESTERN PRIDE and 200 cubic metres of fuel were safely transferred with the use of camlock couplings.

No fuel was spilled overboard during this operation. The MV SMIT LLOYD 28 finally completed the bunkering and had pulled away by 17 : 22 hours.

During the period alongside, remaining supplies on board the MV SMIT LLOYD 28 were transferred to the MV WESTERN PRIDE.

Resupply: 3.800 h

4.3 SPECIAL CHARGE

Due to significant and on-going time delays, continuing downtime and the failure of the contractor to fulfil all contractual obligations, the contract charges and rates were modified. A fixed rate for the acquisition of data was agreed between Woodside and Western management. This rate was to encompass all contingencies, including weather standby, downtime and acquisition costs.

4.3.1 Kilometre Adjustments from 8 to 6 Streamer Layout

9th January, 2000

Seq 22, 2048R1. Line continuation of sequence 2, terminated for gun volume. Line acquired using 8 streamer way points. Covered necessary 12 CDP area, against original 16 CDP area, effectively leaving boundary 4 CDP gap, on outside edge. Line not charged to correct kilometre difference between 8-6 streamer configuration.

11th January, 2000

Seq 027, 1978I1 02:47-04:13 Line shot in 2 portions, second half as prime reshoot of sequence 21 for fishing interference. The prime portion divided into 2 segments for accounting purposes to compensate for differences between 8/6 streamers.

Seq 027, 1978I1 04:13-04:47 Line shot in 2 portions, second half as prime reshoot of sequence 21 for fishing interference. The prime portion divided into 2 segments for accounting purposes to compensate for differences between 8/6 streamers.

Seq 028, 1846P1 08:53-13:35 Slight wind increase during line. No charge applied to compensate for 8/6 configuration kilometre difference. Good streamer control.

WGC / Disputed Charges

A number of time breakdown charges were disputed during the course of the survey. Following is a table of these periods although there were additional disputed times and periods, particularly during crew change and resupply operations.

Date	Period	Comments
8 th December, 1999	06:00-17:30	Disputed refuelling charge in Fremantle.
21-22 nd December, 1999	00:00-15:56	Disputed charging as per WEL instructions.
22 nd December, 1999	15:56-22:55	Sequence 1, scratched, disputed charge - out of specifications.
10 th January, 2000	12:36-16:24	Resupply operations with MV SMIT LLOYD 28 alongside.
23 rd January, 2000	00:00 – 24:00	Western log full day as weather standby. This included 1.50 of streamer downtime and 6:00 hours deployment due to the Portland crew change call.
24 th January, 2000	00:00-24:00	Western logged full period as weather standby. During this time deployment was underway due to the Portland crew change.
25 th January, 2000	00:00-10:50	Deploying streamers after port call and crew change. Western have again logged this as weather

26 th January, 2000	00:00-07:36	standby. Final stages of deployment after Portland crew change. Western have logged this as weather standby.
5 th April, 2000	16:50-20:45	Awaiting instructions from Western regarding 2D completion or continuation.

4.3.2 Mobilisation

There was no mobilisation charges incurred for the Investigator 3D or 2D operations.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The full programme was not completed as 15 lines, on the western boundary had not been acquired when Western withdrew the vessel from survey operations. In addition the final acquisition of data in swathes 3 and 4 was noisy and was compromised due to excessive swell and erratic cable depths, particularly on sequences 142 and 143. Infill requirements were also relaxed as the survey timing schedule had been extended past its original final completion date.

The proposed full acquisition of the seven 2D lines, was also reduced due to insufficient production time being available. On completion, four 2D lines, or part thereof, located in Block T/30-P had been acquired.

All these matters were under instructions and information received and relayed from Woodside in Perth.

5.1 PROGRAMME OBJECTIVE

The main objectives for the survey were as follows: -

- The overall objective was to conduct and complete a single vessel, 8 streamer, dual source 3-D survey, whilst maintaining the highest acquisition and safety standards possible.
- The acquisition objective of the survey was to acquire 92 coverage over a designated survey area.
- The positioning objective was to accurately position the vessel and trailing equipment.
- The geophysical objective was to acquire high quality data.
- The health, safety and environmental objectives were to complete the survey in the safest manner possible, according to internationally recognised standards, while maintaining health and safety standards of all involved parties, and with no disruption to the environment.

The following points are included for the benefit of both client and contractor. It may be that in some cases, the recommendations will already have been attended to, either during the survey period, or soon after survey completion.

The information is presented in order to help the advancement of the contractor's operational capabilities, and can be used by the client to help assess how much advancement has been achieved, should the same contractor be used again for similar surveys.

5.2 RECORDING SYSTEM

5.2.1 Conclusions

- The MSX system used during the survey performed well, with minimal errors.
- The CRS (Continuous Recording System) in multi-shot mode was not utilised.
- Single shot mode was utilised for the entire survey, after the CRS system was withdrawn from the contract on 23rd December, 1999.
- Sequences 1-3 were recorded with 5 second record lengths, and from sequence 4 onwards the record length was set to 4.5 seconds.

- Sequences 1-4 were recorded with channel sets 5 and 6 incorrectly assigned as they were reversed. The reversed channel sets were left as recorded, with the P1 position data channel sets reversed. This was as per WEL instructions.
- System tests, both daily and semi-monthly, showed that the system was performing within the specifications laid down by the contractor and manufacturer.
- The equipment was well designed and laid out in the instrument room, although there were some notable deficiencies in some of the displays and analysis tools. The single display screen for observing the real-time streamer data was very poor and should be improved by allowing a much faster display update rate, or extra scope displays could be provided to show the multiplexed streamer data in real-time.
- All systems in use were Y2K compliant.

5.2.2 Recommendations

- Update real-time streamer data displays.
- Implement procedural checks following streamer deployment, to check input ports for correct streamer assignments.
- Implement repairs to the CRS system so that the multi-shot mode can be used.
- Further in-field testing of the CRS should be performed to ensure its integrity and in-field reliability.

5.3 STREAMER SYSTEM

5.3.1 Conclusions

- Initial deployment was hampered by weather and rough sea conditions with considerable weather standby incurred. This also included the deployment of the streamers after the Portland crew change in January.
- A number of sections were supposed to have been tested (sensitivity) in Singapore as part of the previous job start-up, but the crew were unaware of the test requirements and so these could not be fulfilled.
- A towing system module had been made available to the crew to assist with the set-up and tow arrangements for this particular configuration for the first time on this vessel.
- Sensitivity tested streamer sections were installed at the tail end of each streamer.
- Streamers 1, 2, 5 and 6 had sections tested by SIEP prior to the start of the survey.
- Streamers 3, 4, 7 and 8 had sections tested by the manufacturer prior to installation.
- Sequences 3-8 were recorded with only 7 streamers' worth of data, due to telemetry problems on streamer 1.
- From sequence 28 to the end of the survey, the number of streamers deployed was reduced to 6, with approval of Woodside management.
- Woodside had agreed, on advice from SIEP they would accept new sections provided calibration and sensitivity data was available from the manufacturers.

- The streamers performed well during most of the survey both electrically and mechanically.
- New ARVIM (radial stretch section used to attenuate longitudinal accelerations down the streamer) sections which had been removed, during the Brecknock survey, were utilised successfully during this survey.
- Channel 368, dropped from each streamer due to last group overlapping into oil filled tail stretch section. The contract initially specified 4500metre active streamer (360 channels), but the last channel would be useless. To over come this an additional section was added to ensure last noisy channel was outside Woodside request.
- Difficulties encountered in finding lost port baro-vane, due to poor visibility of vane, and lack of locating device. Poor colouring of the unit made it very difficult to identify.

5.3.2 Recommendations

- Additional streamer sections should be tested for sensitivity using the onboard ATE machine. The sections, when tested should then be included into the active streamer configuration, as one per streamer. Ideally tests should be recorded in port with the main engines shut down, or be further tested by SIEP.
- New sections should be supplied with full calibration and sensitivity data direct from the manufacturer.

The towing module set-up from Western should be carefully analysed to ensure it is correct so front end depth problems and other system separation problems could be eliminated or reduced.

- Ensure length of all cross-tag ropes and lines are regularly checked and inspected for any physical damage.
- The baro-vane units should have some locating device, such as a transponder attached to it, as well some sort of highly visible colouring.
- If using this vessel again consider only deploying a maximum of 6 streamers.

5.4 ENERGY SOURCE SYSTEM

5.4.1 Conclusions

- A towing configuration set-up had been supplied by Western to assist with achieving the configuration requirements.
- The job was acquired using the contractor's modelled drop-out specifications, with results from the far field signature tests still pending. The specifications applied were approved and acceptable to both SIEP and Woodside.
- Air leaks on individual gun airlines can be remotely turned off if air lines are damaged or ruptured.
- Source performance was of an acceptable standard
- The gun depths are logged at 4 metres with the depth indicators, located 1 metre above the guns at 5 metres.

- All software was Y2K compliant.
- The official version of the gun signature test conducted in October 1999, was received on the 20th February 2000.

5.4.2 Recommendations

- Continue with the current maintenance schedules.
- Obtain the results from the far-field signature tests, so as to conclusively derive a set of drop-out specifications which are acceptable to Woodside prior to acquisition. On this survey the results were received on 20th February some 4 months after the initial tests.
- Ensure length of all cross-tag ropes and lines are regularly checked and inspected for any physical damage.
- Ensure towing configuration models are available onboard to assist with setting up of each job where configuration changes are required.
- Towing and configuration models and set-ups should be thoroughly verified and tested prior to sending the vessel into the field.

5.5 SEISMIC PROCESSING

5.5.1 Conclusions

- A number of problems occurred at the start of the survey with the processors setting and checking the initial flows prior to the generation of the brute stacks. This contributed to the initial back-log of processing that developed. Once these tests had been reviewed and agreed upon, processing quickly caught up on the back log, remaining within a sequence or two of acquisition.
- Another function of the operators was the quality control of logs and data. Again due to the initial back-log, finalised Observers Logs were not produced until a week into the survey.
- With the backlog cleared, quality control and processing kept pace reasonably well with acquisition, although output was slow due to the long line lengths.

5.5.2 Recommendations

- Review the possibility of having an additional quality controller onboard to help with the job start-up, and the initial testing and setting of processing flows.
- A more efficient means of FTP'ing data directly to Woodside or WGC offices in Perth. The quality of the data link saw slow transmission of files to shore-side. This again gets back to the initial set-up of the V-Sat data link.

5.6 BINNING AND FOLD COVERAGE

5.6.1 Conclusions

- The Concept Systems REFLEX Binning system and software was utilised throughout.
- The automated depth editing function was approved for use during the survey.

- Script was written to obtain files and listing of all shots to be edited from the P1/90 navigation files. The files were included with the final data shipment and Observers Line Logs.
- Coverage plots in the form of GIF images were transmitted to Woodside for review.
- A guideline of the expected CMP coverage loss was received from Woodside, indicating that processing could still effectively control the data quality, with the following losses, near (1), near-mids (2) far-mids (2-3) and fars (3).
- Based on this above assumption, coverage deficiencies were assessed using an initial 50% flex at the front end to 150% flex at the fars. This effectively gave a flexing of approximately half the data processing requirements.
- This was reviewed by Woodside and flexing increased to 100% nears to 300% fars tapered flex
- Due to survey timing commitments final coverage over the 3D area was less than optimal.
- Final coverage as recorded was supplied and accepted by Woodside before departure of the vessel. Copies of the final coverage plots had been e-mailed to Woodside offices in Perth.

5.6.2 Recommendations

- Continue with this approach of reviewing flexing parameters during acquisition, although a predefined target on the streamers needs to be known for the purposes of coverage stacking during acquisition.
- Forward planning and costing should allow for proper completion and acquisition of necessary infill.

5.7 SURVEY VESSEL AND CREW

5.7.1 Conclusions

- The MV WESTERN PRIDE was in acceptable condition, with the paint-work and most of the mechanical hardware in good working order.
- The vessel did appear to be underpowered as it could not maintain the required 8 streamer specification without running all engines and generators at maximum output with no reserve.
- It was noted that towing 6 streamers and a dual source at full power, the maximum shooting speed was only 4.56 knots.
- During production with 6 streamers, engine room systems were running at 85% power with some power reserves available.
- The V-Sat data link through to Perth was good for verbal telephone and fax communications but e-mail transmission rates were extremely slow.
- E-mail transmission rates during the survey were poor, unreliable and extremely slow with the majority of communications being achieved via the personal e-mail accounts of the ECA client representatives.
- Crew morale was fair, but there were still reservations about job security in light of recent pay-cuts and lay-offs throughout Western's structure.
- Following further survey cut-backs and changes in policy at the end of the survey, the morale of all personnel was very low.

- The vessel layout for receiving stores and cargo is only fair, with the crane centred mid-ships, and the supply boat taken alongside the starboard side. The cargo is then landed in a small area on the port side. During any sort of swell the load is susceptible to uncontrolled swinging. A great deal of care must be taken when slinging any loads.
- During calm weather a smaller second crane is available on the forward deck, from which supplies can be loaded directly to below decks into the main storeroom.
- It was noted that all persons involved in crane operations used the correct PPE and correct signalling procedures were in place. Toolbox meetings were conducted prior to transferring any supplies or equipment with the aid of the onboard cranes.
- Wash areas and facilities are inadequate and dirty work gear and boots are allowed within the accommodation area.
- An insufficient number of washing machines (2) were provided for the number of people on the vessel. There was no separate machine for boiler suits or soiled work clothes.
- All confined spaces within the accommodation area were designated as non-smoking.
- The gymnasium onboard is stiflingly hot during the day and therefore poses health risks to those who use it.
- A new urn and toaster were supplied. The Satellite TV was not functioning, nor was any effort made to repair it.
- Minimal everyday spares and supplies were available – e.g fluorescent lights for cabins, rolls of paper towels and serviettes.
- The anemometer on the bridge was inoperative from the start of the survey.

5.7.2 Recommendations

- Install or redesign back deck entry into the accommodation space to provide some sort of wash room and changing area.
- Longer stays or more efficient maintenance and port schedules.
- Install additional washing machines, sufficient in number to service the crew.
- Repair the Satellite television in the mess or install a multi-directional antenna which could be of value in the Bass Strait.
- Install an air-conditioning unit in the gymnasium.
- Ensure inventories and ordering procedures are complied to, so that supplies of critical equipment and spares are always available. This also extends to the availability of back deck tools and chain pulley blocks.
- All personnel should be aware of the procedures and requirements for the use of PPE when crane operations are underway. Toolbox meetings should be held prior to the start of any crane work.
- Repair or replace the bridge anemometer.

5.8 HEALTH, SAFETY AND ENVIRONMENT

5.8.1 Conclusions

- The vessel's safety practices were generally in line with those of other seismic exploration contractors, however room for improvement was noted.
- The vessel performed the survey with little disruption to the environment. There were no major oil-spills and generally, the waste management of the vessel is good. Whilst some segregation of garbage and waste took place, there were no facilities to cater for separation of recyclable materials such as plastic and paper.
- The STOP card system had been phased out previously, the new Unsafe Conditions and Unsafe Acts reporting being implemented.
- The general health on board the vessel was good, with reasonable housekeeping throughout. General housekeeping improved after a few reminders to the crew at the meetings and drills which were conducted throughout the survey. The cabins, galley and mess areas were kept clean and tidy by the efforts of the 2 stewards.
- The medical facilities were generally found adequate, with a designated hospital onboard.
- There was no medic available until the February crew change.
- Cetacean watches and documentation was onboard and in place, with sightings sent into Woodside for eventual delivery to the Biodiversity Group, in Canberra.
- The scheduled times for conducting Safety Meetings and Drills were staggered between 11:00 and 13:00 hours whenever possible to ensure all crew persons received exposure to safety drills, equipment and scenarios.
- For the first half of the 14th December swing, nearly 55% of the personnel reported symptoms of flu, in addition to sea sickness due to the rough weather.

5.8.2 Recommendations

- The role of the HSE Adviser, to generate the Project Plan should not be utilised while at sea. If an HSE Adviser is required to generate these documents, then these should be done onshore, where the client can be more easily contacted and consulted on changes needed.
- A medic should be made available at all times on the vessel due to the number of personnel, the varying sea state and the conditions in which the vessel was operating, the remoteness of the areas and lack of regular helicopter transfer availability.

6.0 QUALITY CONTROL

6.1 RECORDING SYSTEM

6.1.1 Observations

The MSX recording system used during the survey performed adequately. System tests, both daily and semi-monthly, showed that it was performing well within specifications laid down by the contractor and manufacturer.

The MSX system has assorted displays for monitoring the quality of the system data. The information on the screens is well laid out, and many functions exist to enhance the quality control effort. The graphical user interface is user-friendly, and presents most of the information windows in a clear and easily read layout. Although adequate for most of the quality control that was needed, there were still some deficiencies in the system screens.

The MSX system has very poor displays for the real-time seismic channel data. One video monitor is used to display a single streamer, with a slow screen update rate, or all the streamers with a very slow update rate. When all streamers are shown on the same screen, the update rate is so slow as to make the displays useless for looking for noise on the streamers. A real-time display is an excellent tool for observing intermittent errors and problems, such as autofires, fish-bites, spiking channels, external ships noise, external seismic and other coherent noise. With video monitors typically able to refresh over 70 times per second, and oscilloscopes even faster, there is no reason why the streamer data could not be displayed to at least show the multiplexed channel data faster than the resolution of the human eye.

Filtering, A/D conversion, and amplification were done in the streamer modules before the signals arrived on the vessel. The onboard part of the instrumentation dealt with the formatting, recording and QC display of the seismic data. Data storage was on 3590 cassettes and they were copied onboard. A list of the tape labelling and numbering convention is included in the Appendices. Data from all the ancillary equipment, such as guns and depth controllers are also collected, logged and displayed onboard.

A recent addition in Singapore was the Continuous Recording System (CRS). This particular unit is designed to eliminate the problems of tape drive hang-ups which the MSX system is prone to. In addition, the CRS can be used to buffer the shot data, enabling the MSX to record at a shorter shot interval.

After numerous problems attempting to get the CRS system to record in multi-shot mode, WGC withdrew the system from the survey set-up, on 22nd December, 1999. All data acquired for this survey was done so using single shot mode.

The Prospect Data Logger (PDL) was also newly implemented on board, with problems noted between the SSS and PDL systems. The problems arose from information transfers, namely gun statistics for the line. These errors were checked using information gathered from the external headers of each shot in processing. The main function of the PDL logger is to gather information from the MSX and CRS systems, noting any errors.

A set of monthly tests was carried out at the start and end, and during the survey period. Daily instrument tests were also carried out and these did not highlight any major faults.

6.1.1.1 Incorrect Channel Set Assignments

Sequences 2, 3 and 4 were acquired with the streamer numbers incorrectly assigned to the input ports in the MSX system. The result of this error was that all the seismic data from streamer 5 was recorded to channel set 6 and all the data from streamer 6 was recorded to channel set 5. Also the water-breaks from streamer 5 were recorded to channel set 14, while the waterbreaks from streamer 6 were recorded to channel set 13.

This error occurred due to earlier lead-in problems. During acquisition of the Brecknock survey a lead-in failed and the streamer from reel 5 was connected to the lead-in from reel 6. This meant that the data from streamer 5 was entering the MSX system through port 6 and so this port was reassigned. For the Indian survey tow points and other consideration meant that the reel allocations remained unchanged and reel 5 (input port 5) was attached to streamer 6. The complete configuration change for the Investigator survey allowed the physical streamers to be assigned correctly again. A new configuration file was saved for the survey but the old configuration file was not deleted. This allowed the wrong file to be loaded at one point during the survey start-up. Other changes that had been made to the configuration were spotted as incorrect during the survey start up quality checks and amended. However, a check of the input ports was not part of the survey start up procedure and so the error was missed. A check of the input ports will be added to this procedure.

For sequence 5 onwards the input ports were correctly assigned in the MSX system.

6.1.1.2 Record Length 5 Seconds

Sequences 1-3 was recorded with a record length of 5 seconds as per instructions from WEL on 23rd December, 1999. From sequence 4 onwards the record length was reduced to 4.5 seconds for the remainder of the survey.

6.1.2 Instrument Failures and Repairs

Date	Period	Comments
22 nd December, 1999	06:15-11:57	CRS multi-shot system failure. No data recorded to tape.
23 rd December, 1999	Seq 3, 1936P1	Block edit between SP 1913-1887 due to MSX lockup.
1 st February, 2000	02:24-08:59	Abort seq:42 and circle due to MSX Robotic Tape Loading problem. Reload original software.
29 th February, 2000	12:57-13:01	Attempt production on seq: 36 but abandoned as not data was being recorded to tape – Tape drive problem.
29 th February, 2000	13:01-16:25	Re-format recording system and tape drives.
28 th February, 2000	04:30-06:59	Replace logic card in the PDL data logging system/ Delayed line start due to CRS recording fault.
5 th March, 2000	20:40-21:32	Seis. gap time attributed to instrument break downtime for edit during sequence 50.
5 th March, 2000	21:32-21:52, seq 96	Reshoot of edit from sequence 50, MSX hangup. Later scratched due to weather.
4 th April, 2000	12:24-16:51, seq 148	Scratch 2D line 006 after the CRS failed to record 6 second data records on the first line attempt. The problem was software and set-up orientated and it reverted back to the original 4.5 seconds when the 2D lines were initiated. The system was reset with memory buffers cleared.

Downtime attributed to the instrument and associated recording system failure was 24.033 hours.

6.2 STREAMER SYSTEM – TOWING SYSTEM

6.2.1 Observations

The Thompson Marconi Sentry solid streamer was in use on the MV WESTERN PRIDE, with a capability of towing 8 streamers. Each active section was 100 metres long (inclusive of modules), with 8 groups, made up of 14 hydrophones per group. The group length was 12.5 metres, with a group sensitivity of 14 volts per bar.

Sensitivity tested sections had been installed as the last active section on each of the streamers. Streamers 1, 2, 5 and 6 had sections tested and accepted by SIEP previously, while streamers 3, 4, 7 and 8 had new sections installed with calibration data supplied by the manufacturers. The calibration data sheets were forwarded on to Woodside for their information. This was acceptable on advice from SIEP.

The cables were towed using the Western wide tow set-up, which consisted of a baro-vane (type 46) and lead-ins. The vanes were connected to the vessel by means of the lead-ins, via tow ropes. Cable separation was maintained by using cross-tag ropes. Each streamer was fitted with 18 depth controller/compass units, all were used for cable shaping. These “depth controllers” maintained the cable depth inside specification for most of the time.

The Pro2000 system was implemented on these streamers, utilising primary power to be inductively coupled through from the streamer to the externally mounted devices. This allows the compass depth controllers to remain on the streamer longer, minimising changes due to batteries. Acoustics units were also designed using the same method of powering.

Both electrically and mechanically, the streamers performed very well for the duration of the survey. A few bad channels were detected by the daily and monthly tests and noted down for the lines affected.

The channels were evaluated and if deemed to be unacceptable, would be scratched. Some of the channels exhibited problems only occasionally, either falling just out of specification on the system tests or in the case of weak or noisy channels, not exhibiting the fault at all times. Details of which lines were affected were noted in the observer reports, and the information was passed on to the onboard processing personnel.

Streamer balance was very good with only isolated deviations from the set levels usually caused by a faulty depth controller. Compass depth controller wing angles were generally less than 5 degrees, with the new generation of depth controller having a high lift co-efficient, resulting in less deviation from the nominated target depth.

A minimal tugging noise was observed at times at the front-end of the streamers, with the only noted problem arising on the outer streamers where depth controller control around compasses 3 & 4 saw the streamers deviate from the target depth.

Following a particularly bad period of rough weather between 12th and 15th February, both baro-vanes were brought on for inspection and hair-line cracks were found in both the towing and suspension framework. Temporary repairs were carried out till new vanes could be loaded at the next convenient port call in Portland during the February crew change.

Further problems arose with the streamer towing system on departure and forced the vessel back into Portland. Damage was incurred to the port barovane on the 23rd/25th March. The unit suffered damage to the nose cone and the float failed, causing it to sink. The resulting damage to the unit was quite extensive.

6.2.2 Streamer Failures And Repairs

Date	Period	Comments
6 th December, 1999	13:30-17:30	Replaced the lead-in on streamer 1, which was displaying a fibre optic failure.
16 th / 17 th December, 1999		Cross tag separation rope between streamers 1 & 2 and 7 & 8, parted due to splicing failure.
20 th December, 1999	24:00	Streamer deployment complete. Commence separation and CRS checks.
21 st December, 1999	00:00-12:00	Streamer S4-5 separation problems, unable to get specification settings.
22 nd December, 1999	06:15-11:57	Line change back to first line, attributed to streamer failure.
23 rd December, 1999	03:45	Lost telemetry data to streamer 1. Front 4 depth controllers dropped suddenly during turn, then came back up. Down to 15 metres. Assumed fishing gear, as floats noted as snared part way down streamer during CMV run on 22nd.
26 th December, 1999	12:00-17:45	Installed replacement lead-in. Powered lead-in 1, on streamer 1, no odd data, lead-in failure at head termination, began removal of lead-in. Lead-in removed.
30 th December, 1999	05:23	The port baro-vane was lost, when the tow wire parted while the baro-vane was alongside for streamer 8 repairs. It appears the wire parted as a result of shock loading due to the vessel roll during this period. The tow wire is rated at 30T and had been reterminated during the Exmouth port call on the 27 th November, 1999. The nominal retermination period is listed as 60 days, with this wire having only been in use for roughly 33 days since that termination. Vane lost at location 41° 14.5' S 142° 56.1' E. Local authorities advised.
30 th December, 1999	05:23-20:50	Recovered all in water equipment to search for vane.
31 st December, 1999	10:45	MV SMIT LLOYD 28 found baro-vane at location 41° 17.065'S 142° 55.367'E approx. 4 kilometres from loss location. MV SMIT LLOYD 28 alongside vane.
1 st January, 2000	01:30-04:05	Recovery of streamer 1 and vane assembly.
1 st January, 2000	04:05-12:20	Transit over to vane location, and recovery of vane assisted by FRC and MV SMIT LLOYD 28. The vane was successfully recovered by 12:20 hours.
1-2 nd January, 2000	12:20-19:50	Deployment and configuration of streamers back to 6 layout.
11 th January, 2000	Seq 29, 16:32-16:33	1906R1, line terminated due to port vane wire parted at the fairlead. All data scratched.
11-13 th January, 2000	16:33-16:10	Recovery of all trailing gear due to the parting of the port baro-vane tow, which passes from the vessel via a shock dampener, then out through a sheave through to the vane tow point. The tow wire parted at the out-board side of this sheave point resulting in the loss of approximately a 400 metres of tow wire, which is being towed from the vane.

13 th January, 2000	08:36	The tag line on streamer 6 (vane presently towing this) parted. Port baro-vane drifting off. Location 39° 33.66' S 143° 20.15' E. Wx: 30 knots, seas 3-3.5 metres, speed 2.5 knots, and pitch 48% at time of loss. MV SMIT LLOYD 28 directed to vane location.
13 th January, 2000	15:50-16:10	CMV launched to attempt recovery of baro-vane. Unable to get tow wires from vane, abandoned attempts. Data telemetry was lost on streamer 6 yesterday afternoon, probably due to a damaged lead-in 6, which was towing the baro-vane prior to the parting of the tag line. The depth controller lines appear to be satisfactory on the streamer lead-in. Another lead-in will have to be deployed assuming this is the cause of the telemetry loss.
14 th January, 2000	16:16-20:17	Port baro-vane recovered. Back onboard. 400 metres of tow wire cut, lost over the side.
14-17 th	20:17-11:02	Streamers deployed again, with a high number of sections removed due to failing daily tests, electrical connectivity problems. An additional 50 metres of tow rope added to vane tag lines, (100 metres now), to improve vane wash problems.
25 th January, 2000	10:30-24:00	Recovered streamer 1 to replace section 1A which has developed faults in the compass data transmission line.
28 th January, 2000	06:45-21:45	Completed repairs to cables 2 and 3 – loss of data transmission – replace damaged and faulty sections.
2 nd February, 2000	17:30-18:39	Extended line to allow replacement of compasses and depth controllers.
15 th February, 2000	00:00-24:00 (During weather standby)	Recovered starboard barovane for inspection and repair after hairlines cracks were found in the towing/suspension framework.
15 th February, 2000	00:00-24:00 (During weather standby)	Replaced section 10 B in streamer 1 – failed daily Harmonic Distortion Tests – 3 adjacent bad traces.
15 th February, 2000	00:00-24:00 (During weather standby)	Replaced tail stretch sections on streamers 2 and 3 after being damaged - caused by a tangle during rough weather.
15 th February, 2000	00:00-24:00 (During weather standby)	Replace last active section in streamer 3 – damaged during a tangle with streamer during rough weather.
16 th February, 2000	00:00-10:00	Replaced sections and head section on streamer 2 due to leakage on the depth controller/compass data line
16 th February, 2000	10:00-15:14	Complete repairs and welding on port and starboard barovanes. Both had hairline cracks on the towing frame.
23 rd February, 2000	15:50-16:00	Replaced RVIM due to split in tail of section.
23-25 th February, 2000	18:00-05:25	Streamers recovered due to the damage to the port barovane. Float implosion, missing front nose cone, and lead-ing edge of vane wing severely damaged. Bottom frame damaged. Vessel returned to Portland, where a replacement vane was put together before the vessel returned to the prospect to commence deployment again.
25 th February, 2000	15:14-16:00	Starboard vane deployed. Tensioning new 38 millimetre vane wire.

25 th February, 2000	17:20-20:49	Vane attachment before final deployment.
26 th February, 2000	01:00-01:30	Module 19 changed.
26 th February, 2000	11:05-12:25	Sections changed out during deployment.
26 th February, 2000	21:05-22:05	Telemetry problems on streamer 5.
27 th February, 2000	17:50-21:55	Streamer 3 telemetry problems.
28-29 th February, 2000	16:57-23:32	Repairs to streamer 6 for telemetry problems, module 19 changed out. Repairs to streamer 2 replaced section 7B.

Downtime attributed to the streamer failure during the survey contributed to 85.917 hours, with 217.083 hours attributed to towing system failure.

6.3 ENERGY SOURCE SYSTEM

6.3.1 Gun Dropout Specifications

Dropout specifications previously used and acceptable to both Western and Woodside after verification by SIEP were used throughout. The final results of the original gun signature test performed in October 1999, were received on the 20th February 2000.

The results of the gun signature tests, indicated the source measured at average of 4.7 metres gun depth was 43.39 bar-meter or 0-peak (79.21 bar-meter, Pk-Tr) with a PBR of 11.8, and the synthetic predicted 45.66 bar-meter, 0-Pk (83.28 bar-meter Pk-Tr) with a PBR of 18.31.

The contract called for a power of minimum output of 70 bar-meter (peak to peak amplitude) with PBR of 15 to 1 or better.

The overall performance of the gun arrays, gun controller and compressors for the survey was of a high standard. Minimal misfires were reported, with most guns staying well within the contract specified ± 1.0 milliseconds, usually better than ± 0.2 milliseconds. Apart from the occasional gun problem, the guns were usually brought onboard for preventative maintenance to be completed.

The vessel was equipped with dual 2250 cubic inch compact sleeve source arrays. Each array comprised of 3 identical sub-arrays, each of 8 guns, measuring 750 cubic inches in total. Each of the sub-arrays was towed from its umbilical of air-lines and electrical cabling. Each gun was mounted on a semi-rigid housing assembly and connected to a flotation "sausage buoy" by rope of measured length. The length of each rope determined the depth of the sub-array and were fixed to give a gun depth of 5 metres. Three depth indicators were mounted on each sub-array, with one at each end and one located in the middle of the sub-array. All depths were recorded onto tape at each shotpoint in the seismic record header. A near-field hydrophone was mounted approximately 1 metre from each gun. The output of each of the hydrophones was displayed on a monitor in the instrument room and could, to a limited degree, be used to check the gun output signature for anomalies.

All gun volumes were specified in cubic inches. The first element in each sub-array was a cluster of 300 cubic inches, followed by another cluster of 160 cubic inches. The other 4 elements comprised single guns. The nominal operating pressure of the array was 2000 pounds per square inch but in normal production the pressure was maintained at 1900-2000 pounds per square inch. The nominal deployed depth was 5 metres (± 0.5 metres). The spacing was such that there was 50 metres between centre of the port and starboard sources, and 6 metres between each sub-array within the source arrays.

Array timing and firing control was by way of the Western SSS gun controller, and the synchronisation of the guns was considered acceptable. During sequence 143 the SSS gun controller hung-up online and a high number (180) of shots were displayed as timing errors.

After viewing the data it was agreed that the majority of these errors were spurious and not real as the line prior to and immediately following displayed minimal errors, and with no maintenance being required on the arrays. It was highlighted on the Observer Line Logs, that shot gathers should be closely examined, to ensure the shots displayed as edits in fact were bad before editing from the data.

Refer to Appendix C, for a Gun Array Layout Diagram plus a full Dropout Specification listing in Appendix F.

6.3.1.1 Airgun Controller

The airguns were controlled by the Source Synchroniser System (SSS) using VME architecture as the basis of its design. The system features the ability to synchronise up to 128 guns, with better than 100 micro-second fire control timing, detection of double pops and autofires, logging and replay facility for near field phones, and automatic report and information generation.

The system was configured to fire the array for each shot (flip flop) at a 12.50 metre interval.

6.3.1.2 Air Compressors

Air to the arrays was supplied by one of two Ariel Caterpillar compressors located below decks adjacent to the main engine room. The maximum rated output from each compressor was 2725 c.f.m. which allowed an ample supply of air to the arrays.

6.3.1.3 Gun Drop-out Specifications

The drop-out specifications were based on Western source specifications which were tightened for 10% amplitude loss and accepted by Woodside after verification by SIEP. The final result of the original gun signature test performed in October 1999, was received on the 20th February, 2000.

Refer to [Appendix F](#), for full details of the specifications used.

6.3.2 Observations

The source was two 2250 cubic inch airgun array made up of from 24 sleeve guns. Each array was divided into 3 sub-arrays containing guns with cubic capacities from as small as 40 cubic inches up to clusters of 2 x150 cubic inches. The 3 sub-arrays were spaced 6 metres apart, which gave an array 12 metres wide, and 15.1metres long. Each sub-array also had 3 depth transducers on each string. Positioning was achieved by utilising both laser and GPS systems, which were both attached to the centre sub-array. There was also an acoustic transponder attached to each sub-array as an aid to the sources positioning.

Source performance was acceptable, with the 1 millisecond specification being adhered to. Single shots with timing variation between 1.0 milliseconds and 1.5 milliseconds were logged and monitored, but the data was not to be edited. Timing errors above 1.5 milliseconds were logged as bad shots to be edited as array misfires at a later stage from the data.

6.3.3 Source Failures and Repairs

Date	Period	Comments
21 st -22nd December, 1999	12:00-04:50	Source separation configuration problems, X-tag lines changed.
22 nd December, 1999	Sequence 2, 2048P1	LGSP 3395, due to out of specification gun volume
23 rd December, 1999	03:16-08:56	Repairs to guns following line termination.
3 rd January, 2000	05:00-08:30	Configuration of source separations for 6 streamer mode.
3 rd January, 2000	Seq 9, 09:08-09:29	W00INV2026P1, line scratched due to guns out of

		specification, guns 601,602,708 disabled (illegal drop).
3 rd January, 2000	12:01-13:18	Gun strings 6 and 7 brought onboard for repairs to 601,602 and 708.
3 rd January, 2000	15:01-17:02	Continue with circle following power loss as a result of generator change over.
8 th January, 2000	13:47-17:34	Circled to fix gun string 1 RGPS
9 th January, 2000	07:55-07:56	Overlap shots for sequence 22, 2048R1.
9 th January, 2000	Seq 22, 2048R1.	Line continuation of sequence 2, terminated for gun volume. Line acquired using 8 streamer way points. Covered necessary 12 CDP area, against original 16 CDP area, effectively leaving boundary 4 CDP gap, on outside edge. Line not charged to correct kilometre difference between 8-6 streamer configuration
3 rd February, 2000	15:13-19:35	Extended line change to complete gun array mechanical repairs.
10 th February, 2000	21:05-22:16	Extended line change to replace sensor and pigtails on gun strings 1 and 2
11 th February, 2000	00:49-03:56	Extended line change to complete array repairs – sensor and firing lines on strings 1 and 6.
18 th February, 2000	12:08-16:33	Recovered gun-string 7 for repairs. Random misfires on guns 707 and 708, the front cluster also failed. Relaced solenoid, pig-tail connector, repaired one air leak and replaced and new shuttle face seal.
28 th February, 2000	00:00-01:45	Gun problems, delayed turn to line.
7-8 th March, 2000	Seq 98, LGSP 2931	Reshoot of sequence 97 terminated due to gun volume out of specification, large gun clusters disabled on starboard guns. LGSP 2931.
8 th March, 2000	01:58-06:43	Circled to fix guns from sequence 97 termination.

Downtime attributed to source related failures during this survey was 30.250 hours.

6.3.4 Compressor Failures and Repairs

There was no downtime incurred for any compressor failures.

6.4 SEISMIC QC SYSTEM

6.4.1.1 Omega Seismic Processing System

The Omega system was used during the survey to perform the initial front end processing of the seismic data, prior to the final processing stages to be undertaken on shore. The primary use of the processing performed onboard was for a mainly quality control, with a target tracking of the area at 2770-3000 milliseconds.

6.4.1.2 Onboard Processing Sequence

Processing of the seismic data was limited to the production of SEG-D copy tapes and quality checks of the recorded data. Therefore the flows used were designed primarily for checking the quality of the seismic data, and for aiding decisions on the final disposition of marginal portions of this data.

The processing of the data was performed in discrete stages, with each stage producing quality controlled products. Quality control was performed using the processing summary text printout produced as standard by Omega, and also using several different plot and display options.

Refer to Appendix M, of this report.

Each stage of the process was checked by the processing personnel. The data was also made available to the client representative, along with hard-copy print-outs as necessary.

6.4.2 Processing Failures and Repairs

There was no downtime incurred for processing for the survey period.

6.5 3D BINNING / INFILL OBSERVATIONS

6.5.1 Infill Observations and Final Percentages

After plotting current coverage, infill would be assessed and shot if the missing coverage extended to more than 2 offset groups or CDP line or when missing far groups extended to 3 CDP lines. The near-mid offset range was viewed as priority when assessing infill.

A total of 15,805.05 CDP kilometres, contributing to 40.85% infill was acquired to fill the prospect to contract specifications. Infill requirements in swathes 3 and 4 were relaxed at the request of Woodside.

Copies of final coverage plots were e-mailed to Woodside prior to completion for information and approval.

Final infill percentages for each swathe and for the total 3D survey are tabled below:

Swathe 1	Swathe 2	Swathe 3	Swathe 4	Swathe 5	Swathe 6	Overall Infill
31.73%	64.97%	47.32%	31.38%	20.00%	Not acquired	40.85%

6.5.2 3D Binning System

The Concept Systems REFLEX system was used for binning. Two grids were maintained: the on-line and the processed grid. The system was versatile in that, spatial coverage attributes could be displayed with operator designated parameters for flexed bin sizes and with the percentage coverage needed to satisfy contractual requirements.

The streamers were divided into four equal parts each of 1150 metres, nears, near mids, far mid and far traces.

Classification	Groups	Offset Ranges
Near Traces	1 - 92	150m – 1300m
Near Mid Traces	93 – 184	1300m – 2450m
Far Mid Traces	185 – 276	2450m – 3600m
Far Traces	277 - 367	3600m – 4750m

The distances given, related to the offset from the centre of source to a group receiver, with 150 metres being the closest offset coverage obtainable.

After investigating coverage deficiencies and processing requirements, a tapered flex of 0, 0, 1, 2 bin widths ie. 25 metres (nears), 25 metres (near mids), 50 metres (far mids), 75 metres (fars) was used.

Plots of coverage were converted to either GIF or PDF images, which were transferred to Woodside for review. This was used during the survey, both in plotting coverage to evaluate infill requirements and to plot adjacent line coverage prior to start of line. Hard copies were generated at the end of an area.

6.5.2.1 Automated Depth Editing

Due to significant front-end streamer movement and erratic depth control, caused by the almost continuous south-westerly swell, an automated method of shotpoint editing which was available in the Concept Systems Limited Reflex Binning System software was applied.

It was found that manual editing of the data became very time consuming, and was not 100% accurate, and it was therefore possible, that acceptable data could have been lost from the coverage.

Unix script was written, to obtain a list of any traces from the P1/90 which did not meet the depth acquisition window of 4.5 metres to 7.5 metres. The final edit list was written to file in ASCII format.

This file, provided on CD-ROM was produced for all lines and was to be included in the data shipment with the electronic Observers Line Logs to be made available to the Data Processing Centre.

This gave personnel the opportunity to view actual coverage, with the unacceptable traces deleted.

There were no shot or file edits made to the original data or P1/90 data tapes during the automated process. There was no flagging or manual editing of the P1/90 data whatsoever and the original file and data format remained intact throughout. Seismic data also remained intact with no file or data edits as per instructions from Woodside.

Tests were performed onboard prior to approval and acceptance of the system to ensure and ascertain the accuracy.

Benefits of using this system were:

- Maximise coverage by only editing data falling outside the preset depth window.
- Reduce time to manually edit coverage.
- Minimise the risk of editing data that still may be acceptable.
- Supply a hard copy of exact shotpoint and file number ranges edited.
- Increase production time and acquisition during periods of marginal weather and swell.
- Reduce cost by minimising infill in marginal areas.

6.6 3D TECHNIQUES

The technique of anti-parallel shooting was employed, whereby lines are run in the opposite direction and stacked against each other. The vessel progressed around the survey area, maximising its turn radius to compensate for feather matching. This method was applied for swathe 1 but swathes 2, 3 and 4 were all acquired using the traditional 'racetrack' method of acquisition.

Swathe 5 was not acquired on instructions from Woodside.

The method of shooting the survey worked well and good coverage was achieved with a 40.85 % infill rate. Infill rates were significantly higher in the central swathe which encompass the main area of interest.

In swathe 3 and 4 lower infill was acquired on instruction from Woodside, nearing the completion of the survey.

6.7 SURVEY VESSEL AND CREW

6.7.1 Vessel Observations

The MV WESTERN PRIDE is a purpose built seismic ship, capable of multi-streamer, multi-source 3D surveys. The vessel is well laid out and provides all the necessary amenities to make life onboard reasonably comfortable for the crew.

The galley and mess are well taken care of by 2 cooks and 2 stewards. The mess-room is fairly spacious and has enough seating to deal with the day-to-day requirements of staffing. Facilities are available for making tea and coffee, and soft drink dispensing machines provide cold refreshment. Three main meals are provided during each day, with the times of meals being for one hour at 06:00, 11:30 and 17:00. There is food available 24 hours per day by way of left-over food from meals and good access for the crew to dry-stores and refrigerators. There was only one laundry facility on board, with only two washing machines for 48 people.

The vessel is kept clean and everything appears to be maintained well.

There was a major breakdown and incident on 22nd December when the auxiliary generator failed and caught fire. The fire was quickly brought under control with no further problems. It did appear that the system had been running close to its maximum capacity for some time and eventually overheated and failed. The unit was overhauled and tested prior to being brought back on line.

Management of shipboard maintenance is taken care of by the bridge staff and engineering sections, with the deck crew very willing and able to carry out the necessary duties.

Other breakdowns which occurred related to the FRC which happened on four occasions during the survey, with varying problems, ranging from, flat battery, overheating, faulty starter motor and electrical problems which involved with the starter, fuel pump and supply.

Another breakdown, this time with the CMV (Cable Maintenance Vessel) occurred on 2nd February, when its engine overheated and seized during a supply and transfer run between the MV SMIT LLOYD 28 and the MV WESTERN PRIDE. The port engine seized from failure of the cooling system, but the vessel was able to return to the MV WESTERN PRIDE using the starboard drive engine. A spare engine was ordered from the U.K and was air-freighted to Portland, Victoria for transfer to the vessel. Repairs were completed while the vessel was in port, with the CMV returning to the MV WESTERN PRIDE, on 22nd February.

The first use of the CMV on 28th February, for a personnel transfer to the MV PERFECT LADY, saw starboard engine problems develop, which eventually necessitated the shut down of the engine. The CMV was recovered safely back onboard. Attempts were made to repair the engine, but due to insufficient parts, the CMV remained inoperative, through to 29th March. During this time the contractor elected to use the FRC for all in water operations, including module change outs on the streamers. Parts were air freighted to Portland for the 29th March crew change, and repairs were completed to the engine. The repairs to the vessel had not been completed by the end of the survey.

6.7.2 Vessel / Crew Failures and Repairs

Date	Period	Comments
22 nd December, 1999	04:50-06:15	Auxiliary generator failure. Fire in generator extinguished, propulsion and steering maintained.
23 rd December, 1999	16:54-19:26	Line change extended to work on auto pilot electronics.
3 rd December, 1999	Seq 9, 09:29-12:01	Line continued due to operator error, incorrect loss of gun volume. Human Error.
3 rd December, 1999	13:18-15:01	Changed over generators. SP2 died as a result of power spike. Navigation locked up as a result of

		change over.
6 th January, 2000	22:15-23:19	Extended line change due to auxiliary generator change over.
2 nd February, 2000	07:30	The port engine of the CMV overheated and seized during a supply run to the MV SMIT LLOYD 28. The boat will be out of service till a replacement engine is available.

A total of 6.733 hours downtime was attributed to vessel and associated equipment downtime

6.7.3 Crew Observations

The seismic crew were proficient with respect to their work related functions, and across the range of positions, expertise was spread fairly evenly. All members of the crew were always willing to help and provided all the necessary assistance to the client representative when asked. Most of the work carried out was performed in a professional and diligent manner, however there was a general apathy as a result of poor morale onboard. The leave schedule for most seismic crew members meant that they worked 5 weeks onboard the vessel and then had 5 weeks break on shore. Some of their shore time was occasionally used for training programmes relating to safety and equipment. The leave schedule for the marine crew was maintained at 5 on and 5 off.

Overall morale was quite low due to recent pay cuts and layoffs inside the Baker Hughes corporation. The excessive downtime, equipment problems, crew change confusion with dates and location plus weather, all played a significant part in this equation. It was noted that in early February, when production was running smoothly, the crew rose to the occasion and appeared much more relaxed, confident and the general morale onboard improved considerably.

With the early abandonment of the survey prior to completion, moral again plummeted, with all crew and personnel unsure of their future, and of future work for the vessel.

A total of 2.533 hours downtime was attributed to human error. Refer to the previous table.

7.0 **OPERATIONAL HAZARDS**

7.1 **WEATHER AND SEA CONDITIONS**

The predominant weather pattern for the survey, was generally from the south-west, with combined sea and swell ranging between 1.0 – 6.0 metres throughout. Winds varied from a light, 3-5 knots up to gale force, 42 knots on two occasions.

Severe storms in the far south affected our region, bringing with them increased strong southerly swells as experienced, between the 11th and 13th February. Directly following these storms a slow moving high pressure was located over the Tasman Sea, east of Tasmania and this brought with it very strong easterly winds up to 38 knots with a sea and swell approaching 6 metres, making for very rough conditions until late on the 13th to 15th February when the situation began to improve.

On a few other isolated occasions, wind direction would swing to the north-east and help reduce the south-westerly swell, but these occasions were rare, and did not last for any significant length of time and did not affect the regular weather pattern.

Forecasts, although received daily from different sources, were not always completely reliable in their context, and this made forward or contingency planning difficult.

The changeable weather patterns even over a 24 hour period made logistics quite difficult, particularly in the event of crew changes where helicopter flights were anticipated. It was only on a few occasions, on two or three consecutive days, that conditions were favourable for landings.

The ever-present swell also made it almost impossible for the supply vessel to come alongside to transfer personnel or supplies when required. Most transfers had to be made with the use of the FRC or the CMV when operational.

Considerable periods of weather were logged each month during the time span covering the survey.

Date	Period	Comments
16-20 th December, 1999	06:00-03:20	Streamer deployment halted due to weather. Recovery of streamer at 00:30 hours 18 th Dec to untangle streamers, and continued through to 03:20 hours on 20 th Dec.
16 th December, 1999	22:45	Cross tag between streamers 7-8 parted.
17 th December, 1999	17:09	Cross tag between streamers 1-2 parted.
24 th December, 1999	20:58-23:51	Heavy seas, difficulties deploying guns.
24 th December, 1999	Seq 6, 2016P1	Scratched due to acoustics, noise, weather. Charged in full.
24 th December, 1999	Seq 7, 1968P1	Scratched due to acoustics, noise, weather. Charged in full.
25 th December, 1999	07:31-10:53	Heavy seas, difficulty turning.
25 th December, 1999	Seq 8, 1888P1	Scratched due to acoustics, noise, weather. Charged in full.
25-26 th December, 1999	15:56-09:15	Excessive sea conditions, unable to control streamers.
27-30 th December, 1999	00:00-05:23	Excessive sea conditions, unable to perform streamer work, or seismic acquisition.
30-1 st January, 2000	20:50-01:30	Excessive sea conditions, unable to perform streamer work, searches underway to find lost vane.
2-3 rd January, 2000	19:50-09:08	Weather standby charge while final configuration of streamers back to 6 mode. (Originally agreed to

		accept weather charge for repair of streamer 8 prior to vane loss).
3 rd January, 2000	Seq 10, 17:02-21:44	Line not charged as originally charged during sequence 7, line 1968, first accepted line using 6 streamer configuration.
3-4 th January, 2000	21:44-00:40	Line change following weather reshoot.
4 th January, 2000	Seq 11, 00:40-05:05	Line not charged as originally charged during sequence 6, line 2016P1.
4 th January, 2000	05:05-08:15	Line change following weather reshoot.
4-5 th January, 2000	08:15-21:17	Excessive sea conditions, unable to control streamers.
6 th January, 2000	Seq 13, 1906P1	Scratched after confirmation from WEL, on 10 th January. To be reshoot, originally charged.
6 th January, 2000	Seq 14, 14:03-18:45	Line originally charged during sequence 8.
6 th January, 2000	18:45-22:15	Line change following weather reshoot.
13-14 th January, 2000	16:10-16:16	Waiting on weather conditions to improve to allow another recovery attempt at the baro-vane, assisted by CMV.
22 nd January, 2000	00:06:18	Delayed departure from Portland due to poor weather forecasts.
22 nd January, 2000	14:45-24:00	Delayed streamer deployment due to weather and swell.
23 rd January, 2000	00:00-24:00	Full day of weather standby – deploying streamers.
24 th January, 2000	00:00-24:00	Full day of weather standby – deploying streamers
25 th January, 2000	00:00-10:30	Partial day of weather standby – deploying streamers.
26 th January, 2000	00:00-07:36	Turning to line deploying streamers – weather standby
26 th January, 2000	14:25-24:00	Weather standby-retrieved gun arrays – wind
27 th January, 2000	00:00-21:00	Weather standby
29 th January, 2000	01:47-10:20	Acquired reshoot of sequence 12 due to bad cable control, plus line change all due to weather.
29 th January, 2000	16:25-00:00	Aborted sequence 37 due to bad cable control due to large swell. Weather standby
30 th January, 2000	00:00-24:00	Acquired sequence: 38, a reshoot of sequence: 13 due to poor cable depth control caused by weather. The line was finally abandoned due to weather and swell.
31 st January, 2000	00:00-14:02	Acquire second reshoot of sequence:13 due to weather and go back on to weather standby
5 th February, 2000	10:03– 4:00	Weather standby – unable to control cable depth. Winds up to 25 knots. South-west swell reached 4 metres.
6 th February, 2000	00:00–24:00	Full day of weather standby – conditions similar to the previous period.
7 th February, 2000	00:00–06:45	Attempted acquisition – sequences 55 and 56 both aborted due to swell noise and no cable control.
7 th February, 2000	Sequence 57	Reshoot of sequence 37.
11 th February, 2000	21:22-24:00	Abandoned sequence 70 due to poor cable control and excessive swell noise. Winds 28 knots, swell 3.5metres.
12 th February, 2000	00:00-24:00	Full day of weather standby. Winds 35 knots, swell up to 6 metres.
13 th February, 2000	00:00-24:00	Weather standby continues – winds 25-30 knots

		swell up to 5 metres at times. Slowly improving.
14 th February, 2000	00:00-24:00	Weather standby continues – winds 28 knots, swell 4 metres – streamers 1 & 2 on the surface and crossed.
15 th February, 2000	00:00-24:00	Continuing weather standby – streamers 2 and 3 finally recovered and on deck. Winds 20-30 knots, sea and swell 3-4 metres. During this period 2 tailbuoys damaged and both baro-vanes were recovered for inspection and repair after finding the towing framework was cracked.
17 th February, 2000		Additional line change time required to travel to acquire and infill portion previously abandoned due to weather.
20 th February, 2000	13:08-24:00	Abandoned acquisition on sequence 83 and recovered all equipment due to increasing bad weather and unfavourable forecasts for the next 48 hours.
21 st February, 2000	00:00-02:15	Completed retrieval of the arrays and streamers due to impending bad weather. Strong wind warnings forecast for all Victorian coastal waters.
21 st February, 2000	02:15-12:00	Travelled to Portland for crew change during weather standby period.
21 st February, 2000	12:00-24:00	In Portland on weather standby – load bunkers, resupply and carried out vessel maintenance and repairs.
22-23 rd February, 2000	00:00-01:10	Complete crew change – prepare to sail.
23 rd February, 2000	01:10-07:30	Travelled back to prospect area, preparing to deploy streamers.
23 rd February, 2000	07:30-15:50	Deployed streamers following crew change.
23 rd February, 2000	16:00-18:00	Deployed streamers.
25 th February, 2000	05:25-15:14	Waited on swell to ease before deploying vane.
25 th February, 2000	16:00-17:20	Waited on swell to ease before deploying vane.
25-26 th February, 2000	20:49-01:00	Streamer 6 deployment.
26 th February, 2000	01:30-11:05	Streamer deployment due to weather.
26 th February, 2000	12:25-21:05	Streamer deployment due to weather.
26-27 th February, 2000	22:05-17:50	Streamer deployment due to weather.
27 th February, 2000	21:55-24:00	Turned towards prospect. On weather time.
28 th February, 2000	01:45-04:30	Final deployment checks after weather.
28 th February, 2000	Sequence 84	Scratched due to excessive noise levels. Charged only 5 streamers due to edit streamer 6 in original charging.
1 st March, 2000	Sequence 86	Reshoot of sequence 83.
4 th March, 2000	03:05- 13:46	Abandoned attempt on line 1543I2 due to streamer control (weather).
4 th March, 2000	13:46-14:24, Seq 93	Sequence 93 scratched due to excessive noise levels.
4 th March, 2000	14:24-22:10	Circled, while waiting on weather.
4-5 th March, 2000	Sequence 94	Reshoot of sequence 93.
5 th March, 2000	Sequence 96	Shot in 2 portions, later scratched due to excessive noise. Second portion of line charged as reshoot for MSX hangup on sequence 50.
6 th March, 2000	01:30-08:24, Seq 97	Scratched due to excessive noise.

6-7 th March, 2000	8:24-22:42	Waited on swell to ease.
8 th March, 2000	06:43-10:15, Seq 99	Scratched due to excessive noise, continuation of sequence 98.
8 th March, 2000	10:15-14:16	Line change circle due to weather.
9 th March, 2000	00:00-00:05	Line change attributed to weather.
	00:05-00:27, Seq. 101	Line scratched due to loss of streamer control.
	00:027-09:51	Waited on swell to ease.
	17:28-21:41, Seq 103	Reshoot of sequence 96, originally charged.
9/10 th March, 2000	21:41-04:06	Line change following reshoot for weather.
11 th March, 2000	09:09-12:38, Seq 107	Reshoot of sequence 102 for weather.
12 th March, 2000	13:40-16:43, Seq 110	Scratched due to excessive noise and poor acoustics
12/13 th March, 2000	16:43-21:58	Waited on weather
14 th March, 2000	21:51-22:11, Seq 114	Scratched due to loss of streamer control.
14/15 th March, 2000	22:11-08:32	Waited on weather.
20 th March, 2000	19:57-22:06, Seq 128	Scratched due to loss of streamer control.
20/21 st March, 2000	22:06-05:58	Waited on weather.
22/24 th March, 2000	21:20-07:13	Waited on weather.
27 th March, 2000	22:02-24:00	Abandoned acquisition following sequence 141 and recovered all equipment, in preparation for crew change.
29 th /31 st March, 2000	Full period	On departure from Portland after the crew change winds were reported up to 30 knots, with a large swell over 3 metres. During this time cable deployment was underway but slow.
1 st April, 2000		Continued production in rough weather with strong swell bursts and erratic cables depths being reported.

A total of 764.950 hours downtime was attributed to weather during the prospect.

7.2 CURRENTS AND FEATHER

Refer to the Navigation Report for a full detailed account of currents and feathering.

7.3 LOGS AND DEBRIS

Date	Period	Comments
26 th December, 1999	09:15-12:00	Changed out lead-in 1 due to damage fibres, 150 metres from tail of lead-in. Damage to sheathing and broken armoured wires also noted, coincident with debris / fishing gear strike.
26 th December, 1999	17:45-19:30	Installation of second lead-in. Tested: good.

There was 04:30 downtime incurred as a result of logs or debris. This time is included in the full 85.917 hours of previously reported streamer downtime.

7.4 FISHING ACTIVITY AND SHIPPING INTERFERENCE

Date	Period	Comments
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26 th December, 1999	4.50 hours	Replaced lead-in on streamer 1, damaged fibres and skin caused by debris or fishing equipment.
9 th January, 2000	Seq 21, 1990P1	Line terminated due to anchored fishing vessel on line ahead. LGSP 2040
9 th January, 2000	03:57-07:55	Circled to avoid fishing boat anchored on line ahead. (Artic Gull)
26 th January, 2000	07:36-14:25	Abandoned line attempt, and circle to clear 2 fishing boats on line. One anchored and the second disabled.
27 th January, 2000	21:00-24:00	Stacked streamers to gain access to 2 to remove fishing gear and float.
28 th January, 2000	00:00-06:45	Retrieved streamer 2, replaced damaged depth controller and section plus fish float and crayfish pot.
7 th February, 2000	12:19 – 22:37	Abandoned production on line 1606P2 due to time break and gun problems. On retrieving guns strings 1 and 2 found considerable damage to electric wires and fittings had been caused by a collision and possible entanglement by fish gear. There was no float or ID markers remaining on the gun strings although there was rope similar to which had been retrieved earlier from crayfish pots in this region.
9 th February, 2000	07:00-07:15	Fishing vessel SOUTHERN HUNTER crossed the streamers during a line change. No damage or lost time incurred. The vessel had not answered repeated radio calls or acknowledged firing of signal flares.

There was 35.33 hours downtime incurred as a result of fishing or shipping activities.

7.5 OBSTRUCTIONS – FIXED

There were no drilling rigs or production platforms inside, or adjacent to the survey area.

7.6 TIME SHARING AND SEISMIC INTERFERENCE

There was no downtime incurred as a result of time sharing or seismic interference.

7.7 VANE TURBULENCE - WASH

Trailing turbulence caused by the movement of the vane through the water affected the performance of outer streamers, 1 and 6, for the majority of the time. During these times streamer depth control became erratic, usually affecting the first 4-10 depth controllers, and required significant editing, which ultimately affected the coverage.

In an attempt to improve the problems with vane wash, an additional 50 metres of tow rope added to vane tag lines, (100 metres now), to improve vane wash problems. The result of these extensions proved successful, with little or no vane wash problems noted after the addition of the extended tow rope.

Due to the high number of depth edits having to be applied by processing, the normal manual depth editing feature, had to be improved. As a result an automated depth editing feature, utilising the reflex system, was employed. This greatly improved the number of reject traces, and more accurately defined the coverage.

The crew monitored this interference closely and all occurrences of vane wash/interference were included on the Observers Line Logs, as a percentage of fold affected. These edits were attached to each line in the form of an electronic text file.

7.8 SEA CREATURES

No streamer damage was incurred or resulted from attacks from sharks or other sea creatures.

There were a number of cetacean sightings, all of which were forwarded on to the offices of Woodside as required, refer to [Appendix E](#). All vessels including the 2 chase boats were familiar with the reporting requirements.

8.0 HEALTH, SAFETY AND ENVIRONMENT

8.1.1 Health

Accommodation, food preparation and eating areas were clean and well maintained. All areas were well lit, ventilated and air-conditioned. The food was served via a bain-marie and the crew could choose their preference. The quality of the food was excellent and fresh supplies were practically always available. Fresh fruit and vegetables were stored in a separate chill room adjacent to the main freezer. This was checked periodically for tidiness, and to ensure all supplies, were well packed. Any old or rotting items were promptly disposed of.

After meals, plates and utensils were promptly washed and correctly stowed. Any food left out, for late meals or snacks would be covered or wrapped in plastic or foil. The deep freeze was clean, well packed and operated at a temperature of minus 20° Celsius. Fresh water was in ample supply, both from bunkering while in port, plus an onboard water maker. The water was fit to drink and there was no evidence of tarnishing in the taste. A sample of the water is tested on a yearly basis.

All general areas of the ship were cleaned daily by the marine crew, including the cleaning of cabins and bedding. The master inspected the cabins at regular intervals in order to maintain an acceptable standard.

8.1.1.1 Health and Fitness

All personnel held valid medical certification and were advised prior to departure from the vessel to ensure this was kept valid in preparation for their return to the vessel. Cooks and stewards held current health clearance certificates as is required, and all other crew had vaccination and health certificates which were current. The Western Safety HSE Adviser onboard maintained a database of all personnel, listing their current medical status. Only one person was sent from the vessel as a result of an injury sustained to his finger and hand and this was done as a precautionary measure. No personnel had to be sent from the vessel for illness or accident during the survey period. There was one case of suspected malaria reported where outside medical assistance was required. This case was used as a test for all emergency telephone and medical contacts required during this survey.

8.1.1.2 Alcohol and Narcotics

Western Drug and Alcohol Policies had been adopted and were strictly enforced. The policies were posted at various locations throughout the vessel. Only prescribed medication onboard was allowed with prior approval of the company, and this also had to be reported to the Captain on arrival on the vessel.

8.1.1.3 Hygiene

High standards of personal hygiene were expected from all crew. Cabin inspections were conducted by the Master to ensure cabin and toilets facilities were maintained in a satisfactory state. Inspections were also made of the freezers, cold store and galley areas.

8.1.1.4 Medic

A medic was supplied by the contractor after requests from WEL. The medic arrived at crew change on 22nd February, remaining onboard until 29th March. Duties included assistance with all medical problems, as well as education programmes for the crew on men's health and well-being. Dietary and fitness assessments were also available.

Details of duties carried out during the survey summarised in [Appendix E](#), of this report.

8.1.2 Smoking

The smoking policy on this vessel is such, that there are designated areas for smoking and non-smoking. Most of the common areas are designated as non-smoking, with the aft access to the gun deck and outside deck areas available for smoking if desired. Prior to arrival in Australia, the common video room had been designated as a smoking area, used on alternate days. This was changed to comply with local regulations with no smoking in any confined spaces.

8.1.3 Safety

8.1.3.1 Observations

Personnel attitude towards safety was good and it was noticed that all crew without exception wore PPE (Personal Preservation Equipment) when and where conditions or situations required it. Safety shoes, hard hats and flotation work vests were worn at all times when working in the gun slipways and back deck regions, however the policy on wearing work-vests was relaxed by Western on specific areas of the back deck. There was a monthly inspection programme in place for checking the condition of all PPE and department heads were made aware that it was their responsibility to continually monitor to use during the daily activities of their department. All safety clothing, including shoes, boots and hats were supplied by Western and met company safety requirements.

Drills and musters were held on a weekly basis alternating between fire drills, boat drills and helicopter drills. A safety meeting was held once a month alternating between a General Safety meeting involving the whole crew and a Safety Committee meeting involving key personnel and heads of departments. All crew held valid safety passports and documentation. Within 24 hours of joining the vessel, all new crew members to the vessel were given a comprehensive Safety Induction Tour. The induction tour covered most safety aspects of the vessel including a comprehensive run down on the life boat operation and relevant safety equipment. During the tour all emergency exits were identified and emergency signals and stations explained. A safety sheet was posted in each cabin outlining the occupants muster station and designated life raft.

Safety management and maintenance schedules were in place for such equipment as fire hoses, life boats, fire pumps, emergency generators, ropes and slings down to personal safety equipment. Extensive maintenance programmes were in place for machinery such as compressors, engines, cranes and deck winches.

Man-hours were calculated at 12 hours per day, per man whilst on the vessel. The man-hours recorded only applied to the MV WESTERN PRIDE. Western's HSE statistics were recorded using 24 hours per day per man, with shore administrators also included in the statistics.

8.1.3.2 Safety Adviser

A dedicated HSE/Safety Adviser was assigned to each crew, and was on board the MV WESTERN PRIDE. His responsibilities included the maintenance, monitoring, and implementation of safety guide-lines and procedures on the vessel.

8.1.3.3 Incident/Accident Reporting

Western had an accident and incident reporting system in place which was compatible with E & P Forum. All near misses, accidents or incidents were immediately reported to both parties, irrespective of whether injury to personnel or damage to equipment or property resulted. A monthly summary report was maintained by the Western HSE Adviser onboard the vessel. Incident and accident reports were passed to the client representative.

Hard copies were kept, and documented in this report. Refer to [Appendix E](#) of this report.

8.1.3.4 Safety Training and Fire-fighting

All personnel had undergone basic offshore sea survival training as a minimum requirement before joining the vessel. In addition fire-fighting courses to varying degrees had been completed by the majority of personnel. Prior to the arrival of a new crew the list of oncoming personnel would be received and fire-fighting teams would be organised from the crew list to be in place when they arrived onboard. A database of all training was maintained by the HSE Adviser.

8.1.3.5 Helicopter Operations

17th and 18th December - a helicopter crew change was performed over 2 days offshore Portland, Victoria. In all 6 landings and departures were completed to and from the vessel without incident.

Trained Helicopter Landing Officers and special fire teams were available onboard at all times, and were at their designated fire and emergency locations during landings or departures from the vessel. Fast rescue boat crews were also on standby at these times.

The fire-fighting teams had undergone specialist training specifically in dealing with helicopter fire and emergency situations. A helicopter crash kit was available for use during helicopter operations if required. This kit was stored separately from the main vessel fire-fighting equipment, below the helideck.

Prior to any arrivals, communication checks between the vessel, helicopter base and the aircraft had been tried and tested. Weather, sea conditions, vessel position and other relevant information had been faxed and radioed ashore prior to its departure.

Crew manifests, with personnel names, baggage and weights were also supplied 24 hours prior to departure of any flights.

All personnel had undergone Helicopter Underwater Escape Training and held a valid certification.

8.1.3.6 Medivac and Contingency Planning

A copy of the Project Plan was included into the Safety Case as well as being displayed on the Bridge. Key personnel appeared fully conversant with the plan and how to implement it. The plan was tested during the survey.

8.1.3.7 Rescue Boat and Work Boats

Specific crews were rostered for the operation of small boats during transfers and cable work. All drivers carried current certification for the operation of fast rescue craft (FRC Coxswain Course) and the remaining crews were proficient in the operation of small boats. All work boats and rescue boats were equipped with radios and a communication check to the Bridge was made at 5 minute intervals any time the boats were deployed. During workboat operations correct PPE was issued and worn by all concerned. Prior to the launching of the boats, safety checks covering both equipment, communications, fuel, water, oil and general condition of the boats was always made and entered into the Small Boat Log maintained on the Bridge.

8.1.3.8 Onboard Safety Equipment

All onboard safety equipment was in good order and condition. Equipment was placed on a computerised maintenance management system. This ensured the regular testing and checking of safety items and alarms. The management of this system was undertaken by the Chief Officer and was found to be very comprehensive.

Emergency exits were kept clear at all times and all equipment such as fire hoses, fire-fighting apparatus and survival items were found correctly stowed in areas clear of any obstructions so that they were easily obtainable in case of emergency. A separate watertight locker on the Bridge Deck was available for the

storage of all fire-fighting equipment. An additional locker, forward of the helideck housed the “Helicopter Crash Kit” which was used prior to each helicopter operation. Fire extinguishers were strategically placed throughout the vessel and on the decks. All were in good order and condition with current validation certificates.

8.1.3.9 Life Jackets, Survival Suits and Survival Craft

Life jackets were available in all cabins and a second set for all onboard was stored in waterproof containers, located adjacent to the muster locations on the Bridge Deck. All were in good order and had the required emergency lights and whistles, attached. The jackets were regularly checked during musters and drills. Survival suits for the full ships compliment were stored in water proof lockers on the Bridge Deck, also adjacent to the muster station.

Life boat engines were checked weekly and safety equipment monthly as per the maintenance management system. Crews were familiar with the launching and the equipment carried in the life-boats through safety drills and induction tours. Life rafts were also available and all crew were versed in the mode of deployment of these units. All rafts were certified and their expiry dates were valid.

8.1.3.10 Lifting Equipment, Cranes, Machinery

All lifting strops, slings and loading baskets were certified and had current safe working load certification. If any slings were found to be slightly frayed these were disposed of immediately. A good maintenance inspection schedule was in place and all safety equipment was tested and checked at least once per month. The main crane was certified while the vessel was in Singapore prior to sailing to Australia. This unit was clearly marked with safe working load capacity.

8.1.3.11 Protective Personal Equipment

Safety boots, hard hats, hearing protection and safety glasses were all supplied by the contractor. All equipment met the necessary safety requirements and was replaced when deemed necessary. Welding gloves, normal work gloves and additional face protection for use when cutting, grinding, welding and burning rubbish in the incinerator were also supplied. Eye wash stations were located on the gun/cable deck, engine room, aft of the instrument room, the hospital and in the depth controller battery /tailbuoy repair room. These items were also covered by the management system and were inspected monthly and if any items were worn-out (in particular boots), these would be replaced by the contractor.

8.1.4 Environment

8.1.4.1 Observations

In general, the MV WESTERN PRIDE was well organised in this area, with most of their operation geared to following MARPOL rules and guidelines. However, as found with safety, there is always room for some improvement.

Soft start gun procedures were in place and followed for the entire survey, with the guns being gradually brought to full power over a set period of time.

There was one environmental report, pertaining to an incident on 8th December. During refuelling operations from the MV SMIT LLOYD 28, whilst at anchor off Fremantle, a small amount of diesel fuel (approximately 4 litres) was leaked on to the deck of the MV SMIT LLOYD 28.

As back pressure was being applied on to the transfer fuel hose prior to pumping, a small leak was observed near a welded coupling. The faulty hose and coupling were removed, with a replacement hose put in place and tested prior to the transfer of any further fuel.

The leak was contained on the deck of the Smit Lloyd and oil spill kits were in place and available at the time.

The above incident occurred prior to the transit and subsequent arrival of the vessel at the Investigator survey location.

It was noted that the segregation of rubbish was practised on board and there was no rubbish or debris disposed of overboard for the duration.

There was no spillage of fuel or oil products into the ocean during the survey.

8.1.4.2 Weather

Weather conditions during the survey were of major concern and were one of the main causes of lost production time. Winds were reported regularly up to 30 knots, gusting at times above 38 knots, generally from the south-west. Associated with these very strong winds were a combined sea and swell up to 5 metres.

During these times production had to be abandoned as cable noise became excessive and cable depth control was not achievable.

Regular strong wind warnings for the Bass Strait and South Australian coastal waters were forecast and production totals were directly affected due to the rough weather. Other weather bulletins, from the Bureau of Meteorology Perth, were received via e-mail and Internet services were also utilised throughout. The forecasts from Perth were specifically designed for the vessels' location.

Unreliable forecasts and rapidly change weather and sea conditions made logistics very difficult, particularly in the forward planning for any crew changes by helicopter. In addition the chase boat could not be relied upon to come alongside at any given time for personnel transfers as the swell was nearly always sufficient as to raise the issue of both personal and vessel safety.

8.1.4.3 Tides and Currents

Tidal charts were available onboard and were consulted prior to continuing with production to try and acquire the maximum amount of coverage, particularly during the acquisition of infill.

In addition to the Hydrographic Society Tide Tables, computer based tables were available for all ports along the Victorian coast.

EDR Hydrosearch maintained a database of tides, currents and tail-buoy feathering throughout. If this information is required the report issued by EDR should be referenced,

8.1.4.4 External Interference

There were no drilling rigs, production platforms or other offshore construction in the survey area.

8.1.4.5 Fishing Activity

Crayfishing activity was reported on a number of occasions. Production time was lost on 26th January when line sequence 31 had to be abandoned due to the presence of a reported disabled fishing vessel directly on line heading.

In addition to the fishing boats, a number of crayfish pots became entangled on depth controllers, making it necessary to clear them by using the workboat or retrieving the streamer in question. Whenever possible the pots were returned to the owners.

Reports of fishing activity of the crayfish pots recovered, plus photographs, indicating the location, date and identification markings, were e-mailed to the offices of Woodside when encountered.

Refer to [Appendix E](#) for a log of all crayfish pots reported lifted by the PERFECT LADY and recovered by the MV WESTERN PRIDE. Also included is a log of radio communications between the MV WESTERN PRIDE and fishing vessels in the vicinity.

8.1.4.6 Cetacean Sightings

There were reporting procedures in place and all sightings were documented and reported to Woodside via e-mail and the respective report was also faxed on the day of the sighting to the relevant government body.

Refer to [Appendix: E](#) of this report for copies of the Cetacean Sighting Reports.

8.1.4.7 Rubbish Disposal

Any rubbish which could not be incinerated onboard, was segregated for proper disposal onshore during a convenient port call or by transferring to the chase boat. Paper, wood and other items were burnt in an oil injected incinerator, fuelled by waste oil from the main engines.

No rubbish was disposed overboard, with the exception of macerated foodstuffs, and this was done, only in accordance with International Marpol regulations.

8.1.4.8 In-line Refuelling

Refuelling operations were carried out in deeper water to the south of the prospect area, in water depths greater than the 200 metre Continental Shelf line. Thorough checks were performed prior to and during these operations with stringent conditions set for the transfer. The first transfer took place on 20th December, 1999 between 14:15-20:30 hours. AMSA was advised of these operations prior to and following the transfer.

2nd January, 2000

The second refuelling operations occurred on 2nd January between 10:00-19:34, during which the streamers were being deployed. AMSA was advised of these operations prior to and following the transfer.

15th February, 2000

The MV SMIT LLOYD 28 came into position at 10:45 hours local time to attempt in-line refuelling with the MV WESTERN PRIDE. Weather and sea conditions at the time were fine and acceptable to attempt this operation. The tow line had been secured between both vessels and the fuel line had been passed from the MV SMIT LLOYD 28 to the MV WESTERN PRIDE and was secured at the bow but had not been connected to the main onboard fuel lines.

On taking up the slack on the tow line between the vessels, it was found that the tow line was longer than the deployed fuel line and as the tension was applied the dry-break coupling on the fuel line broke and fell into the ocean. Pumping had not started and there was no fuel in the line. No fuel was spilt overboard.

At 11:24 hours local time the attempt was called off and the tow line released and retrieved by the MV SMIT LLOYD 28, while both vessels maintained a safe clearance.

At 14:25 hours the MV SMIT LLOYD 28 was recalled and this time came alongside the MV WESTERN PRIDE and 200 cubic metres of fuel were safely transferred with the use of camlock couplings. No fuel was spilled overboard during this operation. The transfer of fuel and supplies was completed by 17:22 hours.

21st February, 2000

Transferred 386.5 cubic metres of fuel whilst alongside in Portland.

20th March, 2000

In line refuelling operations were carried out between 09:50-14:30 hours, while shooting sequence 127. A total of 200 cubic metres of fuel was transferred, from the MV SMIT LLOYD 28.

26th March, 2000

In line refuelling operations were carried out between 09:25-14:30 hours, while shooting sequence 138. A total of 250 cubic metres of fuel was transferred, from the MV SMIT LLOYD 28.

There was no spillage of fuel or oil products into the ocean during any refuelling operations.

9.0 DAILY DIARY

ALL TIMES ARE Local Eastern STANDARD TIME (UTC +11 Hrs) (Daylight Saving)

5th December, 1999

16:00 Transit (Transit)
Recover array and streamers and commence transit to the Otway Basin.

6th December, 1999

00:00 Transit (Transit)
Continue and complete recovery of streamers. Ready to increase to full speed for completion of the transit.

13:30 Lead-in Fail (Streamer)
Maintain reduced speed and change heading to reduce vessel roll whilst replacing the lead-in on streamer 1, which was displaying a fibre optic failure.

17:30 Transit (Transit)
Continue transit to the Otway Basin - all equipment stowed on deck. Speed on transit 11.3 knots, large southerly swell is the cause of the reduced speed.

7th December, 1999

00:00 Transit (Transit)
Continue transit to Otway Basin. Winds moderate to strong up to 28 knots, sea and swell up to 5 metres. Speed 11.0 knots.

12:00 Transit (Transit)
Continue transit to Fremantle - large southerly swell above 4 metres at times, winds 25 knots.

8th December, 1999

00:00 Transit (Transit)
Complete transit to Fremantle for port call to resupply at the request of Western. During the call, food, supplies personnel and 400 tons of fuel will be transferred from the MV SMIT LLOYD 28.

06:00 Resupply (Port Call)
At anchor, awaiting the arrival of the MV SMIT LLOYD 28 to transfer fuel.

07:00 Resupply (Port Call)
MV SMIT LLOYD 28 comes alongside - make preparations to begin the transfer of 400 tons of fuel. Seismic crew continuing with transfer of equipment and spares.

08:00 Resupply (Port Call)
Continue and complete loading of spares, food, equipment and 400 tons of fuel. Prepare to depart the Fremantle anchorage.

17:30 Transit (Transit)
Depart Fremantle and continue transit to Otway Basin - wind 25-30 knots - sea and swell 2.5 to 3.0 metres.

9th December, 1999

00:00 Transit (Transit)
On transit to Otway Basin. Winds 25-33 knots, sea and swell approaching 3 metres.

12:00 Transit (Transit)
Continue transit - weather and sea conditions improving - winds 20 - 25 knots, swell 2 metres.

10th December, 1999

00:00 Transit (Transit)
In transit to Otway Basin - conditions fair - winds 18-22 knots - sea and swell up to 2 metres.

11th December, 1999

00:00 Transit (Transit)

In transit to Otway Basin - reasonable weather and sea conditions continue.

12th December, 1999

00:00 Transit (Transit)

In transit to Otway Basin - winds 15-23 knots - sea and swell 2.5 metres - easing gradually.

13th December, 1999

00:00 Transit (Transit)

Continue transit to Otway Basin - fair weather and sea conditions prevailing.

21:00 Deployment (Deploying)

Commence deployment streamers 1 and 8 in preparation for acquisition on Investigator 3D survey.

14th December, 1999

00:00 Deployment (Deploying)

Continuing with the deployment and testing of streamers 1, 2, 7 and 8.

17:50 to 20:30 the first 3 crew change helicopters arrived and departed from the vessel.

15th December, 1999

00:00 Deployment (Deploying)

Continuing with the deployment and testing of streamers 1, 2, 3, and 6, 7, 8.

08:27 to 10:50 the second 3 crew change helicopters arrived and departed from the vessel.

16th December, 1999

00:00 Deployment (Deploying)

Deploying streamer 4, bypassing slip rings.

02:55 SMIT LLOYD 28 back on location, released MV PERFECT LADY to assist MV PATRICIA J in clearance operations.

06:00 Weather deteriorating wind WSW force 6-7, 3m seas. Streamer 4 fully deployed.

06:00 Weather D/T (Sea)

Waiting on weather, no further streamer deployment.

07:15 Deploying starboard streamers.

09:00 A tangle on starboard side tag line believed to have occurred.

11:00 Weather WSW force 7, seas 3-4 metres, cross tag line on streamer 4 entangled in streamer 3 techno float.

13:00 Cross tag line untangled, seas to rough to deploy streamer 5. General Muster, all crew briefed on survival suits.

20:00 Wind 30-40 knots, seas 3.5-4 metres.

22:45 Tag line on streamer 7 and 8 parted, unable to retrieve front-ends due to weather conditions.

23:59 Waiting on weather.

17th December, 1999

00:00 Weather D/T (Sea)

00:00 Wind WSW 30-40 knots 3.5-4 metre seas.

06:00 Wind WSW 30-40 knots 4-5 metre seas.

12:00 Wind WSW 25-30 knots 4-5 metre seas.

17:09 Cross tag parted between streamers 1 and 2.

21:00 Wind 20-30 knots, 3-4 metre seas. Slight moderation noted.

18th December, 1999

00:00 Weather D/T (Sea)

00:00 Winds WSW 20-25 knots 3-3.5 metre seas.

00:30 Commence recovery of streamers to clear tangle. Recovering streamers 2, 3, 4, 6, 7 to tailbuoys.

06:00 Weather deteriorating again, winds WSW 30-40 knots, seas 3-4 metres.

10:00 Cables 4, 6, 7 onboard, untangling streamers 2 and 3.
12:45 Streamers 2 and 3 onboard.
13:20 Turning to port heading back to prospect.
14:50 Recovering front-end of streamer 1 to replace X-tag line
17:00 Starboard vane back out at mark.
17:20 Streamer 8 front-end recovered to replace X-tag line
19:25 Port vane out at mark.
20:50 Deploying tailbuoy 2.
23:50 Deploying tailbuoy 7.

19th December, 1999

00:00 Weather D/T (Sea)
03:15 Replaced section 1A on streamer 2 due to bad depth controller coil.
06:30 Streamer 7 out on vane.
08:30 Commence deployment of streamer 6.
09:15 Recovering streamer 6 due to tailbuoy failure.
09:20 Streamer 2 out on vane.
10:15 Streamer 3 tailbuoy deployed.
11:10 Tailbuoy 6 deployed again.
18:20 Streamers 1, 2, 3 tagged, and out into position.
20:30 Techno float 6 tangled with lead-in due to swell.
22:05 Untangling deploying again.
22:30 Untangling again, vessel altering course to assist.
23:30 Untangling, deploying.

20th December, 1999

00:00 Weather D/T (Sea)
00:10 Streamers 1, 2, 3, 6, 7, 8 fully deployed. Commence deploying tailbuoy 5.
00:50 Unable to deploy tailbuoy 5, crossing over lead-in 6. Preparing tailbuoy 4.
01:45 Tailbuoy 4 in the water.
03:20 Deploying streamer 5.
03:20 Commence deployment of streamer 5.
07:00 Connecting streamer 4 to techno float. Streamers 1, 2, 3 and 4 cross tagged.
08:05 All four starboard streamers heading out to marks.
08:45 Standby deployment, due to tagline 3-4 tangled techno float 3. Untangling.
10:00-11:00 Refuel equipment and procedure checks made on both vessels.
12:30 Radio checks made
12:40 MV SMIT LLOYD 28 out in front of MV WESTERN PRIDE.
12:50 Refuelling
12:50 Streamer 5 deployed. Deploying centre cross tag line.
13:05 All fast on tow line ahead. Commence transfer of fuel hose.
14:00 Pressure test hose.
Continue with adjustments to streamer tag lines.
14:15 Commence fuelling operations.
20:00 Fuelling complete.
20:20 Let go lines.
20:30 All clear.
20:30 Deploying and Testing
22:30 Centre cross tag line in all streamers. Commence deploying 2 gun strings.
23:00 Turning towards prospect.
23:59 Testing CRS multi-shot mode set-up.

21st December, 1999

00:00 Streamer Seprn (In-Sea Positioning)
00:00 String 1 deployed, string 8 being deployed.
00:45 String 8 deployed. Checking offsets and recording system.

- 04:45 Picking guns back up. Separation S4-5 too low.
05:45 Commence recovery of streamer heads to put extension into centre cross tag. Working on timebreak problem. Running into first line.
- 12:00 Source Seprn (In-Sea Positioning)
12:00 Arrived at first line, unable to commence due to recording system error. Streamer spread stable. No guns deployed.
13:00 Deploying guns.
14:00 Streamer 8 depth controllers 4, 5, 6 down at 12 metres, possibly snagged something.
14:04-16:00 CMV deployed to perform TS Dip, and transfer 1 PAX (Jeremy Column WEL) from PERFECT LADY.
17:00 Guns deployed, separation 75 metres, initial set-up, now adjusting.
18:10 Guns separation now at 65 metres.
19:00 Ceased separation modifications to perform recording tests.
19:23-19:42 A 3km test line run, in single shot 12.5m interval @ 4 knots, 5s record with guns firing, satisfactory.
- 20:00 Source Seprn (In-Sea Positioning)
21:00 Turning around to commence work on guns separation.
21:20 Commence recovery of guns.
Adjusting timing and SPECTRA output of fire signal to recording system. Adjustments made, able to fire in multi-shot mode, time break error OK. Able to use CRS system as originally planned.
22:00 Commence shortening X-tag lines from guns to streamers.
23:30 Guns deployed, checking separations again.

22nd December, 1999

- 00:00 Source Seprn (In-Sea Positioning)
01:55 Turning to port to find line heading suitable for streamer / gun geometry checks.
03:30 Turning south to put gun centre X-tag on. Heading for line.
- 04:50 Breakdown (Ship)
04:50 Loss of clean power due to aux generator failure. Fire resulted in generator, extinguished, propulsion and steering maintained. Switched to shaft alternators.
05:25 Clean power restored to instrument room. Slowly restoring power throughout vessel.
06:15 Preparing to turn towards line.
- 06:15 Streamer Seprn (In-Sea Positioning)
Heading back towards line.
10:01-10:45 CMV launched to add depth controllers to streamers 1 and 8. Attempt aborted due to swell.
- 11:57 Breakdown (Instrument)
Attempt at line aborted due to CRS failure, not recording to tape. Shooting in multi-shot mode, spread satisfactory. No sequence generated.
- 13:33 Breakdown (Instrument)
Circling around to check opposite direction, and to revert back to single shot mode.
14:04-14:24 CMV deployed for personnel transfer to MV PERFECT LADY. (Jeremy Colman WEL)
- 15:56 SOL Seq 001 : Line W00INV1840P1 FSP 0 Hdg 189.0°
All data scratched - not to be processed - not accepted due to spread out of specification (S4-5 82 metres). Acquired in single shot mode, Max. speed 3.9 knots before loss of shots in CRS, Instability in vertical control, Instability S4-5 separation to 82 metres, instability COS separation to 42 metres.
- 17:26 EOL Seq 001 : Line W00INV1840P1 LSP 0 Line Scratched
Streamer Seprn (In-Sea Positioning)
18:00-19:43 CMV deployed to add 2 depth controllers to streamer 8, work on streamer 1 aborted due to sea state. Heading to next line.
- 22:55 SOL Seq 002 : Line W00INV2048P1 FSP 1001 Hdg 009.0°
Line terminated due to gun misfires. LGSP 3395. Swell noise seen on all records. S1C4-8 down to 9.5 metres. S8C1-9 affected by vane wash running deep to 10.5 metres. S2C9 SP 1570-1860 out of spec (3metres), this travelled down to depth controllers 16 and 17. Trace edit required. Line acquired with 5s record length, average speed 3.88 knots. Misfires 1.04%. D/t incorrect

configuration file MSX recording S5 and 6 in reversed location on records. Average noise of 5µbars. S5 and 6 channel-sets reversed. Completed with seq. 22.

24:00 SP 1607 - Midnight SP on Seq 002 : Line W00INV2048P1

23rd December, 1999

00:00 SP 1608 - First SP of the Day on Seq 002 : Line W00INV2048P1

Line terminated due to gun misfires. LGSP 3395. Swell noise seen on all records. S1C4-8 down to 9.5 metres. S8C1-9 affected by vane wash running deep to 10.5 metres. S2C9 SP 1570-1860 out of spec (3 metres), this travelled down to depth controllers 16 and 17. Trace edit required. Line acquired with 5s record length, average speed 3.88 knots. Misfires 1.04%. D/T incorrect configuration file MSX recording S5 and 6 in reversed location on records. Average noise of 5µbars. S5 and 6 channel-sets reversed. Completed with seq. 22.

03:16 EOL Seq 002 : Line W00INV2048P1 LSP 3395 Line Incomplete

Breakdown (Source)

Guns repairs during line change.

03:45 Lost telemetry data to streamer 1. Front 4 depth controllers dropped suddenly during turn, then came back up. Down to 15 metres. Assumed fishing gear, as floats noted as snared part way down streamer during CMV run on 22nd.

07:40-08:02 CMV launched to transfer electrician to assess aux generator.

08:56 SOL Seq 003 : Line W00INV1936P1 FSP 3617 Hdg 189.0°

Only 7 streamers recorded, streamer 1 data not available. Swell noise seen on all records. Line acquired with 5s record length. Average speed 3.81 knots. SP's 3397-3311, 1506-1481 recovered from CRS disk, reel 30324 blank. Block edit between SP 1913-1887 D/T MSX lockup. Misfires 2.28%. D/T incorrect configuration file MSX recording S5 and 6 in reversed location on records. Average noise of 5µbars. S5 and 6 channel-sets reversed.

13:21-13:30 CMV launched to transfer PAX to MV PERFECT LADY (electrician)

13:54 EOL Seq 003 : Line W00INV1936P1 LSP 817 Line Incomplete

Production (Line Change)

16:54 Auto Pilot Failure.

Line change extended to work on auto pilot electronics.

19:26 SOL Seq 004 : Line W00INV1952P1 FSP 1001 Hdg 009.0°

Only seven streamers recorded, streamer 1 data not available. Swell noise seen on all records. Line acquired with 4.5 sec record length. S8C4-8 affected by vane wash running deep to 10.5 metres. Average speed 3.86 knots, due to reduced shooting speed as a result of missed shots due to SPECTRA system. Misfires 0.11%. D/T incorrect configuration file MSX recording S5 and 6 in reversed location on records. Average noise of 4µbars. Trace edits required for streamer 8. S5 and 6 channel-sets reversed.

24:00 SP 3612 - Midnight SP on Seq 004 : Line W00INV1952P1

24th December, 1999

00:00 SP 3613 - First SP of the Day on Seq 004 : Line W00INV1952P1

Only seven streamers recorded, streamer 1 data not available. Swell noise seen on all records. Line acquired with 4.5 sec record length. S8C4-8 affected by vane wash running deep to 10.5 metres. Average speed 3.86 knots, due to reduced shooting speed as a result of missed shots due to SPECTRA system. Misfires 0.11%. D/t incorrect configuration file MSX recording S5 and 6 in reversed location on records. Average noise of 4µbars. Trace edits required for streamer 8. S5 and 6 channel-sets reversed.

00:18 EOL Seq 004 : Line W00INV1952P1 LSP 3784 Line Completed

Production (Line Change)

04:33 SOL Seq 005 : Line W00INV2032P1 FSP 3515 Hdg 189.0°

Only 7 streamers recorded, streamer 1 data not available. Swell noise seen on all records. S8C1-8 affected by vane wash running deep to 9 metres, SP 2342-2300, 2000-1925. Average speed 4.1 knots. Misfires 0.85%. Average noise of 8µbars. Feather mismatch towards the EOL as feather died out. Trace edits required for streamer 8.

- 08:30 MV PERFECT LADY back on location.
- 08:59 EOL Seq 005 : Line W00INV2032P1 LSP 817 Line Completed
Production (Line Change)
- 11:00-11:15 Fire Drill, simulated fire in heli-office, B Deck.
- 13:06 SOL Seq 006 : Line W00INV2016P1 FSP 1001 Hdg 009.0°
Only 7 streamers recorded, streamer 1 data not available. Swell noise seen on all records. S8C1-8 affected by vane wash running deep to 10.1 metres. Trace edits required. Average speed 3.8 knots, strong head current. Misfires 0.55%. Average noise of 8µbars. Weather increasing during line. SCRATCHED due to poor positioning, charged in full.
- 17:58 EOL Seq 006 : Line W00INV2016P1 LSP 3716 Line Completed
Production (Line Change)
String 7 brought in for guns 706 and 708.
19:30 MV PERFECT LADY departed survey area.
- 20:58 Weather D/T (Sea)
Heavy seas, difficulties deploying guns. 23:00 Guns being deployed.
- 23:51 SOL Seq 007 : Line W00INV1968P1 FSP 3583 Hdg 189.0°
Only 7 streamers recorded, streamer 1 data not available. Swell noise seen on all records. Trace edits required. Average speed 4 knots. Poor feather match towards EOL. Misfires 0.61%. Reasonable streamer control despite the sea conditions. Average noise of 9 µbars. Poor quality line, improvement in line seen towards the EOL. LSP 1001 not recorded. SCRATCHED due to poor positioning, charged in full.
- 24:00 SP 3504 - Midnight SP on Seq 007 : Line W00INV1968P1

25th December, 1999

- 00:00 SP 3503 - First SP of the Day on Seq 007 : Line W00INV1968P1
Only 7 streamers recorded, streamer 1 data not available. Swell noise seen on all records. Trace edits required. Average speed 4 knots. Poor feather match towards EOL. Misfires 0.61%. Reasonable streamer control despite the sea conditions. Average noise of 9 µbars. Poor quality line, improvement in line seen towards the EOL. LSP 1001 not recorded. SCRATCHED due to poor positioning, charged in full.
- 04:31 EOL Seq 007 : Line W00INV1968P1 LSP 818 Line Completed
Production (Line Change)
- 07:31 Weather D/T (Sea)
- 10:53 SOL Seq 008 : Line W00INV1888P1 FSP 1001 Hdg 009.0°
Only 7 streamers recorded, streamer 1 data not available. Swell noise seen on all records. Trace edits required. Streamer 4 shallow between SP 3330-3525 due to failure of S4C10 (comms loss). Average speed 3.8 knots. Misfires 0.21%. Reasonable streamer control despite the sea conditions. Average noise of 6 µbars.
SCRATCHED due to poor positioning, charged in full.
- 15:56 EOL Seq 008 : Line W00INV1888P1 LSP 3852 Line Completed
Production (Line Change)
Wx Wind ENE force 7, swell 3-4 metres.
16:30 Recovering gun strings.
- 18:56 Weather D/T (Sea)
19:00 All guns onboard.
19:15 Turning to fair seas.
20:35 Start removing centre X-tag
22:00 Lost depth controller line to streamer 5.
22:55 Changed out section 1, badly damaged on streamer 5.
23:50 Streamer 4 X-tag removed.

26th December, 1999

- 00:00 Weather D/T (Sea)
00:30 Changing section 1A streamer 5.
01:30 Recover streamer 4 and 5.

- 04:40 Tailbuoys 4 and 5 onboard, commence shuffling streamers 2 and 3 across to port to recover streamer 1.
- 09:15 Debris Damage (Fishing Interference)
Changing out lead-in 1 due to damage fibres, 150 metres from tail of lead-in. Damage to sheathing and broken armoured wires also noted, coincident with debris / fishing gear strike.
- 12:00 Lead-in Fail (Streamer)
Installing replacement lead-in.
13:00 Cabin inspection by Master and HSE adviser.
15:45 Powered lead-in 1, on streamer 1, no odd data, lead-in failure at head termination, begin removal of lead-in.
17:45 Lead-in removed.
- 17:45 Debris Damage (Fishing Interference)
Installation of second lead-in. Test good.
MV PERFECT LADY on location for personnel transfer.
18:08-18:18 CMV deployed for stores transfer.
18:30-19:01 CMV deployed to transfer 3 personnel (electricians for repair of generator).
19:05-19:22 CMV deployed for stores transfer.
MV PERFECT LADY departed for shore again.
- 19:30 Tailbuoy RGPS (In-Sea Positioning)
Recovering streamer 1 to tailbuoy, for repairs.
22:40 Tailbuoy 1 onboard for repairs. Turning back towards prospect.
Replacing flooded Posnet control pod.

27th December, 1999

- 00:00 Weather D/T (Sea)
00:00 Deploying streamer 1.
03:40 Starboard vane deployed.
05:00 Streamer 1 recovered for rebalancing.
- 04:25 Weather D/T (Sea)
04:25 Preparing to attach lead-in to vane.
07:00 Difficulties being experienced in attaching helical rods to lead-in tow point.
11:30 Connecting lead-in to vane
12:30 Streamer1 out on vane
14:45 Streamers 1,2,3 stacked across, now in correct location.
- 14:45 Weather D/T (Sea)
15:00 Turning back towards location.
16:00 Wx Winds SSE force 6/7 (25-30 knots) sea/swell force 6 (3-4 metres).
20:00 Wx Winds SE force 6, seas force 6 (3m).
23:59 Standing by for decrease in weather. Wx Winds SSE force 6, seas force 6 (3m)

28th December, 1999

- 00:00 Weather D/T (Sea)
00:00 Wx Wind SE 25-30 knots, 3-3.5 metre swell
08:45 Wx Wind SE 25-30 knots, Sea SE 3-4 metres. Abandoned streamer work due to weather.
09:00 MV PERFECT LADY, abandoned attempts to get out to the prospect area D/T Wx.
12:00 Wx Wind S 25-30 knots, 3-4 metre swell.
13:10 Port turn into weather, checking for recovery.
15:00 Decision made for cable work, SSE 20-25 knots, Seas SSE swell 2.5-3 metres
15:30 Start retrieving front-ends of streamer 6, 7, 8.
18:00 Retrieval abandoned, due to increasing winds. Standing by for weather. Wx Wind S 30 knots, 3 metre swell.
20:30 MV SMIT LLOYD 28 departed for Portland and crew change / resupply.
23:59 Wx Wind SSE force 7/8 25-35 knots, seas S 2.5 metres, swell S 4 metres. WOW

29th December, 1999

- 00:00 Weather D/T (Sea)

12:00 Wx Wind SSE 30 knots, seas 3-4 metres.
13:05-13:45 General Safety Meeting held, all personnel present.
23:59 Wx Wind SSE 25-30 knots, seas 3-3.5 metres, SSE.

30th December, 1999

00:00 Weather D/T (Sea)
02:25 Commence recovery of streamer 8.
05:23 Vane 8 tow wire parted, vane lost at location 41° 14.5' S 142° 56.1' E.
05:23 Recovery (Towing Equipment)
06:00 Local authorities contacted regarding navigation hazard.
07:00 Commence recovery of all gear to search for vane.
08:15 Streamer 8 onboard, commence recovery of streamer 7.
11:37 Streamer 7 onboard, commence recovery of streamer 6.
13:00 Commence recovery of front-ends of streamers 1, 2, 3.
13:30 Spotter plane heading to location to search for vane.
14:10 Recovering streamer 3.
14:15 Search plane contacted, commence baro-vane search.
15:30 Reviewed maintenance scheduled as per WEL instructions.
15:30 Streamer 6 onboard.
15:45 MV SMIT LLOYD 28 contacted, ETA at vane 21:00
16:15 Plane back to port to refuel.
17:40 Streamer 3 onboard
18:22 Plane back on location, resume search.
19:12 Located object, 41° 16.81'S 142° 57.58'E, not vane ? from description.
20:50 Streamer 2 onboard.
Unable to recover streamer 1 and vane due to weather. Wx Wind SSW force 7, swell 3 metres from SW.
20:50 Weather D/T (Sea)
Standing by for weather. Unable to recover starboard vane, and streamer 1.
21:00 Turning starboard towards vane location. Search plane abandoned operations due to lack of daylight, heading back to port.
23:59 WOW Wx Wind SSE force 7, seas confused S @ 2.5m & SW @ 3m.

31st December, 1999

00:00 Weather D/T (Sea)
Unable to recover streamer 1 due to sea conditions.
06:00 Wx SSE 30 knots, seas 4 metres.
06:25 MV SMIT LLOYD 28 started search pattern.
09:30 Spotter plane commences search.
10:45 MV SMIT LLOYD 28 found baro-vane at location 41° 17.065'S 142° 55.367'E approx. 4 kms from loss location. MV SMIT LLOYD 28 alongside vane.
10:00 Safety Committee meeting.
11:00 Commence turn towards vane location.
12:00 Still too rough to recover streamer 1.
13:00-13:24 SOPEP lecture.
21:25 Turning starboard to assess weather. Winds SE 25 knots, seas 2.5-3 metres.
23:59 WOW

1st January, 2000

00:00 Weather D/T (Sea)
Waiting on weather to ease.
01:30 Recovery (Towing Equipment)
Recovering streamer 1 baro-vane and streamer.
04:05 Recovery (Towing Equipment)
Heading towards MV SMIT LLOYD 28 and floating vane.

09:07 FRC deployed, attempting to get lifting strops on vane. Difficulties experienced with swells, MV WESTERN PRIDE manoeuvred around to give shelter to operations.
09:45 FRC back onboard.
09:49-10:34 Second attempt by FRC abandoned.
10:34 All crew back onboard, in readiness for Y2K.
11:00 Nav, Seis, Engine Room, Bridge, all manned and monitored during Y2K rollover. No problems reported.
11:25-12:27 FRC deployed for vane recovery.
12:20 Vane onboard.
12:20 Deployment (Towing Equipment)
Turning back towards prospect, preparations being made for streamer deployment (6 streamer).
13:05 Tailbuoy 1 deployed.
13:35-13:46 CMV deployed to collect generator spares from MV SMIT LLOYD 28.
13:50 Tailbuoy 8 deployed.
16:47-17:00 CMV deployed for stores transfer from MV SMIT LLOYD 28.
Sections 23B on streamer 8 changed out (water ingress).
Section 19B changed, 3 new sections tried, before last section from streamer 5 (sensitivity section) used to successfully replace it.
21:50 Streamer 1 out on vane.
21:53 Tailbuoy 2 deployed.

2nd January, 2000

00:00 Deployment (Towing Equipment)
Deploying streamers 2 & 6.
04:08 Streamer 2 out on vane.
04:25 Streamer 3 tailbuoy deployed.
05:53 Streamer 6 out on vane.
07:15 Tailbuoy 5 in the water.
08:00 Preparing for in-line refuelling.
09:50 Streamer 3 connected to vane.
10:00 All fast with MV Smit Lloyd 28.
10:35 Commence refuelling.
14:40 Picking up front-end of streamer 6.
16:05 Section 1B changed out, on streamer 6.
16:30 Deploying tailbuoy 6.
16:30-17:35 FRC deployed for TS Dip and stores transfer from MV Smit Lloyd 28.
18:35 Contacted by MV PERFECT LADY.
19:05-19:18 FRC deployed for personnel transfer to MV PERFECT LADY, 2 PAX (electricians).
Streamers 5 and 6 out on vane.
19:16 Stop refuelling.
19:34 MV SMIT LLOYD 28 away.
19:50 Weather D/T (Sea)
19:50 Tailbuoy 4 deployed.
22:30 Streamer 4 out to lead-in.
23:10 Streamer 4 X-tag in place. All port streamers going out into place.

January 3rd, 2000

00:00 Weather D/T (Sea)
05:00 Guns fully deployed. Turning onto line.
07:00 10 kilometres from SOL, gun spread to 33 metres. Slowing down to modify separation ropes.
08:30 MV PERFECT LADY on site, clearance operations.
08:50 At SOL, finalising checks, continue down line. Separations acceptable.
09:08 SOL Seq 009 : Line W00INV2026P1 FSP 0 Hdg 009.0°
Line scratched due to guns out of specification, guns 601,602,708 disabled. NTBP. Six streamer set-up used. Problems noted with PDL logger. FGSP 1168 due to gun separations, LGSP 1376 before

- loss of guns, insufficient line length to keep. Swell noise seen on all records. Average speed 4.12 knots.
- 09:29 EOL Seq 009 : Line W00INV2026P1 LSP 0 Line Scratched
Error (Human)
Line continued due to operator error, incorrect loss of gun volume.
- 12:01 Breakdown (Source)
Gun strings 6 and 7 brought onboard for repairs to 601, 602 and 708.
- 13:18 Breakdown (Ship)
13:18 Changing over generators. SP2 died as a result of power spike. Navigation locked up as a result of change over.
- 15:01 Breakdown (Source)
15:01 Navigation system back online.
16:05 Guns back out.
16:12-16:36 CMV launched for stores transfer from MV SMIT LLOYD 28.
16:41-16:57 CMV launched for stores transfer from MV SMIT LLOYD 28.
- 17:02 SOL Seq 010 : Line W00INV1954P1 FSP 0 Hdg 189.0°
Accepted line. Swell noise seen on all records. Streamer 6 depth variations depth controllers 3-8 due to vane wash. Trace edits will be required. Average speed 4 knots. Misfires 0%. Average noise of 3-4 µbars. Line not charged as originally charged during sequence 7, line 1968.
- 21:44 EOL Seq 010 : Line W00INV1954P1 LSP 0 Line Completed
Weather D/T (Sea)
Line change from weather reshoot line.

4th January, 2000

- 00:00 Weather D/T (Sea)
Line change from weather reshoot line.
- 00:40 SOL Seq 011 : Line W00INV2026P2 FSP 0 Hdg 009.0°
Swell noise seen on all records, increasing during the line. Streamer 6 depth variations depth controllers 5-12 due to vane wash. Trace edits will be required. Average speed 4.14 knots. Misfires 0.1%. Average noise of 3-7 µbars. Line not charged as originally charged during sequence 6, line 2016P1. Separations S1-2 increased from 100->108 as feather changed from port to starboard. Over-stacking of coverage towards EOL.
04:46 MV PERFECT LADY heading for port, due to rough weather.
- 05:05 EOL Seq 011 : Line W00INV2026P2 LSP 0 Line Completed
Weather D/T (Sea)
Line change from weather reshoot line.
- 08:15 Weather D/T (Sea)
Waiting on weather, unable to control streamers due to head swell. Aborted attempt at line 2014P1 dir 189° into swell. Wx Wind SW 30 knots, 3-4 m sea and swell.
08:50 Guns coming onboard due to weather.
09:00 Wind SSW 30-40 knots, sea and swell 4-5 metres.
10:40 Guns onboard.
12:00 Wind SSW 30-40 knots, sea and swell 4-5 metres.
18:00 Wind SSW 30 knots, sea and swell 4-5 metres.
23:59 Wind SW 30-40 knots, sea and swell 4-5 metres.

January 5th, 2000

- 00:00 Weather D/T (Sea)
06:00 Wind SW force 7, sea and swell 3.5 metres.
06:30 Turning back towards prospect.
12:00 Wind SSE force 6, sea and swell 3.5 metres.
16:10 Start deploying guns.
18:00 Wind SSE force 5, sea 7 swell 3 metres.
18:54 Guns fully deployed.
Starboard vane let out by 10 metres, as it appears something caught on separation rope 1-2.
- 21:17 SOL Seq 012 : Line W00INV1918P1 FSP 1001 Hdg 009.0°

Swell noise seen on all records. Streamer depth variations due to following seas. Trace edits will be required. Average speed 4.04 knots. Misfires 0.28%. Average noise of 13-7 μ bars, decreasing swell noise during line. S1-2 separation low (debris). Line subject to processing checks. Noted loss of 2.3-3.6 sec data from brute stack.

24:00 SP 2666 - Midnight SP on Seq 012 : Line W00INV1918P1

6th January, 2000

00:00 SP 2667 - First SP of the Day on Seq 012 : Line W00INV1918P1

Swell noise seen on all records. Streamer depth variations due to following seas. Trace edits will be required. Average speed 4.04 knots. Misfires 0.28%. Average noise of 13-7 μ bars, decreasing swell noise during line. S1-2 separation low (debris). Line subject to processing checks. Noted loss of 2.3-3.6 sec data from brute stack.

02:58 EOL Seq 012 : Line W00INV1918P1 LSP 3822 Line Completed
Production (Line Change)

05:56 SOL Seq 013 : Line W00INV1906P1 FSP 3651 Hdg 189.0°

High degree of swell noise seen on all records. Streamer depth variations due to head seas. Trace edits will be required. Average speed 4.09 knots. Misfires 0.53%. Average noise of 15-17 μ bars, due to swell noise during line. Line subject to processing checks. Noted loss of 2.3-3.6 sec data from brute stack. LINE REJECTED BY WEL 10.1.2000, DNP, TO BE RESHOT. Charging to remain unchanged.

10:37 EOL Seq 013 : Line W00INV1906P1 LSP 817 Line Completed
Production (Line Change)

14:03 SOL Seq 014 : Line W00INV1894P1 FSP 0 Hdg 009.0°

Swell noise seen on all records, decreasing during line. Streamer (1,3,6) depth variations due to following seas. Trace edits will be required. Average speed 4.09 knots. Misfires 0.56%. Average noise of 13-8 μ bars, due to swell noise during line. Line subject to processing checks. Line originally charged during sequence 8.

17:24 SP2 powered down for generator change.

18:45 EOL Seq 014 : Line W00INV1894P1 LSP 0 Line Completed

Weather D/T (Sea)

Reshoot line change.

Gun string 3 onboard for repairs.

19:14 Clean power change. Instrument room powered down for change.

19:24 Recording room power back on. Ship back on aux generator.

22:15 Breakdown (Ship)

Extended line change due to generator change over earlier on.

22:28 Guns back in water.

23:19 SOL Seq 015 : Line W00INV2014P1 FSP 3536 Hdg 189.0°

Swell noise seen on all records. Streamer 6 depth variations due to head seas. Trace edits will be required. Average speed 4.06 knots. Misfires Nil. Average noise of 9-7 μ bars, decreasing swell noise during line.

24:00 SP 3133 - Midnight SP on Seq 015 : Line W00INV2014P1

7th January, 2000

00:00 SP 3132 - First SP of the Day on Seq 015 : Line W00INV2014P1

Swell noise seen on all records. Streamer 6 depth variations due to head seas. Trace edits will be required. Average speed 4.06 knots. Misfires Nil. Average noise of 9-7 μ bars, decreasing swell noise during line.

03:50 EOL Seq 015 : Line W00INV2014P1 LSP 817 Line Completed
Production (Line Change)

07:14 SOL Seq 016 : Line W00INV1966P1 FSP 1001 Hdg 009.0°

Swell noise seen on all records. Streamer 3 depth variations due to following seas. Trace edits will be required. Average speed 4.05 knots. Misfires 0.2%. Average noise of 7 μ bars. Swell decreasing towards northern end of line, shallower water.

11:51 EOL Seq 016 : Line W00INV1966P1 LSP 3770 Line Completed
Production (Line Change)

- 12:30-12:58 MOB drill, FRC deployed to rescue dummy.
 13:32-13:48 CMV deployed for personnel transfer from MV PERFECT LADY to MV SMIT LLOYD 28.
- 14:36 SOL Seq 017 : Line W00INV1894I1 FSP 3663 Hdg 189.0°
 First infill for the area. Swell noise seen on all records. S1 and S6 depth variations due to vane wash problems. Trace edits will be required. Misfires 0.1%. Average noise of 7-10 µbars. Swell increasing heading towards shelf.
- 19:23 EOL Seq 017 : Line W00INV1894I1 LSP 817 Line Completed
 Production (Infill L/C)
- 22:02 SOL Seq 018 : Line W00INV2002P1 FSP 1001 Hdg 009.0°
 Swell noise seen on all records. Depth variations due to swell. Trace edits will be required. Misfires 0.33%. Average noise of 9-8 µbars. Swell decreasing heading away from shelf.
- 24:00 SP 2143 - Midnight SP on Seq 018 : Line W00INV2002P1

8th January, 2000

- 00:00 SP 2144 - First SP of the Day on Seq 018 : Line W00INV2002P1
 Swell noise seen on all records. Depth variations due to swell. Trace edits will be required. Misfires 0.33%. Average noise of 9-8 µbars. Swell decreasing heading away from shelf.
- 02:42 EOL Seq 018 : Line W00INV2002P1 LSP 3732 Line Completed
 Production (Line Change)
- 05:32 SOL Seq 019 : Line W00INV1882P1 FSP 3675 Hdg 189.0°
 Swell noise seen on all records. Depth variations at the front ends of streamers 1, 3, 6 due to swell, first 10 depth controllers varying between 10-12 metres for line. SP 1200-EOL balance improved. Trace edits will be required. Misfires 0.36%. Average noise of 10-7 µbars. LGSP 818, 817 missed.
- 10:17 EOL Seq 019 : Line W00INV1882P1 LSP 818 Line Completed
 Production (Line Change)
 13:30 Circling to fix gun string 1 RGPS.
- 13:47 Gun RGPS (In-Sea Positioning)
 16:22 Guns back in water.
- 17:34 SOL Seq 020 : Line W00INV1870P1 FSP 1001 Hdg 009.0°
 Swell noise seen on all records. Depth variations on streamer 6 due to vane wash, depth controllers 4-8 affected. Trace edits will be required. Misfires 0.04%. Average noise of 9-7 µbars.
- 22:17 EOL Seq 020 : Line W00INV1870P1 LSP 3872 Line Completed
 Production (Line Change)

9th January, 2000

- 00:00 Production (Line Change)
- 01:27 SOL Seq 021 : Line W00INV1990P1 FSP 3561 Hdg 189.0°
 Line terminated due to anchored fishing vessel on line ahead. LGSP 2040. Swell noise seen on all records. Reasonable streamer control. Misfires 0.46%. Average noise of 6-4 µbars.
- 03:57 EOL Seq 021 : Line W00INV1990P1 LSP 2040 Line Incomplete
 Standby (Fishing Interferences)
 Circling to avoid fishing boat anchored on line ahead. (Artic Gull)
- 07:55 Overlap shots
 Overlap shots SP 3386-3395
- 07:56 SOL Seq 022 : Line W00INV2048R1 FSP 0 Hdg 009.0°
 Line continuation of sequence 2, terminated for gun volume. Swell noise seen on all records. Reasonable streamer control. Misfires Nil%. Average noise of 4 µbars. Line acquired using 8 streamer way points. Covered necessary 12 CDP area, against original 16 CDP area, effectively leaving boundary 4 CDP gap, on outside edge. Line not charged to correct km difference between 8-6 streamer configuration.
- 08:24 EOL Seq 022 : Line W00INV2048R1 LSP 0 Line Completed
 Production (Line Change)
- 12:28 SOL Seq 023 : Line W00INV1870I1 FSP 3688 Hdg 189.0°
 Minor swell noise seen on all records. Good streamer control. Misfires Nil%. Average noise of 3 µbars.

- 17:15 EOL Seq 023 : Line W00INV1870I1 LSP 817 Line Completed
Production (Infill L/C)
- 21:10 SOL Seq 024 : Line W00INV1942I1 FSP 1125 Hdg 009.0°
Infill line acquired in two portions, this is the first. Seis. gap between the two portions. Minor swell noise seen on all records. Good streamer control. Misfires 0.33%. Average noise of 3 µbars. Filling hole for far/mid and far coverage.
- 23:31 EOL Seq 024 : Line W00INV1942I1 LSP 2540 Line Completed
Production (Infill L/C)
Seis. gap (SP 2541-3119) in between due to infill requirements.

10th January, 2000

- 00:00 Production (Infill L/C)
Seis. gap (SP 2541-3119) in between due to infill requirements.
- 00:29 SOL Seq 024 : Line W00INV1942I1 FSP 3120 Hdg 009.0°
Infill line acquired in two portions, this is the second. Seis. gap between the two portions. Minor swell noise seen on all records. Good streamer control. Misfires 0.33%. Average noise of 3 µbars. Filling hole for far/mid and far coverage.
- 01:36 EOL Seq 024 : Line W00INV1942I1 LSP 3796 Line Completed
Production (Infill L/C)
- 04:22 SOL Seq 025 : Line W00INV1858P1 FSP 3701 Hdg 189.0°
Slight swell noise seen on all records. Good streamer control. Misfires 0.24%. Average noise of 3 µbars. Feather mismatch at SOL mainly far coverage missed, overlapping of near coverage required during line.
08:30 CMV deployed, and tied up alongside port of vessel.
- 09:06 EOL Seq 025 : Line W00INV1858P1 LSP 817 Line Completed
Production (Line Change)
09:52-12:05 MV SMIT LLOYD 28 alongside for cargo transfer.
- 12:36 Resupply (Resupply)
13:05-14:50 CMV deployed to change S5C13 and S1T6.
15:45 PERFECT LADY departed for Port Ferry.
- 16:24 SOL Seq 026 : Line W00INV1978P1 FSP 1001 Hdg 009.0°
Good streamer control. Misfires 0.14%. Average noise of 2 µbars.
- 20:59 EOL Seq 026 : Line W00INV1978P1 LSP 3757 Line Completed
Production (Line Change)

11th January, 2000

- 00:00 Production (Line Change)
- 00:14 SOL Seq 027 : Line W00INV1978I1 FSP 3573 Hdg 189.0°
Line shot in two portions, first half as infill. Good streamer control. Misfires 0.14% for entire line. Average noise of 2 µbars. Mainly acquired for nears, and near-mid coverage.
- 02:47 EOL Seq 027 : Line W00INV1978I1 LSP 2040 Line Completed
- 02:47 SOL Seq 027 : Line W00INV1978I1 FSP 2039 Hdg 189.0°
Line shot in two portions, second half as prime reshoot of sequence 21 for fishing interference. The prime portion divided into two segments for accounting purposes to compensate for differences between 8/6 streamers. Good streamer control. Misfires 0.14% for entire line. Average noise of 2 µbars.
- 04:13 EOL Seq 027 : Line W00INV1978I1 LSP 1177 Line Completed
- 04:13 SOL Seq 027 : Line W00INV1978I1 FSP 0 Hdg 189.0°
Line shot in two portions, second half as prime reshoot of sequence 21 for fishing interference. The prime portion divided into two segments for accounting purposes to compensate for differences between 8/6 streamers. Good streamer control. Misfires 0.14% for entire line. Average noise of 2 µbars. No charge was attributed to this section for above accounting fix.
- 04:47 EOL Seq 027 : Line W00INV1978I1 LSP 0 Line Completed
Production (Line Change)
- 08:53 SOL Seq 028 : Line W00INV1846P1 FSP 0 Hdg 009.0°

- Slight wind increase during line. No charge applied to compensate for 8/6 configuration km difference. Good streamer control. Misfires 0.41% for entire line. Average noise of 2 µbars.
- 13:35 EOL Seq 028 : Line W00INV1846P1 LSP 0 Line Completed
Production (Line Change)
- 16:32 SOL Seq 029 : Line W00INV1906R1 FSP 0 Hdg 189.0°
Line terminated due to port vane wire parted at the fairlead. All data scratched. DNP. Wind ESE 22 knots, swell 2 metres, vessel speed 4.01 knots, and pitch 65%.
- 16:33 EOL Seq 029 : Line W00INV1906R1 LSP 0 Line Scratched
Recovery (Towing Equipment)
16:50 Commence recovery of guns.
18:53 Guns onboard.
19:15 Picking up front-ends of streamers 1, 2, 3 to remove X-tag.
20:05 Start picking up streamer 3.
22:55 Tailbuoy 3 onboard.
23:05 Picking front-end of streamers 1 and 2.
23:55 Picking up streamer 2

12th January, 2000

- 00:00 Recovery (Towing Equipment)
01:00 Letting streamer 1 out.
02:00 Tailbuoy 2 crossed with tailbuoy 6.
04:05 Recovering streamer 2, with tailbuoy 6.
06:30 Turning SE to avoid shallows (34m).
09:35 Altering course to port to avoid fishing vessels.
10:30 MV PERFECT LADY and MV SMIT LLOYD 28 ahead scouting.
12:45 Attempting untangle tailbuoys 2 and 6, at stern of vessel.
13:21 Tailbuoy 2 onboard.
13:40 Tailbuoy 6 let go, streamer 6 swinging around.
15:30 Streamer 6 now clear of 4 and 5, and at safe depth, for recovery.
15:35 Commence recovery of streamer 1.
16:30 Starboard vane onboard.
19:55 Streamer 1 tailbuoy onboard.
21:26 Recover port side.
22:30 Streamer 4 detached from X-tag. Manoeuvring to port to avoid fishing vessel.
23:59 First quarter of streamer 4 recovered. Streamers 5 and 6 remain in the water. Location 21 miles SE of prospect.

13th January, 2000

- 00:00 Breakdown (Towing Equipment)
04:09 Streamer 5 coming in.
05:30 Reposition streamer 6, to remove cross tag.
06:00 Commence recovery of streamer 5.
08:36 Tag line on streamer 6 (vane presently towing of this) parted. Port baro-vane drifting off. Location 39° 33.66' S 143° 20.15' E. Wx: 30 knots, seas 3-3.5 metres, speed 2.5 knots, and pitch 48% at time of loss. MV SMIT LLOYD 28 directed to vane location.
08:45 Continue recovery of streamer 5, turning slowly away to ensure streamers away from vane.
08:47 MV SMIT LLOYD 28 alongside vane.
09:15 Tailbuoy 5 onboard. Commence recovery of streamer 6.
11:49 Tailbuoy 6 onboard.
- 11:49 Breakdown (Towing Equipment)
12:10 MV SMIT LLOYD 28 and MV PERFECT LADY standing by vane.
15:50-16:10 CMV launched to attempt recovery of baro-vane. Unable to get tow wires from vane, abandoned attempts. Personnel transfer from MV PERFECT LADY completed.
- 16:10 Weather D/T (Sea)
16:15 Starboard main engine stopped for maintenance.
16:20 Engine clutched out.

18:15 Engine clutched back in.

23:59 Standing by till tomorrow morning to attempt recovery. Wind E force 6, 2m E sea swell on top of 2.5-3m SW ocean swell.

January 14th, 2000

- 00:00 Weather D/T (Sea)
04:00 Wx ENE force 6, 2m ENE wind swell, 2.5m SW ocean swell.
07:30 Pride alongside vane, Wx ENE winds 15-20 knots, 2-3m seas & swell.
12:00 Wx ENE 15-20 knots, 2-3 m sea and swell.
13:05 Port main engine shut down for maintenance.
- 16:16 Recovery (Towing Equipment)
16:16-18:52 CMV launched to assist in the recovery of the techno float and vane.
17:45 Techno float onboard.
18:45 Baro-vane alongside. Vane wires and pickup wires entangled.
18:54 Baro-vane onboard.
19:50 Vane wire cut with gas torch, 400 metres of wire lost overboard.
- 20:17 Deployment (Towing Equipment)
20:17 Tailbuoy 6 deployed.
20:30 Changing section 23B
22:04 Changing section 21B
22:55 Module 23 failing tests.

15th January, 2000

- 00:00 Deployment (Towing Equipment)
00:55 Replacing section 16A, Ch 241, failing T4/7 tests.
02:40 Replacing section 13A. Ch 193, 197 failing T4/T7 tests.
04:10 Replacing section 10B. Ch 158 failing T4 tests.
05:55 Powered down to replace section 5B. Ch 76 failing T4/7 tests.
06:03 Tailbuoy 1 in the water.
07:10 Changing sections 4A, 4B. Ch 62 T4/7 fail, ch 49 T7 fail.
09:25 Standing by on deployment of streamer 6, swapping broken fairlead.
09:40 Powered down streamer 1, to replace MSX module between 10A & 10B. Fails HD -0dB
10:19 Fair lead replace on streamer 6, picking up to depth controller 4.
10:25 Replacing section 7A, streamer 1. Ch 97 and 98 noisy.
11:05 Replaced depth controller 4, collar disconnected, faulty spring pin.
11:10 Streamer 6 going out again, replaced depth controller 4.
11:50 Replaced section 6A, on streamer 1. Ch 82, fails T4/T7.
12:20 Preparing streamer 6 for lead-in removal.
13:00-13:25 Heli-crash Fire drill conducted, for fire crew personnel only. All systems checked and tested.
13:30 Section 4A replaced on streamer 1. Ch 97 and 98 noisy.
13:35-15:00 Starboard main engine clutched out for maintenance.
14:50 Replacing section 3A, on streamer 1.
20:00 Powering up new lead-in on reel 8
21:45 Section 1A, replaced on streamer 1.
23:35 Attaching streamer 1 to baro-vane.

16th January, 2000

- 00:00 Deployment (Towing Equipment)
00:15 Streamer 1 going out on vane.
02:00 MV SMIT LLOYD 28 sent to tailbuoys, tailbuoys satisfactory. No Posnet on tailbuoy 1.
02:10 Streamer out on vane.
02:30 Start letting streamer 6 out on vane.
03:05 Streamer 2, TSX module, no acoustics in HBR.
03:40 S2C18 in LBR mode.
03:45 Change out section 23A. Ch 353 fail T4 and T7, Ch 357 noisy.

04:03 Streamer 5 tailbuoy deployed.
 06:30 Picking streamer 2 up to depth controller 18.
 07:08 Section 8A changed out, ch 113 fails T4/7 daily tests.
 07:40 S2C18 changed out.
 08:00 CMV deployed to pickup trailing posnet from broken mast on tailbuoy 1.
 08:30 Section 6B changed on streamer 5. Ch 91 fails T4/7 daily tests.
 09:00 Picking up streamer 2 to module 14, leakage evident on depth controller line.
 09:08 Turning to starboard (lee side), as CMV unable to get back onboard.
 09:43 Replaced sections 14A and 14B, on streamer 2.
 10:06 CMV back onboard.
 10:07 Turning back to port to resume original heading.
 10:59 Picking up streamer 5 to tail of section 1A, broken support member in section. Ch 2 failing T4 daily tests.
 13:10 Section 11A and 11B on streamer 2, changed out. Ch 174 fails T4/T7 daily tests. Section 11B Pro2000 failure.
 13:45 Streamer 5 out on X-tag.
 14:15 Tailbuoy 4 in the water.
 14:28 Streamer 2 section 9B changed, ch 144 fails T4/7 tests.
 14:54 Streamer 4 section 21B changed, ch 324 fails T4/7 tests.
 16:30 Streamer 2 section 3A ch 38 fails T4/T7 tests.
 21:02 Streamer 2 out on X-tag.
 21:52 Tailbuoy 3 deployed.
 23:35 Streamer 4 out on X-tag. Streamers 4, 5, 6 out to shooting marks.
 23:40 Changing section 18B, streamer 3, ch 281 fails T4/7/T0 tests.

17th January, 2000

00:00 Breakdown (Towing Equipment)
 03:05 Replace stubby section, on streamer 3.
 04:08 Replace cable head section, stubby put back in.
 04:30 All looks good.
 05:05 Streamer 3 going out, X-tag to other streamers.
 05:40 All streamers out at marks.
 05:55 Adjusting geometry due to additional 50 metres added to vane tow lines.
 06:15 Guns deployed.
 09:20 All guns in water.
 10:05 Heading for line.
 11:02 SOL Seq 030 : Line W00INV200211 FSP 1001 Hdg 009.0°
 Infill line acquired to completed coverage in all groups missed during reshoot pass through area.

Above average front-end strum noted on streamer 1 (5-10µbars) , due to new 100 metres tow rope on vane, port side satisfactory. Good streamer control. Random swell noise noted on records throughout line. Misfires 0.68% for entire line. Average noise of 5 µbars.

12:59 EOL Seq 030 : Line W00INV200211 LSP 2179 Line Completed
 Production (Infill L/C)
 13:05 Commence recovery of guns.
 15:30 Retrieving port streamer heads.
 16:10 Streamer 4 detached from cross tags, commence recovery.
 16:29 Resupply (Recovery)
 17:45 Streamer 3 detached form X-tag, recovering.
 18:40 Tailbuoy 4 onboard.
 19:04 Tailbuoy 3 onboard.
 19:15 Recover streamer 5.
 20:05 Recover streamer 2.
 20:40 removing damaged RVIM from streamer 2.
 22:30 Tailbuoy 5 onboard.

23:55 Tailbuoy 2 onboard.

18th January, 2000

00:00 Resupply (Recovery)
00:00 Start recovery of streamer 6.
03:15 Start recovery of streamer 1.
04:00 Tailbuoy 6 onboard.
06:00 Tailbuoy 1 onboard.
09:00 Backup echo sounder transducer retrieved - commence transit to Portland.
09:00 Resupply (Travel t/f Port)
Transit to Portland for crew change and resupply.
14:35 Resupply (Port Call)
Alongside in Portland - complete crew change and continue with offloading of cable sections and equipment. Offgoing crew billeted ashore - new crew on the vessel.

19th January, 2000

00:00 Resupply (Port Call)
Full period alongside loading and offloading cable sections, paravane, techno-floats shipments and taking bunkers. Engineering staff working on generators.

20th January, 2000

00:00 Resupply (Port Call)
Crew continue with on board vessel maintenance, loading and resupply. Weather forecast at this time is for winds up to 30-35 knots, with 3-4 metre swell.

21st January, 2000

00:00 Weather D/T (Port Call)
Continue with general vessel maintenance. Departure of the vessel has been delayed due to weather forecasts indicating winds of 35 knots and swell up to 4 metres.

22nd January, 2000

00:00 Weather D/T (Port Call)
Delay departure from Portland due to weather and sea state forecast in the prospect area.
06:18 Resupply (Travel t/f Port)
Return to cable deployment location - unable to commence deployment due to sea and swell. Winds gusting to 40 knots, sea and swell approaching 4 to 5 metres at times.
14:45 Weather D/T (Sea)
On location - on weather standby - winds 20-35 knots - sea and swell above 3 metres.

23rd January, 2000

00:00 Weather D/T (Sea)
Remain on weather standby - winds 25-35 knots - sea and swell 3.5 metres.
16:30 Resupply (Deploying)
Commence with deployment of streamer 6 tailbuoy after crew change and resupply. Tailbuoy has failed and will have to be retrieved for repair.
18:40 Breakdown (In-Sea Positioning)
Tailbuoy 6 failed - recover, repair and deploy.
20:10 Resupply (Deploying)
Continue with deployment of streamer 6 after tailbuoy repairs.
22:15 - streamer 6 deployed.
24:00 - deploying port vane wire for tensioning and load testing.

January 24th, 2000

00:00 Resupply (Deploying)
Deploy Port vane and retrieve under tension due to new tow wire replacement. Prepare to launch tailbuoy for streamer 1.

- 05:40 Resupply (Deploying)
Commence and continue with deployment of streamer 1 after resupply and crew change port call in Portland.
- 12:00 Resupply (Deploying)
Complete deployment of streamers 6, 5 and 2. Deploying streamer 4. Deployed streamers in correct tow locations and cross tagged.

January 25th, 2000

- 00:00 Resupply (Deploying)
Complete deployment of final streamer and commence turn to the start of the first line. Prepare gun arrays for deployment and offset measurement checks.
- 10:30 Breakdown (Streamer)
A problem has developed in streamer 3 configuration. Retrieve the streamer to trace and repair an intermittent communication problem associated with the compasses and depth controllers. The fault was finally traced to section 12B which was replaced. The streamer was deployed and tested before turning back towards the prospect area.

January 26th, 2000

- 00:00 Resupply (Deploying)
Turning back to line after completing repairs to streamer 3. Prepare gun arrays for deployment.
- 02:25 Resupply (Deploying)
Deploying gun arrays while running into line.
- 04:30 Resupply (Deploying)
All systems deployed - run streamer separation checks, cable checks and array tests during the run to the start of line.
- 05:50 Avoiding a fishing vessel anchored on the run in to line. Deviate around the vessel.
- 06:45 Fishing vessel cleared - continue running to line.
All tests and pre-line checks completed.
- 07:36 SOL Seq 031 : Line W00INV1918R1 FSP 0 Hdg 009.0°
Attempt acquisition but forced to abandon due to a disabled fishing vessel ahead on line. Unable to pass the vessel safely - very poor visibility in moderate sea state.
- 07:47 EOL Seq 031 : Line W00INV1918R1 LSP 0 Line Scratched
Standby (Fishing Interferences)
Circle back to restart the line due to fishing activity. During the run back to line fishing debris rope was cleared from streamer 4, depth controller 14.
- 14:25 SOL Seq 032 : Line W00INV1918R2 FSP 0 Hdg 009.0°
Attempt line but forced to abandon due to loss of depth control on 3 streamers. Unable to maintain depth control in 3 metre following sea and swell. Go on to weather standby.
- 14:53 EOL Seq 032 : Line W00INV1918R2 LSP 0 Line Scratched
Weather D/T (Sea)
Go on weather standby - winds up to 33 knots - sea and swell combined 4 metres. A strong wind warning is current for the next 24 hours for this survey area. Recover arrays and dive the streamers to 12 metres to try and avoid storm damage to the system.

27th January, 2000

- 00:00 Weather D/T (Sea)
On weather standby - winds gusting to 25-30 knots, with a combined sea and swell up to 4 metres. Streamers running at 12 metres to try and avoid any weather damage. Arrays remain stowed on deck. Turning to recover the head of streamer 5 as depth controller 2 is not responding and beginning to run shallow.
- 21:00 Standby (Fishing Interferences)
Moving streamers - to gain access to streamer 2. One crayfish pot removed.

28th January, 2000

- 00:00 Standby (Fishing Interferences)
Complete deployment of streamer 2 after clearing cray pot and replacing damaged depth controller.

- 06:45 Breakdown (Streamer)
Replace 2 sections which failed the daily tests of streamer 3 and replace 2 depth controllers, both running deep. The two depth controllers changed were at the front of the streamer and could not be accessed with the work boat.
- 21:45 SOL Seq 033 : Line W00INV2026I2 FSP 1350 Hdg 189.0°
Acquire infill acquisition
- 22:39 EOL Seq 033 : Line W00INV2026I2 LSP 817 Line Completed
Production (Infill L/C)
Line Change after infill

29th January, 2000

- 00:00 Production (Infill L/C)
Line Change after infill
- 01:47 SOL Seq 034 : Line W00INV1918R3 FSP 0 Hdg 009.0°
Reshoot of line sequence 12 - this line was charged in the first instance but not accepted due to weather and swell noise. It has now been reshot at weather standby time and no km charge has been incurred.
- 06:22 EOL Seq 034 : Line W00INV1918R3 LSP 0 Line Completed
Weather D/T (Sea)
Line change after a reshoot due to weather standby.
- 10:20 SOL Seq 035 : Line W00INV2038I1 FSP 3420 Hdg 189.0°
Acquiring chargeable infill acquisition
- 11:08 EOL Seq 035 : Line W00INV2038I1 LSP 2952 Line Completed
Production (Infill L/C)
Line change after infill acquisition
- 12:57 SOL Seq 036 : Line W00INV1930R1 FSP 0 Hdg 189.0°
Reshoot of portion of sequence 3 due to MSX recording system hangup.
- 13:01 EOL Seq 036 : Line W00INV1930R1 LSP 0 Line Completed
Breakdown (Instrument)
Line change after reshoot due to instrument and tape recording problems (MSX) during original sequence 3.
- 16:25 SOL Seq 037 : Line W00INV1846I1 FSP 0 Hdg 009.0°
Line acquired with 6 streamers - 12 CDP columns. All data scratched due to excessive swell noise and poor cable depth control. Completed with seq 57.
- 17:33 EOL Seq 037 : Line W00INV1846I1 LSP 0 Line Scratched
Weather D/T (Sea)
Abandon production and circle due to poor cable depth control caused by large swells,
- 23:24 SOL Seq 038 : Line W00INV1906R2 FSP 0 Hdg 189.0°
Attempt reshoot of earlier sequence 13 abandoned due to swell noise and poor cable depth control.
- 24:00 SP 0 - Midnight SP on Seq 038 : Line W00INV1906R2

30th January, 2000

- 00:00 SP 0 - First SP of the Day on Seq 038 : Line W00INV1906R2
Attempt reshoot of earlier sequence 13 abandoned due to swell noise and poor cable depth control.
- 01:09 EOL Seq 038 : Line W00INV1906R2 LSP 0 Line Scratched
Weather D/T (Sea)
Abandon production due to excessive swell causing major cable depth disruptions. Unable to maintain any stable cable depth. Vessel is heaving up to 9 metres and rolling from starboard to port up to 14°
- 07:57 SOL Seq 039 : Line W00INV1906R3 FSP 0 Hdg 189.0°
Line attempt aborted and all data scratched due to poor cable balance and control caused by continuing large southerly swell.
- 08:17 EOL Seq 039 : Line W00INV1906R3 LSP 0 Line Scratched
Weather D/T (Sea)

Continue of weather standby - large southerly swells have been running continuously. We have attempted production in both directions without success. Swells have reached 5 metres at times. Winds below 8 knots.

31st January, 2000

00:00 Weather D/T (Sea)
Weather standby continues but conditions generally improving, with a slow moderation of swell height.

06:06 SOL Seq 040 : Line W00INV1906R4 FSP 0 Hdg 189.0°
Reshoot of sequence 13 previously scratched due to swell noise and depth control.

10:46 EOL Seq 040 : Line W00INV1906R4 LSP 0 Line Completed
Weather D/T (Sea)
Line change after reshoot due to weather and swell.

14:02 SOL Seq 041 : Line W00INV1918I1 FSP 1001 Hdg 009.0°

18:42 EOL Seq 041 : Line W00INV1918I1 LSP 3821 Line Completed
Production (Infill L/C)
Line change after infill acquisition

23:26 SOL Seq 042 : Line W00INV1894I2 FSP 3663 Hdg 189.0°

24:00 SP 3313 - Midnight SP on Seq 042 : Line W00INV1894I2

1st February, 2000

00:00 SP 3312 - First SP of the Day on Seq 042 : Line W00INV1894I2

02:24 EOL Seq 042 : Line W00INV1894I2 LSP 1839 Line Incomplete
Breakdown (Instrument)
Abandon line and circle due to robotic tape library failure - shutdown and reboot entire recording and run tests prior to continuing acquisition.

08:59 SOL Seq 043 : Line W00INV1894I3 FSP 1838 Hdg 189.0°

10:38 EOL Seq 043 : Line W00INV1894I3 LSP 817 Line Completed
Production (Infill L/C)
Line change after infill acquisition

13:32 SOL Seq 044 : Line W00INV1666P1 FSP 1001 Hdg 009.0°

20:26 EOL Seq 044 : Line W00INV1666P1 LSP 4988 Line Completed
Production (Line Change)

22:52 SOL Seq 045 : Line W00INV1834P1 FSP 4637 Hdg 189.0°

24:00 SP 3938 - Midnight SP on Seq 045 : Line W00INV1834P1

2nd February, 2000

00:00 SP 3937 - First SP of the Day on Seq 045 : Line W00INV1834P1

05:08 EOL Seq 045 : Line W00INV1834P1 LSP 817 Line Completed
Production (Line Change)

07:18 SOL Seq 046 : Line W00INV1654P1 FSP 1001 Hdg 009.0°

14:00 EOL Seq 046 : Line W00INV1654P1 LSP 5000 Line Completed
Production (Line Change)

17:30 RGPS (In-Sea Positioning)
Extend line to allow for completion of the replacement of 5 compasses.

18:39 SOL Seq 047 : Line W00INV1834I1 FSP 4637 Hdg 189.0°

24:00 SP 1444 - Midnight SP on Seq 047 : Line W00INV1834I1

3rd February, 2000

00:00 SP 1443 - First SP of the Day on Seq 047 : Line W00INV1834I1

01:01 EOL Seq 047 : Line W00INV1834I1 LSP 817 Line Completed
Production (Infill L/C)

03:17 SOL Seq 048 : Line W00INV1642P1 FSP 1001 Hdg 009.0°

09:56 EOL Seq 048 : Line W00INV1642P1 LSP 5012 Line Completed
Production (Line Change)

11:54 SOL Seq 049 : Line W00INV1822P1 FSP 4649 Hdg 189.0°

15:13 EOL Seq 049 : Line W00INV1822P1 LSP 2665 Line Incomplete
 Breakdown (Source)
 Circle due to gun array failure - lost front cluster and additional gun, leaving array below volume specifications.

19:35 SOL Seq 050 : Line W00INV1822P2 FSP 2664 Hdg 189.0°

22:42 EOL Seq 050 : Line W00INV1822P2 LSP 817 Line Completed
 Production (Line Change)

4th February, 2000

00:00 Production (Line Change)

01:00 SOL Seq 051 : Line W00INV1630P1 FSP 1001 Hdg 009.0°

07:43 EOL Seq 051 : Line W00INV1630P1 LSP 5024 Line Completed
 Production (Line Change)

09:50 SOL Seq 052 : Line W00INV1810P1 FSP 4661 Hdg 189.0°

16:12 EOL Seq 052 : Line W00INV1810P1 LSP 817 Line Completed
 Production (Line Change)

18:36 SOL Seq 053 : Line W00INV1618P1 FSP 1001 Hdg 009.0°

24:00 SP 4249 - Midnight SP on Seq 053 : Line W00INV1618P1

5th February, 2000

00:00 SP 4250 - First SP of the Day on Seq 053 : Line W00INV1618P1

01:24 EOL Seq 053 : Line W00INV1618P1 LSP 5036 Line Completed
 Production (Line Change)
 Reduce speed and change out faulty fuel injector on the port main engine during the line change.
 Reduce speed/pitch control from 90% to 85%.

04:44 SOL Seq 054 : Line W00INV1798P1 FSP 4673 Hdg 189.0°

10:03 EOL Seq 054 : Line W00INV1798P1 LSP 1650 Line Incomplete
 Weather D/T (Sea)
 Abandon production to to poor cable depth control and swell noise.

6th February, 2000

00:00 Weather D/T (Sea)
 Continue on weather standby - winds 15 knots - swell 3-4 metres - cables running at 12 metres to avoid risk of damage. Gun arrays stowed on deck.

06:00 Weather D/T (Sea)
 Weather standby continues - winds have eased and the swell is generally subsiding but very slowly.

12:00 Weather D/T (Sea)
 Streamers raised to operational towing depth and gun arrays deployed - vessel ready to continue acquisition. Swell noise and cable depth control very marginal at this time.

7th February, 2000

00:00 Weather D/T (Sea)
 Streamers raised to operational towing depth and gun arrays deployed - vessel ready to continue acquisition. Swell noise and cable depth control very marginal at this time.

00:36 SOL Seq 055 : Line W00INV1606P1 FSP 0 Hdg 009.0°
 Line aborted - not to be processed due to poor depth control and excessive swell noise.

03:12 EOL Seq 055 : Line W00INV1606P1 LSP 0 Line Scratched

03:12 SOL Seq 056 : Line W00INV1630I1 FSP 0 Hdg 009.0°
 No seismic data recorded. Line aborted on the run in - unable to set and maintain cable depths.

04:01 EOL Seq 056 : Line W00INV1630I1 LSP 0 Line Scratched
 Weather D/T (Sea)
 Abandon attempts to acquire data heading north due to the following swell making cable control impossible - circle to acquire infill heading south.

06:45 SOL Seq 057 : Line W00INV1846I2 FSP 2700 Hdg 189.0°
 Acquiring infill. Infill - edit shots 2625-2541, 2231-2191, 2080-2016 cables 1 and 2.
 SP 972-928 on cable 1 due to unstable positioning in that region. Reshoot of sequence 37.

09:52 EOL Seq 057 : Line W00INV1846I2 LSP 817 Line Completed
 Production (Infill L/C)
 Line change after infill acquisition

12:19 SOL Seq 058 : Line W00INV1606P2 FSP 0 Hdg 009.0°
 Attempt line but scratched due to fishing debris damage to gunstrings 1 and 2, plus damage to acoustics and POSNET causing loss of positioning on line.

13:38 EOL Seq 058 : Line W00INV1606P2 LSP 0 Line Scratched
 Standby (Fishing Interferences)
 Recover gun strings 1 and 2 to repair and replace the acoustic transponder, replace array firing lines and the power cable to POSNET GPS system. The front end appears to have been hit and damaged by fishing debris. No floats of identification recovered.

22:37 SOL Seq 059 : Line W00INV1786P1 FSP 4685 Hdg 189.0°
 Abandon production due to tape recording problems with the event processing board in the MSX.

24:00 SP 3919 - Midnight SP on Seq 059 : Line W00INV1786P1

8th February, 2000

00:00 SP 3918 - First SP of the Day on Seq 059 : Line W00INV1786P1
 Abandon production due to tape recording problems with the event processing board in the MSX.

03:34 EOL Seq 059 : Line W00INV1786P1 LSP 1874 Line Incomplete
 Breakdown (Instrument)
 Circle to reboot and test recording system after tape recording faults.

08:24 SOL Seq 060 : Line W00INV1798P2 FSP 1649 Hdg 189.0°

09:51 EOL Seq 060 : Line W00INV1798P2 LSP 817 Line Completed
 Production (Line Change)

13:21 Breakdown (Instrument)
 Extend line change to allow completion of repairs and checks to the onboard recording system.

14:50 SOL Seq 061 : Line W00INV1606P3 FSP 1001 Hdg 009.0°

21:37 EOL Seq 061 : Line W00INV1606P3 LSP 5048 Line Completed
 Production (Line Change)

23:35 SOL Seq 062 : Line W00INV1774P1 FSP 4697 Hdg 189.0°

24:00 SP 4457 - Midnight SP on Seq 062 : Line W00INV1774P1

9th February, 2000

00:00 SP 4456 - First SP of the Day on Seq 062 : Line W00INV1774P1

06:03 EOL Seq 062 : Line W00INV1774P1 LSP 817 Line Completed
 Production (Line Change)

08:15 SOL Seq 063 : Line W00INV1594P1 FSP 1001 Hdg 009.0°

15:07 EOL Seq 063 : Line W00INV1594P1 LSP 5060 Line Completed
 Production (Line Change)

17:06 SOL Seq 064 : Line W00INV1762P1 FSP 4709 Hdg 189.0°

23:32 EOL Seq 064 : Line W00INV1762P1 LSP 818 Line Completed
 Production (Line Change)

10th February, 2000

00:00 Production (Line Change)

02:09 SOL Seq 065 : Line W00INV1594I1 FSP 1001 Hdg 009.0°

08:56 EOL Seq 065 : Line W00INV1594I1 LSP 5060 Line Completed
 Production (Infill L/C)

10:52 SOL Seq 066 : Line W00INV1750P1 FSP 4721 Hdg 189.0°

17:35 EOL Seq 066 : Line W00INV1750P1 LSP 817 Line Completed
 Production (Line Change)

21:05 Breakdown (Source)
 Extend line change to allow for completion of gun array repairs.

22:16 SOL Seq 067 : Line W00INV1582P1 FSP 1001 Hdg 009.0°

24:00 SP 2007 - Midnight SP on Seq 067 : Line W00INV1582P1

11th February, 2000

00:00 SP 2008 - First SP of the Day on Seq 067 : Line W00INV1582P1

00:49 EOL Seq 067 : Line W00INV1582P1 LSP 2500 Line Incomplete
Breakdown (Source)

04:23 SOL Seq 068 : Line W00INV1786P2 FSP 1873 Hdg 189.0°

05:41 EOL Seq 068 : Line W00INV1786P2 LSP 1200 Line Incomplete
Weather D/T (Sea)

Circle to attempt next line after being forced to abandon due to poor cable depth control on streamers 1, 3 and 5.

11:45 SOL Seq 069 : Line W00INV1582P2 FSP 2501 Hdg 009.0°

16:03 EOL Seq 069 : Line W00INV1582P2 LSP 5072 Line Completed
Production (Line Change)

18:56 SOL Seq 070 : Line W00INV1750I1 FSP 4721 Hdg 189.0°

21:22 EOL Seq 070 : Line W00INV1750I1 LSP 3250 Line Incomplete
Weather D/T (Sea)

Go on to weather standby - large SW swell is making front end cable depth control impossible.

12th February, 2000

00:00 Weather D/T (Sea)

Continue weather standby - wind 20 knots - swell 3 metres but slowly easing.

06:00 Weather D/T (Sea)

Remain on weather standby. Winds have increased to 30 knots, sea and swell up to 5 metres at times. Maintaining a southerly heading into the seas. Guns stowed on deck, streamers deployed and running at 15 metres to reduce the risk of swell damage.

12:00 Weather D/T (Sea)

Weather standby continues - winds appear to be swinging slightly to the SE but the swell is steady at 5-6 metres. Continue heading south - unable to turn safely in these large swells.

13th February, 2000

00:00 Weather D/T (Sea)

Winds have changed direction and eased slightly down to 25 knots but a long high swell up to 6 metres persists.

06:00 Weather D/T (Sea)

With a slight improvement in sea state the vessel turned back to the survey area.

09:30 Weather D/T (Sea)

Continuing back to the start of line - swell remains above 3 metres with winds gusting 15-25 knots.

19:00 Weather D/T (Sea)

Swell appears to be easing slightly and the decision was made to attempt to recover streamers 1 and 2 for section replacement. Partway through this attempt weather again deteriorated and the streamers became crossed and surfaced. Unable to continue cable work or retrieval until conditions improve.

14th February, 2000

00:00 Weather D/T (Sea)

Weather standby continues. Cables 2 and 3 crossed during recovery attempt and running on the surface. Attempting to free the streamers but the large swell has made this very difficult. Prepare to turn NE to avoid Flinders and King Islands.

09:45 Weather D/T (Sea)

Maintain NE heading and recover streamers 2 and 3 which were tangled. The tail stretch on cable 2 is damaged and the last active section of cable 3 will require replacement.

15th February, 2000

00:00 Weather D/T (Sea)

Cables 2 and 3 in the final recovery stages - tailbuoys damaged - prepare to change damaged sections on both streamers during deployment when conditions improve. Winds 20-25 knots, swell easterly up to 4 metres. Turning to head back in the direction of the survey area. At normal towing speed the vessel should be back on location in 18 hours or midnight local time.

- 06:00 Weather D/T (Sea)
Heading back to the survey after weather standby forced us away from the survey area.
- 10:45 Weather D/T (Sea)
During transit after weather standby attempt to refuel using inline fuelling method - cancelled after losing the dry break coupling overboard. Weather continuing to improve.
- 11:24 Weather D/T (Sea)
Continue travel back to the survey area - repair tailbuoys and check barovanes for damage and cracks. The starboard unit has been repaired after cracks were found to exist close to the front towing and suspension connector.
- 14:25 Weather D/T (Sea)
Travel back to the survey during weather standby – MV SMIT LLOYD 28 alongside - transferred 200 cubic metres of fuel - recovering the port barovane for inspection.
- 17:22 Weather D/T (Sea)
En route to the survey area - port vane has been recovered, checked and repaired after cracks were also found in the towing/suspension frame. Under normal conditions we could have been ready to start production at this time. Streamer repairs still to be completed and deployed - going on to equipment downtime.

16th February, 2000

- 00:00 Breakdown (Streamer)
Continue with cable deployment - replace depth controllers with poor response and cable sections on streamer 2 which failed daily tests - continuing running onto line in fine weather and sea conditions.
- 10:00 Breakdown (Towing Equipment)
Time required to weld and repairs to the baro-vane towing harness - both vanes had hairline cracks visible near the forward connection.
- 15:14 SOL Seq 071 : Line W00INV1570P1 FSP 1850 Hdg 009.0°
- 20:34 EOL Seq 071 : Line W00INV1570P1 LSP 5073 Line Incomplete
Production (Line Change)

17th February, 2000

- 00:00 Production (Line Change)
- 00:04 Weather D/T (Sea)
Long line change due to location of infill remaining after weather standby interruption. Heading to line 1750I2.
- 00:43 SOL Seq 072 : Line W00INV1750I2 FSP 3249 Hdg 198.0°
- 04:50 EOL Seq 072 : Line W00INV1750I2 LSP 817 Line Completed
Production (Infill L/C)
- 07:01 SOL Seq 073 : Line W00INV1570P2 FSP 1001 Hdg 009.0°
- 08:26 EOL Seq 073 : Line W00INV1570P2 LSP 1849 Line Completed
Production (Line Change)
- 11:06 SOL Seq 074 : Line W00INV1786P3 FSP 1900 Hdg 189.0°
- 12:16 EOL Seq 074 : Line W00INV1786P3 LSP 1200 Line Completed
- 12:16 SOL Seq 074 : Line W00INV1786P3 FSP 1199 Hdg 189.0°
- 12:52 EOL Seq 074 : Line W00INV1786P3 LSP 817 Line Completed
Production (Line Change)
- 15:07 SOL Seq 075 : Line W00INV1570I1 FSP 1001 Hdg 009.0°
- 21:55 EOL Seq 075 : Line W00INV1570I1 LSP 5073 Line Completed
Production (Infill L/C)

18th February, 2000

- 00:00 Production (Infill L/C)
- 00:14 SOL Seq 076 : Line W00INV1738P1 FSP 4733 Hdg 189.0°
- 06:44 EOL Seq 076 : Line W00INV1738P1 LSP 817 Line Completed
Production (Line Change)
- 09:07 SOL Seq 077 : Line W00INV1558P1 FSP 1001 Hdg 009.0°

12:08 EOL Seq 077 : Line W00INV1558P1 LSP 2782 Line Incomplete
Breakdown (Source)
Abandon line and circle due to gunstring 7 out of spec. with regard to volume plus an air-leak.
Circle back to the same line.

16:33 SOL Seq 078 : Line W00INV1558P2 FSP 2783 Hdg 009.0°
20:25 EOL Seq 078 : Line W00INV1558P2 LSP 5073 Line Completed
Production (Line Change)

23:06 SOL Seq 079 : Line W00INV1726P1 FSP 4745 Hdg 189.0°
24:00 SP 4215 - Midnight SP on Seq 079 : Line W00INV1726P1

19th February, 2000

00:00 SP 4214 - First SP of the Day on Seq 079 : Line W00INV1726P1
05:37 EOL Seq 079 : Line W00INV1726P1 LSP 817 Line Completed
Production (Line Change)

07:54 SOL Seq 080 : Line W00INV1546P1 FSP 1001 Hdg 009.0°
14:43 EOL Seq 080 : Line W00INV1546P1 LSP 5073 Line Completed
Production (Line Change)

17:40 SOL Seq 081 : Line W00INV1714P1 FSP 4757 Hdg 189.0°
24:00 SP 1110 - Midnight SP on Seq 081 : Line W00INV1714P1

20th February, 2000

00:00 SP 1109 - First SP of the Day on Seq 081 : Line W00INV1714P1
00:28 EOL Seq 081 : Line W00INV1714P1 LSP 817 Line Completed
Production (Line Change)

02:42 SOL Seq 082 : Line W00INV1534P1 FSP 1001 Hdg 009.0°
09:38 EOL Seq 082 : Line W00INV1534P1 LSP 5073 Line Completed
Production (Line Change)

11:47 SOL Seq 083 : Line W00INV1714I1 FSP 0 Hdg 189.0°
Attempt to acquire an infill line during nominal line change period of 3.50 hours. This line was not accepted due to impending rough seas. Go back to the completion of the nominal line change period allowance.

12:07 EOL Seq 083 : Line W00INV1714I1 LSP 0 Line Scratched
Production (Line Change)
End of nominal line change allowance after prime production on sequence 82.

13:08 Weather D/T (Recovery)
Recover gun array and cables 2, 3, 4 and 5 due to rough weather and forecasts indicating winds up to 39 knots at times. The vessel will head in to Portland for a scheduled crew change during this weather period.

21st February, 2000

00:00 Weather D/T (Recovery)
Complete the recovery of the remaining streamers and prepare to travel into Portland for crew change.

02:15 Weather D/T (Travel t/f Port)
Travel to Portland during weather standby to complete crew change and resupply. Alongside in Portland.

13:15 Weather D/T (Port Call)
Alongside in Portland during weather standby.

22nd February, 2000

00:00 Weather D/T (Port Call)
Alongside in Portland during weather standby.

07:25 Commence bunkering.
08:00 Load stores.
11:00 Oncoming crew arrived.
13:30 Offgoing crew departed.

17:00 CMV trials.
17:30 CMV onboard.
17:20 Stores loading complete.
19:40 Completed bunkering.

23rd February, 2000

00:00 Weather D/T (Port Call)
00:45 Pilot onboard.
01:10 Lines dropped, away from Portland.
01:10 Weather D/T (Travel t/f Port)
01:20 Pilot off.
01:32 Altered course to prospect.
07:30 Weather D/T (Deploying)
07:30 Tailbuoy 6 in water.
09:45 Section 19B changed out.
13:00-13:20 Boat Muster / Station Drill conducted.
15:50 Breakdown (Streamer)
15:50 Replaced RVIM due to split in tail of section.
16:00 Weather D/T (Deploying)
Port vane in the water.
17:15 Tailbuoy 1 deployed.
18:00 Breakdown (Towing Equipment)
18:00 Fire alarm noted, investigating.
18:05 Coordinator informed bridge that speed down to 1 knot, lost sight of vane. On bottom.
Location 39° 08' 15.58" S 142° 52' 28.47" E.
19:30-19:40 FRC deployed to check vane. Damage noted.
19:40 Vane onboard.
19:45 Vane fully housed. Float implosion, missing front nose cone, and lead-ing edge of vane wing severely damaged. Bottom frame damaged.
20:00 Commence recovery of streamer 6.
22:30 Streamer 6 onboard.
22:30 Breakdown (Towing Equipment)
Heading to Portland to replace port vane, severely damaged.

24th February, 2000

00:00 Breakdown (Towing Equipment)
07:25 Pilot onboard
08:00 Alongside Portland.
08:00 Breakdown (Towing Equipment)
Commence repairs to vane, crane and spare unit waiting on dockside. Spare vane assembled and loaded onboard.
18:23 Breakdown (Towing Equipment)
18:23 Departed Portland.
20:00 Contacted MV SMIT LLOYD 28.
23:15 Breakdown (Towing Equipment)
23:15 Tailbuoy 1 deployed.
05:25 Streamer 1 out with techno float in place.

25th February, 2000

00:00 Breakdown (Towing Equipment)
23:15 Tailbuoy 1 deployed.
05:25 Streamer 1 out with Techno float in place.
05:25 Deployment (Deploying)
06:00 Waiting on swell to ease before deploying starboard vane.
08:30 Aborted first attempt at starboard vane deployment due to swell.
15:14 Maintenance (Towing Equipment)

- 15:17 Starboard vane deployed. Tensioning new 38mm vane wire.
15:42 PERFECT LADY on location.
- 16:00 Weather D/T (Deploying)
Unable to recover vane, turning to heading to allow recovery.
- 17:20 Maintenance (Towing Equipment)
18:08 Vane recovered again.
18:40 Harness attached, to streamer 1.
20:10 Streamer 1 going out on vane.
20:40 Streamer 1 out on vane.
- 20:49 Weather D/T (Deploying)
20:49 Deploying streamer 6.
21:45 Bypassing section 22A due to telemetry errors in water.
23:20 Bypassing 15A telemetry error in water.
23:47 Bypassing 16A telemetry error in water.

26th February, 2000

- 00:00 Weather D/T (Deploying)
- 01:00 Breakdown (Streamer)
Module 19 taken out then replaced, tested satisfactory.
- 01:30 Weather D/T (Deploying)
01:40 Tailbuoy 6 deployed.
02:00 Tailbuoy 2 deployed.
04:00 Altering course to avoid fishing pots.
06:00 Lead-in 6 going out.
06:05 Altering course to deploy the port vane.
08:30 Powering cable 2 to replace section 12A.
08:50 Tailbuoy 5 deployed.
09:15 Port vane deployed.
10:00 Heavy swell causing problems with deployment.
- 11:05 Breakdown (Streamer)
11:05-11:35 Section 7B streamer 2, changed, due to group 6 and 7 failing T4/T7 tests.
11:50 Replaced section 7B again, new section failing T7 tests.
- 12:25 Weather D/T (Deploying)
12:30 HSE Meeting conducted by medic to announce meetings for trip.
15:18 Vane brought in to X-tag streamer 2 to 1.
15:45 Cables out on vanes.
18:05 Tailbuoy 3 in water.
Experiencing troubles deploying streamers, cables unstable due to 3m swell.
- 21:05 Breakdown (Streamer)
21:20-22:05 Telemetry errors at CHS of cable 5. Cleaned all connections, around RVIM, and stubbie sections, all good.
- 22:05 Weather D/T (Deploying)
22:45 Deploy tailbuoy 3.
23:55 Weather affecting streamer control. Uncrossing streamers 5 and 6 , sinking streamer 2.

27th February, 2000

- 00:00 Weather D/T (Deploying)
01:20 Tailbuoy 3 back onboard.
02:45 Turning 180° unable to get streamer 5 down.
03:44 Tailbuoy 3 deployed again.
08:50 Streamer 3 lead-in going into the water.
09:45 Streamers 1 and 2 out in place, 3 down to depth.
10:40 Deploying tailbuoy 4. Swell 3-3.5 metres.
16:05 Waiting while tailbuoy 4 uncrosses from streamer 5.
16:30 Placing X-tag on streamers 5-6.
17:46 Streamers 4, 5, 6 out to marks.

- 17:50 Breakdown (Streamer)
17:50 Start recovery of streamers 1, 2, 3 to work on front of streamer 3 lead-in (depth controller comms problems).
19:20 ASX streamer 3 bypassed. Still bad.
19:50 Removed section 1A, found water intrusion in mini boot.
20:17 All good on streamer 3, commence deployment again.
20:50 Streamers 1 and 2 in to connect X-tag 3 on.
21:15 Streamer 3 X-tagged.
21:55 All streamers in place.
- 21:55 Deployment (Deploying)
Turning back towards the prospect to deploy guns, heading for line W00INV153411.
23:45 Guns going out.

28th February, 2000

- 00:00 Breakdown (Source)
Delayed turn to line, due to gun problems.
- 01:45 Weather D/T (Deploying)
04:30 Guns fully deployed. Checking separations and offsets.
- 04:30 Breakdown (Instrument)
CRS recording fault, trouble shooting to correct.
- 06:59 SOL Seq 084 : Line W00INV153411 FSP 1001 Hdg 009.0°
Infill line acquired as progressive fill, to correct steering offsets. Line completed - random bursts of swell noise - reasonable cable depth control despite swell. Telemetry errors on streamer 6, edited from coverage, not charged. Scratched on 3rd March due to noise in brute stack. Reshot with seq. 97.
09:15-10:25 CMV deployed for personnel transfer (Dick Morgan WGC) and TS Dip. Starboard engine failed, shut down. 39° 14'S 142° 51'E, 1518 m/sec.
10:25 MV PERFECT LADY away to Port Fairy with 1 passenger.
- 13:57 EOL Seq 084 : Line W00INV153411 LSP 5073 Line Scratched
Production (Infill L/C)
Nominal line change after infill line.
- 16:57 Breakdown (Streamer)
Recovering guns, in preparation for streamer 6 repairs for telemetry errors.
18:10 Guns onboard.
- 18:10 Breakdown (Streamer)
18:11 Commence recovery of streamer 6. Picking up front-end.
18:55 Cable 4 stacked out of way.
19:17 Cable 5 out of way.
20:45 Port vane onboard.
21:00 Bypass front end problem still in water.
22:25 Bypass into section 5A, problem still in water.
23:34 Bypass section 10A, still bad.

29th February, 2000

- 00:00 Breakdown (Streamer)
00:30 Bypass section 17A, still bad.
01:00 MSX 18 replaced, low optic power.
01:25 MSX 25 replaced, low optic power.
01:50 MSX module 19 replaced, satisfactory.
02:10 Changed out MSX module 19. Deploying streamer 6. Telemetry satisfactory.
04:45 Port vane in the water.
05:10 Waiting for streamer 6 to uncross from streamers 4 and 5.
06:55 Cross tagged streamers 5 and 6.
08:10 Cables at marks, waiting for separations.
08:55 Turn back towards prospect.
10:25 Turn complete.

- 10:25 Breakdown (Streamer)
 10:35 Commence recovery of starboard streamers.
 11:50 Streamer 2 being recovered.
 14:45 Section 7B replaced. Looks good.
 16:45 Separation of tailbuoys 1 and 2 satisfactory, continue deployment.
 16:50 Streamers 1 and 2 out on vane, cross tagging to streamer 3.
 17:20 All streamers in place.
 19:20 Start deploying guns.
 21:35 Guns fully deployed.
- 23:32 SOL Seq 085 : Line W00INV1522P1 FSP 1001 Hdg 009.0°
 Line completed - random bursts of swell noise - reasonable cable depth control. Reasonable feather matching with coverage stacked along adjacent area. Gun string separation 6-7 narrow at SOL, probably due to crab increasing at SP 1800.
- 24:00 SP 1265 - Midnight SP on Seq 085 : Line W00INV1522P1

1st March, 2000

- 00:00 SP 1266 - First SP of the Day on Seq 085 : Line W00INV1522P1
 Line completed - random bursts of swell noise - reasonable cable depth control. Reasonable feather matching with coverage stacked along adjacent area. Gun string separation 6-7 narrow at SOL, probably due to crab increasing at SP 1800.
- 06:33 EOL Seq 085 : Line W00INV1522P1 LSP 5073 Line Completed
 Production (Line Change)
- 09:20 SOL Seq 086 : Line W00INV1714I2 FSP 4757 Hdg 189.0°
 Infill line acquired as progressive fill - random bursts of swell noise - reasonable cable depth control. Feather mismatch at SOL, with near/nearmid coverage steered, later easing as feather decreased. PDL time stamp problems being resolved. Processing checks confirm data recorded correct. Reshoot of sequence 83.
- 15:30 Contacted MV GWEN KANE via MV SMIT LLOYD 28.
- 15:57 EOL Seq 086 : Line W00INV1714I2 LSP 817 Line Completed
 Production (Infill L/C)
- 18:14 SOL Seq 087 : Line W00INV1510P1 FSP 1001 Hdg 009.0°
 Line complete - random bursts of swell noise - reasonable cable depth control.
- 24:00 SP 4360 - Midnight SP on Seq 087 : Line W00INV1510P1

2nd March, 2000

- 00:00 SP 4361 - First SP of the Day on Seq 087 : Line W00INV1510P1
 Line complete - random bursts of swell noise - reasonable cable depth control.
- 01:11 EOL Seq 087 : Line W00INV1510P1 LSP 5073 Line Completed
 Production (Line Change)
- 03:39 SOL Seq 088 : Line W00INV1702P1 FSP 4768 Hdg 189.0°
 Line complete - random bursts of swell noise - reasonable cable depth control. Separation between S3-4 and gun array separation reduced for line.
- 10:06 EOL Seq 088 : Line W00INV1702P1 LSP 817 Line Completed
 Production (Line Change)
- 13:23 SOL Seq 089 : Line W00INV1678P1 FSP 1001 Hdg 009.0°
 Line complete - random bursts of swell noise - good cable depth control. Mean separation between S3-4 (88m) and mean gun array separation (42m) reduced for line.
- 19:54 EOL Seq 089 : Line W00INV1678P1 LSP 4976 Line Completed
 Production (Line Change)
 Gun array 7 onboard to repair gun 708.
 Vanes and cables out by 20 metres, with guns out by 10 metres, to try and improve separations. An increase of inline offset by 5 metres.
- 22:59 SOL Seq 090 : Line W00INV1498P1 FSP 4889 Hdg 189.0°
 Line complete - random bursts of swell noise - good cable depth control. Mean separation between S3-4 reasonably high (111m) since change to offset.

24:00 SP 4291 - Midnight SP on Seq 090 : Line W00INV1498P1

3rd March, 2000

00:00 SP 4290 - First SP of the Day on Seq 090 : Line W00INV1498P1
Line complete - random bursts of swell noise - good cable depth control. Mean separation between S3-4 reasonably high (111m) since change to offset.

05:49 EOL Seq 090 : Line W00INV1498P1 LSP 817 Line Completed
Production (Line Change)

08:15 SOL Seq 091 : Line W00INV1690P1 FSP 1001 Hdg 009.0°
Line complete - random bursts of swell noise from SP 1952 as swell beginning to increase - good cable depth control. Last half of line needed to be checked by processing due to noise levels. Last prime line in this area, infill now required to close coverage.

15:02 EOL Seq 091 : Line W00INV1690P1 LSP 4964 Line Completed
Production (Line Change)

18:38 SOL Seq 092 : Line W00INV1606I1 FSP 3830 Hdg 189.0°
Reasonably high noise levels due to heavy 3 m swell. Streamers affected by swell, control problems noted on streamer 2 and 3. SP 2635-2420 vessel moving 500 metres to port to acquire second portion of infill in area 1618. Trace edits required for streamer depth variations. Line acquired in opposite direction.

24:00 SP 864 - Midnight SP on Seq 092 : Line W00INV1606I1

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00:00 SP 863 - First SP of the Day on Seq 092 : Line W00INV1606I1
Reasonably high noise levels due to heavy 3m swell. Streamers affected by swell, control problems noted on streamer 2 and 3. SP 2635-2420 vessel moving 500 metres to port to acquire second portion of infill in area 1618. Trace edits required for streamer depth variations. Line acquired in opposite direction.

00:04 EOL Seq 092 : Line W00INV1606I1 LSP 817 Line Completed
Production (Infill L/C)

03:05 Weather D/T (Sea)
03:05 An attempt at line 1543I2 aborted on run-in due streamer control problems and excessive noise levels. SW 20 knots, 3 metre swell, 1.5m sea.
08:00 SW 25 knots, 3.5 metre swell, 1m sea.
12:00 SW 15 knots, 3.5 metre swell, 0.5m sea.
13:00-13:40 Fire drill, followed by debrief.

13:46 SOL Seq 093 : Line W00INV1702I1 FSP 0 Hdg 189.0°
Reasonably high noise levels due to heavy 3.5m swell, with streamer control lost. Line aborted to streamers on surface. All data scratched. Completed with seq. 94.

14:24 EOL Seq 093 : Line W00INV1702I1 LSP 0 Line Scratched
Weather D/T (Sea)
Circling back waiting on weather.
16:00 SW 10-15 knots, 3.5m swell, 0.5m seas.
20:00 SW 10-15 knots, 3.5m swell, 1m seas.

22:10 SOL Seq 094 : Line W00INV1702I2 FSP 4768 Hdg 189.0°
Reasonably high noise level during line due to heavy 3.5-3m swell, easing towards EOL. Trace edits require for streamer deviations due to sea conditions. Line subject to processing checks. Reshoot attempt for sequence 93.

24:00 SP 3669 - Midnight SP on Seq 094 : Line W00INV1702I2

5th March, 2000

00:00 SP 3668 - First SP of the Day on Seq 094 : Line W00INV1702I2
Reasonably high noise level during line due to heavy 3.5-3m swell, easing towards EOL. Trace edits require for streamer deviations due to sea conditions. Line subject to processing checks. Reshoot attempt for sequence 93.

04:43 EOL Seq 094 : Line W00INV1702I2 LSP 817 Line Completed
Production (Infill L/C)

- 07:46 SOL Seq 095 : Line W00INV179811 FSP 1001 Hdg 009.0°
Above average noise level at SOL easing during line due to heavy 3 m swell. Trace edits require for streamer 5 depth controllers 7-11 deviations due to sea conditions. Line subject to processing checks. Wide separation noted on S3-4 tail-end due to following seas, loss of coverage noted. PDL logger inoperative, manually entered by operators, checked by processing. Line acquired in opposite direction to adjacent lines.
- 13:40 EOL Seq 095 : Line W00INV179811 LSP 4530 Line Completed
Production (Infill L/C)
String 3 onboard for repairs - gun 302 high sync errors.
- 17:35 SOL Seq 096 : Line W00INV184613 FSP 3670 Hdg 189.0°
Line acquired in two portions with a seis. gap between infill and reshoot segments. High noise noted on line, subject to processing checks. SP 1830 moving over 650 metres to acquire reshoot for sequence 50. SP 1580 vessel back on line. Line scratched on 7.3.00 due to excessive noise levels. Charged in full.
- 20:40 EOL Seq 096 : Line W00INV184613 LSP 1830 Line Scratched
Breakdown (Instrument)
Seis. gap SP 1829-1345 between infill and reshoot acquired with one line.
- 21:32 SOL Seq 096 : Line W00INV184613 FSP 0 Hdg 189.0°
Second portion of line acquired to completed edit from sequence 50 due to MSX hangup. High noise noted on line, subject to processing checks.
- 21:52 EOL Seq 096 : Line W00INV184613 LSP 0 Line Scratched
Production (Infill L/C)
String 8 onboard for repairs - gun 802 high sync errors.

6th March, 2000

- 00:00 Production (Infill L/C)
String 8 onboard for repairs - gun 802 high sync errors.
- 01:30 SOL Seq 097 : Line W00INV153412 FSP 0 Hdg 009.0°
Line scratched due to excessive noise levels, and streamer control problems. Reshoot of sequence 84. Completed with sequence 98.
- 08:24 EOL Seq 097 : Line W00INV153412 LSP 0 Line Scratched
Weather D/T (Sea)
09:00 Commence recovery of guns, to repair tailbuoy 4.
12:10 All guns on deck.
12:50 Commence recovery of port cables.
18:00 Wx S 20-25 knots, 3.5-4m SW swell.
19:50 Tailbuoy 4 onboard.
21:25 Tailbuoy 4 back in the water.
22:10 Standing by cannot get tailbuoy past techno floats.
23:59 Wx SE 20-25 knots, 3.5-4 m SW swell.

7th March, 2000

- 00:00 Weather D/T (Sea)
06:00 Wx SSE force 6-7, confused swell SE/SW 3-4 metres.
07:30 Turning back towards the prospect.
09:00 Streamer 4 deployed again.
10:05 Replacing MSX module 15, due to harmonic distortion.
12:00 MSX Module 6 replaced due to HD on channel 15.
Wx SSE force 5/6, confused swell SE/SW 1.5/3 metres.
13:30 Standing by to all tailbuoy 4 to separate from cables 5 and 6.
16:37 All cables in position.
18:00 Deploying guns. Wx SSE force 5, confused swell SE/SW 1.5/3 metres.
21:55 All guns in place.
- 22:42 SOL Seq 098 : Line W00INV153413 FSP 1001 Hdg 009.0°

Line terminated due to gun volume specification. LGSP 2931. Reshoot of sequence 97. Trace edit required on streamer 3 for control problems on one depth controller. Only 2 CDP charged. Continuation attempt with seq. 99.

24:00 SP 1772 - Midnight SP on Seq 098 : Line W00INV1534I3

8th March, 2000

00:00 SP 1773 - First SP of the Day on Seq 098 : Line W00INV1534I3

Line terminated due to gun volume specification. LGSP 2931. Reshoot of sequence 97. Trace edit required on streamer 3 for control problems on one depth controller. Only 2 CDP charged. Continuation attempt with seq. 99.

01:58 EOL Seq 098 : Line W00INV1534I3 LSP 2931 Line Incomplete
Breakdown (Source)

Circling to fix guns.

06:43 SOL Seq 099 : Line W00INV1534I4 FSP 0 Hdg 009.0°

Line attempt scratched due to excessive noise levels, shot in full. All data scratched. Continuation of sequence 98.

10:15 EOL Seq 099 : Line W00INV1534I4 LSP 0 Line Scratched
Weather D/T (Sea)

Gun string 1 onboard for repairs.

13:00-13:30 General Safety Meeting.

14:16 SOL Seq 100 : Line W00INV1690I1 FSP 4780 Hdg 189.0°

First portion of line completed, noise levels reasonable, subject to processing checks. High feathering, high crab angle noted.

18:00 EOL Seq 100 : Line W00INV1690I1 LSP 2520 Line Completed
Seis. gap

Seis. gap, coverage not required, SP 2519-1661, recorded but not used.

19:27 SOL Seq 100 : Line W00INV1690I1 FSP 1660 Hdg 189.0°

Second portion of line completed, noise levels reasonable, subject to processing checks. High feathering, high crab angle noted. SP 2519-1661 no infill required. Seis. gap applied. Tape 30995 recorded, but data not used.

20:53 EOL Seq 100 : Line W00INV1690I1 LSP 817 Line Completed
Weather D/T (Sea)

Line change attributed to weather.

9th March, 2000

00:00 Weather D/T (Sea)

Line change attributed to weather.

00:05 SOL Seq 101 : Line W00INV1522I1 FSP 0 Hdg 009.0°

Line scratched due to loss of control of depth controllers. NTBP.

00:27 EOL Seq 101 : Line W00INV1522I1 LSP 0 Line Scratched

Weather D/T (Sea)

09:51 SOL Seq 102 : Line W00INV1534I5 FSP 2932 Hdg 009.0°

Infill line completed. Only charged 2 CDPs. Continuation of sequence 99. Random swell bursts noted. Reasonable noise despite sea conditions. Front separation S3-4 mean 115 metres. Charged in full, scratched 11.3.00 due to poor acoustic positioning.

13:25 EOL Seq 102 : Line W00INV1534I5 LSP 5073 Line Scratched

Production (Infill L/C)

Gun string 3 onboard, gun 303 changed out for autofires and high sync errors.

17:28 SOL Seq 103 : Line W00INV1846I4 FSP 0 Hdg 189.0°

Line acquired in two portions with a seis. gap between infill and reshoot segments. SP 1830 moving over 650 metres to acquire reshoot for sequence 50. Reshoot of sequence 96. Coverage missed due to high feathering on first portion of line, will require another pass to fill.

20:42 EOL Seq 103 : Line W00INV1846I4 LSP 0 Line Completed

Seis. Gap

Seis. gap, coverage not required, SP 1729-1345, recorded but not used.

21:22 SOL Seq 103 : Line W00INV1846I4 FSP 0 Hdg 189.0°

Second portion of line acquired to completed edit from sequence 50 due to MSX hangup. Trace edit required for streamer S3C12-16 control from SP 1380-EOL. Reshoot of sequence 96.

21:41 EOL Seq 103 : Line W00INV184614 LSP 0 Line Completed

Weather D/T (Sea)

Nominal line change to next infill pass. Gun string 8 onboard for repairs to 806 and 808.

March 10th, 2000

00:00 Weather D/T (Sea)

Nominal line change to next infill pass. Gun string 8 onboard for repairs to 806 and 808.

00:41 Weather D/T (Sea)

Vessel stopped turning towards line due to large crab angle, in order to recover and repair guns.

04:06 SOL Seq 104 : Line W00INV173811 FSP 1001 Hdg 009.0°

Line acquired in three portions to fill outstanding holes. Telemetry errors experienced on streamer 4 only throughout line, single shot edits required.

05:48 EOL Seq 104 : Line W00INV173811 LSP 1975 Line Completed

Seis. gap

Seis. gap SP 1976-2659

07:00 SOL Seq 104 : Line W00INV173811 FSP 2660 Hdg 009.0°

Line acquired in three portions to fill outstanding holes. Second portion of line, seis. gap SP 1976-2659. Telemetry errors experienced on streamer 4 only throughout line, single shot edits required.

08:39 EOL Seq 104 : Line W00INV173811 LSP 3570 Line Completed

Seis. gap

Seis. gap SP 3571-4049.

09:27 SOL Seq 104 : Line W00INV173811 FSP 4050 Hdg 009.0°

Line acquired in three portions to fill outstanding holes. Third portion of line, seis. gap SP 3571-4049. Telemetry errors experienced on streamer 4 only throughout line, single shot edits required.

10:27-11:27 FRC deployed for TS Dip at location 39° 7.17'S 142° 57.76'E 1519 m/sec derived for echo sounder, 1520 m/sec for acoustics.

11:51 EOL Seq 104 : Line W00INV173811 LSP 4917 Line Completed

Production (Infill L/C)

Gun string 7 onboard for repairs to 706 autofires.

12:45-13:00 SOPEP and Grounding/Collision lecture given for all crew.

13:37-14:41 FRC deployed to change S3C11 & 16 and tailbuoy 2 and 6 work.

14:31 SOL Seq 105 : Line W00INV182211 FSP 4600 Hdg 189.0°

Line acquired in three portions to fill outstanding holes. Telemetry errors experienced on streamer 4 only throughout line, single shot edits required. Shot numbers incorrectly numbered, numbers displaced 49 shots lower. SOL renumbered from 4649 to 4600, EOL renumbered from 817 to 768. Shot numbers in correct place, but wrongly numbered.

16:53 EOL Seq 105 : Line W00INV182211 LSP 3235 Line Completed

Seis. gap

Seis. gap SP2620-2360.

16:38-18:34 FRC deployed for streamer work. Changed out module 8 on streamer 4.

18:00 SOL Seq 105 : Line W00INV182211 FSP 2620 Hdg 189.0°

Line acquired in three portions to fill outstanding holes. Second portion of line, seis. gap SP2620-2360. Shot numbers incorrectly numbered, numbers displaced 49 shots lower.

18:18 Sighted fishing gear on line ahead, MV GWEN KANE, moving to starboard to avoid gear. PERFECT LADY in communications with vessel.

18:28 EOL Seq 105 : Line W00INV182211 LSP 2360 Line Completed

Seis. gap

Seis. gap SP2359-1701

19:35 SOL Seq 105 : Line W00INV182211 FSP 1700 Hdg 189.0°

Line acquired in three portions to fill outstanding holes. Third portion of line, seis. gap SP2359-1701. Shot numbers incorrectly numbered, numbers displaced 49 shots lower.

21:08 EOL Seq 105 : Line W00INV182211 LSP 768 Line Completed

Production (Infill L/C)

Cables and vanes in 5m for separations.
 23:45 SOL Seq 106 : Line W00INV1522I2 FSP 1500 Hdg 009.0°
 Line acquired to fill far-mid and far coverage. Low level telemetry errors present.
 24:00 SP 1641 - Midnight SP on Seq 106 : Line W00INV1522I2

11th March, 2000

00:00 SP 1642 - First SP of the Day on Seq 106 : Line W00INV1522I2
 Line acquired to fill far-mid and far coverage. Low level telemetry errors present.
 05:54 EOL Seq 106 : Line W00INV1522I2 LSP 5073 Line Completed
 Production (Infill L/C)
 09:09 SOL Seq 107 : Line W00INV1534I6 FSP 0 Hdg 189.0°
 First portion acquired as reshoot of sequence 102. No charge applied. Multiple telemetry errors on streamer 4 (module 8-22) during line, with 4.2% of records edited. Line acquired in opposite direction.
 12:38 EOL Seq 107 : Line W00INV1534I6 LSP 0 Line Completed
 12:38 SOL Seq 107 : Line W00INV1534I6 FSP 2931 Hdg 189.0°
 Second portion needed for fill. No charge applied. Multiple telemetry errors on streamer 4 (module 8-22) during line, with 4.2% of records edited. Line acquired in opposite direction. Coverage missed towards EOL, another pass at southern end of line.
 16:43 EOL Seq 107 : Line W00INV1534I6 LSP 817 Line Completed
 Production (Infill L/C)
 16:30-18:08 FRC deployed to change out MSX module 6 and CSX module 7 on streamer 4.
 20:07 SOL Seq 108 : Line W00INV1642I1 FSP 1140 Hdg 009.0°
 First portion of infill pass.
 23:34 EOL Seq 108 : Line W00INV1642I1 LSP 3175 Line Completed
 Seis. gap
 Seis. gap SP 3176-3495.

12th March, 2000

00:00 Seis. gap
 Seis. gap SP 3176-3495.
 00:06 SOL Seq 108 : Line W00INV1642I1 FSP 3496 Hdg 009.0°
 Second portion of infill pass. Seis. gap SP 3176-3495.
 01:13 EOL Seq 108 : Line W00INV1642I1 LSP 4130 Line Completed
 Production (Infill L/C)
 04:44 SOL Seq 109 : Line W00INV1570I2 FSP 3030 Hdg 189.0°
 Line acquired in two portions, first portion for missed coverage in far-mid and fars. SP 1637 started to move starboard for coverage. High feather causing difficulties in steering, low gun spread noted (44m) during this period.
 07:08 EOL Seq 109 : Line W00INV1570I2 LSP 1566 Line Completed
 Seis. gap
 Seis. gap SP 1565-1191
 07:46 SOL Seq 109 : Line W00INV1570I2 FSP 1190 Hdg 189.0°
 Second portion for missed coverage in far-mid and fars at southern end of line. Swell noise seen on last half of line. Seis. gap SP 1565-1191. Feather induced by move to starboard for line.
 08:24 EOL Seq 109 : Line W00INV1570I2 LSP 817 Line Completed
 Production (Infill L/C)
 13:40 SOL Seq 110 : Line W00INV1690I2 FSP 0 Hdg 009.0°
 Line shot in full. Scratched due to excessive noise and poor acoustics due to weather. Streamer and gun depths varying due to swell.
 16:43 EOL Seq 110 : Line W00INV1690I2 LSP 0 Line Scratched
 Weather D/T (Sea)
 Guns recovered due to weather.
 16:00 Wx E 25-30 knots, swell 3 metres.
 20:00 Wx E 30-35 knots, swell 3 metres.
 23:59 Wx NE 35 knots, swell 3 metres, sea 2.5 metres.

13th March, 2000

00:00 Weather D/T (Sea)
02:00 All guns onboard. Cables 2 and 3 on surface, trying to sink them.
03:45 Cables down at 25 metres.
05:00 Vessel making a port turn into head seas.
06:00 Wx E 35 knots, 2.5 metre swell.
12:00 Turning to port heading back towards line.
18:50 Deploying guns, Wx W 25 knots, 2m swell.
21:58 SOL Seq 111 : Line W00INV1690I3 FSP 3180 Hdg 009.0°
Reshoot of sequence 110. Infill line acquired to fill far and far-mid coverage. Tail acoustics noisy due to swell.
24:00 SP 4424 - Midnight SP on Seq 111 : Line W00INV1690I3

14th March, 2000

00:00 SP 4425 - First SP of the Day on Seq 111 : Line W00INV1690I3
Reshoot of sequence 110. Infill line acquired to fill far and far-mid coverage. Tail acoustics noisy due to swell.
00:51 EOL Seq 111 : Line W00INV1690I3 LSP 4964 Line Completed
Production (Infill L/C)
04:37 SOL Seq 112 : Line W00INV1846I5 FSP 3714 Hdg 189.0°
Infill line acquired for missed far/far-mid coverage left from seq 103. Swell noise increasing during line, from SP 3250-EOL. Some depth variations on streamers noted.
07:09 EOL Seq 112 : Line W00INV1846I5 LSP 2300 Line Completed
Production (Infill L/C)
Transfer from eastern swathe to the western swathe.
11:59 SOL Seq 113 : Line W00INV1330P1 FSP 1001 Hdg 009.0°
First prime line on new swathe. Swell noise observed throughout line. No SSS data written to PDL SP 1610-1708, 4810-EOL, processing checks to be done. Steering poor due to large swell. numerous shots missed due to CRS.
18:45 EOL Seq 113 : Line W00INV1330P1 LSP 5073 Line Completed
Production (Line Change)
21:51 SOL Seq 114 : Line W00INV1486P1 FSP 0 Hdg 189.0°
Line terminated due to loss of streamer control. NTBP. All data scratched.
22:11 EOL Seq 114 : Line W00INV1486P1 LSP 0 Line Scratched
Weather D/T (Sea)
Continue to other end of line. Waiting on weather. SW 15 knots, 3.5-4 metre SW swell.

15th March, 2000

00:00 Weather D/T (Sea)
Continue to other end of line. Waiting on weather.
06:00 SW 15 knots, 3 metre SW swell.
08:32 SOL Seq 115 : Line W00INV1318P1 FSP 1001 Hdg 009.0°
Line complete, swell from astern. Coverage loss noted due to tail separation between S3-4. Swell noise noted on records, with some streamer control problems. Trace edits to be applied. Above average gun misfires 1.5%. Line subject to processing checks, as noise levels above average.
13:00 Safety Committee Meeting conducted.
15:20 EOL Seq 115 : Line W00INV1318P1 LSP 5073 Line Completed
Production (Line Change)
Strings 2 and 6 onboard for repairs, guns 608 and 202 repaired.
18:55 SOL Seq 116 : Line W00INV1486P2 FSP 4889 Hdg 189.0°
Line complete. Swell noise noted on records, with some streamer control problems. Swell noise decreasing throughout line.
24:00 SP 1829 - Midnight SP on Seq 116 : Line W00INV1486P2

16th March, 2000

- 00:00 SP 1828 - First SP of the Day on Seq 116 : Line W00INV1486P2
Line complete. Swell noise noted on records, with some streamer control problems. Swell noise decreasing throughout line.
- 01:45 EOL Seq 116 : Line W00INV1486P2 LSP 817 Line Completed
Production (Line Change)
- 05:06 SOL Seq 117 : Line W00INV1306P1 FSP 1001 Hdg 009.0°
Line complete. Following seas resulting in tail separation 3-4 being wide, single columns of coverage lost.
- 11:55 EOL Seq 117 : Line W00INV1306P1 LSP 5073 Line Completed
Production (Line Change)
Gun string 8 onboard for repairs to gun 807.
14:46 FRC deployed for tailbuoy work and TS Dip.
- 15:24 SOL Seq 118 : Line W00INV1486I1 FSP 4889 Hdg 189.0°
Line acquired as progressive infill, to correct steering offsets. Swell noise observed throughout line, decreasing towards EOL.
16:17 FRC back onboard. TS Dip result at 38° 52 49'S 142° 53 30'E, 1516 m/s acoustic, 1514 m/sec echo sounder.
- 22:20 EOL Seq 118 : Line W00INV1486I1 LSP 817 Line Completed
Production (Infill L/C)
Gun strings 7 and 8 onboard for 706 and 807 repairs.

March 17th, 2000

- 00:00 Production (Infill L/C)
Gun strings 7 and 8 onboard for 706 and 807 repairs.
- 02:00 SOL Seq 119 : Line W00INV1294P1 FSP 1001 Hdg 009.0°
Line complete. Swell noise observed throughout line.
07:30 MV SMIT LLOYD 28 back on location.
- 09:04 EOL Seq 119 : Line W00INV1294P1 LSP 5073 Line Completed
Production (Line Change)
11:00-11:13 MOB drill, FRC deployed to rescue dummy thrown overboard.
11:15-12:19 FRC deployed for tailbuoy work.
- 12:17 SOL Seq 120 : Line W00INV1474P1 FSP 4889 Hdg 189.0°
Line complete. Random swell noise observed throughout line. Block edit required for streamer 5 traces 209-368, between SP 2480-2320 due to depth controller 14 change locked wing angle.
16:00-16:57 FRC deployed for mail transfer and depth controller change on streamer 5.
- 19:07 EOL Seq 120 : Line W00INV1474P1 LSP 817 Line Completed
Production (Line Change)
- 21:36 SOL Seq 121 : Line W00INV1282P1 FSP 1001 Hdg 009.0°
Line complete. Random swell noise observed throughout line. Slight increase in noise as swell increasing. High crab angles noted due to weather.
- 24:00 SP 2272 - Midnight SP on Seq 121 : Line W00INV1282P1

18th March, 2000

- 00:00 SP 2273 - First SP of the Day on Seq 121 : Line W00INV1282P1
Line complete. Random swell noise observed throughout line. Slight increase in noise as swell increasing. High crab angles noted due to weather.
- 04:56 EOL Seq 121 : Line W00INV1282P1 LSP 5073 Line Completed
Production (Line Change)
- 07:29 SOL Seq 122 : Line W00INV1462P1 FSP 4889 Hdg 189.0°
Line complete. Random swell noise observed throughout line.
13:00-14:00 Fire alarm sensor tests, and foam monitor sensor tests.
- 14:29 EOL Seq 122 : Line W00INV1462P1 LSP 817 Line Completed
Production (Line Change)
Gun string 2 onboard for repairs to 203.
- 17:18 SOL Seq 123 : Line W00INV1270P1 FSP 1001 Hdg 009.0°
Line complete. Random swell noise observed throughout line. SOL-SP 3972 no Spectra QC logging.

24:00 SP 4993 - Midnight SP on Seq 123 : Line W00INV1270P1

19th March, 2000

00:00 SP 4994 - First SP of the Day on Seq 123 : Line W00INV1270P1
Line complete. Random swell noise observed throughout line. SOL-SP 3972 no Spectra QC logging.

00:08 EOL Seq 123 : Line W00INV1270P1 LSP 5073 Line Completed
Production (Line Change)
Gun string 8 onboard for repairs.

03:31 SOL Seq 124 : Line W00INV1462I1 FSP 4889 Hdg 189.0°
Line acquired as progressive infill, to correct steering offsets. Trace edits required for S2 due to depth controller deviations. Reels 31178-31188 short number of files per tape d/t CRS, No data files lost.

10:33 EOL Seq 124 : Line W00INV1462I1 LSP 817 Line Completed
Production (Infill L/C)
12:00-12:54 Attempted refuelling with MV SMIT LLOYD 28 abandoned due to vessel movement in swell.

14:07 SOL Seq 125 : Line W00INV1270I1 FSP 1001 Hdg 009.0°
Line acquired as progressive infill, to correct steering offsets. Swell noise decreasing during line.

20:52 EOL Seq 125 : Line W00INV1270I1 LSP 5073 Line Completed
Production (Infill L/C)

23:40 SOL Seq 126 : Line W00INV1450P1 FSP 4889 Hdg 189.0°
Line complete. Slight increase in noisy during line.

24:00 SP 4705 - Midnight SP on Seq 126 : Line W00INV1450P1

20th March, 2000

00:00 SP 4704 - First SP of the Day on Seq 126 : Line W00INV1450P1
Line complete. Slight increase in noisy during line.

06:44 EOL Seq 126 : Line W00INV1450P1 LSP 817 Line Completed
Production (Line Change)
09:50 Fuel line secure with MV SMIT LLOYD 28.

10:21 SOL Seq 127 : Line W00INV1258P1 FSP 1001 Hdg 009.0°
Line complete. Line acquired while refuelling, restricting manoeuvrability. Swell noise evident on records, line subject to processing checks. Trace edits required due to minor streamer depth problems.
10:40 Pressure test fuel line.
10:50 Commence bunkering.
14:07 Ceased bunkering, 200 m³ transferred.
14:22 Fuel line disconnected.
14:30 Tow line away, MV SMIT LLOYD 28 clear.

17:02 EOL Seq 127 : Line W00INV1258P1 LSP 5073 Line Completed
Production (Line Change)

19:57 SOL Seq 128 : Line W00INV1438P1 FSP 0 Hdg 189.0°
Line scratched due to loss of streamer control and noise levels. Reshot with sequence 130.

22:06 EOL Seq 128 : Line W00INV1438P1 LSP 0 Line Scratched
Weather D/T (Sea)
Proceeding down line, waiting for seas to ease.
23:59 Wx: SW 20 knots, sea / swell 4 metres.

21st March, 2000

00:00 Weather D/T (Sea)
Waiting for weather.

05:58 SOL Seq 129 : Line W00INV1246P1 FSP 1001 Hdg 009.0°
Line complete, shot in heavy swell, subject to processing checks. Swell noise evident on records. Tail-end spread wide due to following sea, coverage lost. Streamer depths fluctuating.

12:43 EOL Seq 129 : Line W00INV1246P1 LSP 5073 Line Completed
Production (Line Change)

16:02 SOL Seq 130 : Line W00INV1438P2 FSP 4889 Hdg 189.0°
Line complete, shot in heavy swell, subject to processing checks. Swell noise evident on records, decreasing during line. Reshot of sequence 128.
22:49 EOL Seq 130 : Line W00INV1438P2 LSP 817 Line Completed
Production (Line Change)

22nd March, 2000

00:00 Production (Line Change)
01:56 SOL Seq 131 : Line W00INV1234P1 FSP 1001 Hdg 009.0°
Line complete. Swell noise evident on records. Problems experienced with streamer 5, needed a power recycle during line, resulting in lost records.
08:56 EOL Seq 131 : Line W00INV1234P1 LSP 5073 Line Completed
Production (Line Change)
11:26 SOL Seq 132 : Line W00INV1426P1 FSP 4889 Hdg 189.0°
Line complete. Swell noise evident on records. SP 1200 vessel movement affected by gusting wind, moving port at 0.8 knots, tail acoustics deteriorating rapidly. Last portion of line subject to processing checks.
18:20 EOL Seq 132 : Line W00INV1426P1 LSP 817 Line Completed
Production (Line Change)
20:00 Wx W 40 knots, swell 3 metres.
21:20 Weather D/T (Sea)
21:26 Commence recovery of guns.
22:50 All guns on deck.
23:59 Wx SW 35-40 knots, swell 3-4 metres.

23rd March, 2000

00:00 Weather D/T (Sea)
08:00 Vessel turning back towards prospect. Wx: SW 25-30 knots, SW swell 3.5 metres.
16:00 Commence deployment of guns.
16:45 Stopped deployment of guns. Wx SW 12-15 knots 4 metre swell.
18:00 Turning back to port heading 205°
23:30 Commence turn back towards prospect.
23:59 Wx: S 10-15 knots, SW swell 4 metres.

24th March, 2000

00:00 Weather D/T (Sea)
03:15 Guns going out.
06:05 Guns deployed.
07:13 SOL Seq 133 : Line W00INV1222P1 FSP 1001 Hdg 009.0°
Line complete. Swell noise evident on records. Line started with one gun down due to air leak on run into line. Tail-end spread S3-4 wide during line.
13:00 Helideck fire drill conducted. Helideck water monitors set in place and tested.
13:57 EOL Seq 133 : Line W00INV1222P1 LSP 5073 Line Completed
Production (Line Change)
Gun string 1 onboard for repairs to blown air hose on gun 106.
17:27 Breakdown (Source)
Vessel slowed to allow string 7 to be retrieved to replace burst air hose.
18:20 SOL Seq 134 : Line W00INV1414P1 FSP 4889 Hdg 189.0°
Line complete. Swell noise evident on records.
24:00 SP 1463 - Midnight SP on Seq 134 : Line W00INV1414P1

25th March, 2000

00:00 SP 1462 - First SP of the Day on Seq 134 : Line W00INV1414P1
Line complete. Swell noise evident on records.
01:02 EOL Seq 134 : Line W00INV1414P1 LSP 817 Line Completed
Production (Line Change)

- Gun string 3 onboard for air leak gun.
- 04:11 SOL Seq 135 : Line W00INV1210P1 FSP 1001 Hdg 009.0°
Line complete. Swell noise evident on records. S3-4 tail separation in this direction wide, some coverage lost.
- 11:12 EOL Seq 135 : Line W00INV1210P1 LSP 5073 Line Completed
Production (Line Change)
- 13:38 SOL Seq 136 : Line W00INV1414I1 FSP 4889 Hdg 189.0°
Progressive infill line, acquired to correct steering offsets. Line complete. SOL-SP 4520 slight ship noise visible from head of streamers as car carrier passing 2 miles ahead. Swell noise easing during line. Large feathering starting to appear on lines coming into spring tides.
14:00-15:50 FRC deployed transfer food from MV SMIT LLOYD 28, also check floating buoys.
- 20:32 EOL Seq 136 : Line W00INV1414I1 LSP 817 Line Completed
Production (Infill L/C)
- 23:25 SOL Seq 137 : Line W00INV1198P1 FSP 1001 Hdg 009.0°
Line complete, random swell break-out evident. Tail-end spread between S3-4 wide again, coverage loss noted.
Clocks changed back by 1 hour ending daylight saving.
- 24:00 SP 1310 - Midnight SP on Seq 137 : Line W00INV1198P1

ALL TIMES ARE Local Eastern STANDARD TIME (UTC +10 Hrs)

26th March, 2000

- 00:00 SP 1311 - First SP of the Day on Seq 137 : Line W00INV1198P1
Line complete, random swell break-out evident. Tail-end spread between S3-4 wide again, coverage loss noted.
Clocks changed back by 1 hour ending daylight saving.
- 05:16 EOL Seq 137 : Line W00INV1198P1 LSP 5073 Line Completed
Production (Line Change)
- 07:46 SOL Seq 138 : Line W00INV1402P1 FSP 4889 Hdg 189.0°
Line complete, random swell break-out evident. Refuelling on line.
09:25 Line fast to MV SMIT LLOYD 28
09:48 Commence bunkering.
14:10 Bunkering complete, 250 m³ transferred.
14:22 Fuel and tow lines clear.
14:30 Operations complete.
- 14:48 EOL Seq 138 : Line W00INV1402P1 LSP 817 Line Completed
Production (Line Change)
- 17:20 SOL Seq 139 : Line W00INV1198I1 FSP 1001 Hdg 009.0°
Line complete, acquired as progressive infill to correct steering offsets. Swell burst evident.
- 24:00 SP 4979 - Midnight SP on Seq 139 : Line W00INV1198I1

27th March, 2000

- 00:00 SP 4980 - First SP of the Day on Seq 139 : Line W00INV1198I1
Line complete, acquired as progressive infill to correct steering offsets. Swell burst evident.
- 00:09 EOL Seq 139 : Line W00INV1198I1 LSP 5073 Line Completed
Production (Infill L/C)
- 02:36 SOL Seq 140 : Line W00INV1390P1 FSP 4889 Hdg 189.0°
Line complete. Swell burst evident. External screw noise noted, from passing ship astern, SP 4784-4500 approx. 10-20 µbars. Subject to processing checks. Screw noise evident on brute stack between SP 4410-4500, and 3949-4170.
- 09:33 EOL Seq 140 : Line W00INV1390P1 LSP 817 Line Completed
Production (Line Change)
- 12:14 SOL Seq 141 : Line W00INV1186P1 FSP 1001 Hdg 009.0°
Line complete. Swell burst evident.
- 19:02 EOL Seq 141 : Line W00INV1186P1 LSP 5073 Line Completed
Production (Line Change)

- 20:00 Commence recovery of guns.
- 21:10 Guns onboard.
- 22:00 Streamer 4 off cross tags, being recovered.
- 22:02 Weather D/T (Recovery)
- 23:45 Cable 3 off cross tag, retrieving cable.

28th March, 2000

- 00:00 Weather D/T (Recovery)
- 00:46 Replaced section 4B on cable 3.
- 01:10 Stopped recovery due to oil leak, burst hose.
- 01:20 Commence recovery again.
- 01:45 Tailbuoy 4 onboard.
- 02:15 Bringing front ends of cables 5 and 6 on.
- 02:50 Cable 5 coming onboard. Power down streamer 3 to replace section 7B.
- 04:10 Cable 3 powered down to replace section 9B, ch 138 group 2 daily failure.
- 04:12 Cable 5 powered down to replace section 5A, ch 66, group 2, failing daily tests.
- 05:31 Section 1219 placed in for section 9B streamer 3.
- 05:40 Cable 3 section 1219 taken out failing T4 groups 3-7 T7 groups 5-7. Replacement section bad.
- 06:05 Replaced section 7B, ch 110 grp 6
- 07:37 Changed section 20B, ch 317 grp 5
- 08:20 Changed S5-16B, ch 254, grp 6.
- 08:31 Tailbuoy 3 onboard.
- 09:30 S5-18B changed out, ch 281 grp 1.
- 09:50 Replaced S2-1A, ch 1 and 6
- 11:13 Tailbuoy 5, onboard.
- 11:37 Replaced S2-3B ch 41 grp 1.
- 12:00 Weather D/T (Recovery)
- 12:20 Replaced S6-CHS section.
- 12:30 Port barovane onboard.
- 12:35 Powered up S2 new section 3B bad, replace section S2-3A.
- 13:00 Power up S2, no optic data.
- 13:30 Replaced S2-3B for a third time.
- 15:00 Replaced S2-12A
- 15:05 Replaced S6-7A
- 16:40 Tailbuoy 2 onboard.
- 17:25 Tailbuoy 6 onboard.
- 17:40 Starboard barovane onboard.
- 18:40 Replaced S1-1B, replaced again due to bad optics.
- 21:55 Tailbuoy 1 onboard.
- 21:55 Weather D/T (Travel t/f Port)
- Underway to Portland. ETA pilot station 06:30 am.

29th March, 2000

- 00:00 Weather D/T (Travel t/f Port)
- 06:30 Pilot onboard.
- 07:05 Miscellaneous (Port Call)
- 07:05 Alongside Portland. All fast. Take bunkers, resupply and complete crew change procedures. Prepare to depart for the survey area.
- 21:50 Weather D/T (Travel t/f Port)
- Depart Portland and travel back to the cable laying location.

30th March, 2000

- 00:00 Weather D/T (Travel t/f Port)
- Depart Portland and travel back to the cable laying location.
- 03:00 Weather D/T (Deploying)

Deploying streamers in marginal weather. Moderate swell, winds southerly 15-20 knots and raining. Streamers 1, 2 and 6 deployed, 5 partially deployed.

31st March, 2000

00:00 Weather D/T (Deploying)

Continue with deployment of streamers 5, 3 and 4 and prepare for acquisition. Deploy arrays, run separation and system checks before continuing. Large swell and rough conditions have delayed streamer deployment during this period.

1st April, 2000

00:00 Weather D/T (Sea)

On run in to start of line 1342 - weather and sea conditions very marginal - poor cable depth control - advised by Woodside to continue with production.

00:48 SOL Seq 142 : Line W00INV1342P1 FSP 1001 Hdg 009.0°

07:26 EOL Seq 142 : Line W00INV1342P1 LSP 5073 Line Completed

Production (Line Change)

11:09 SOL Seq 143 : Line W00INV1378P1 FSP 4889 Hdg 189.0°

17:59 EOL Seq 143 : Line W00INV1378P1 LSP 817 Line Completed

Production (Line Change)

21:52 SOL Production (Recording) FSP 1002 Hdg 009.0°

24:00 SP 2287 - Midnight SP on Production (Recording)

2nd April, 2000

00:00 SP 2288 - First SP of the Day on Production (Recording)

04:36 EOL Production (Recording) LSP 5073 Line Completed

Production (Line Change)

08:32 SOL Seq 145 : Line W00INV1366P1 FSP 4889 Hdg 189.0°

15:12 EOL Seq 145 : Line W00INV1366P1 LSP 817 Line Completed

Production (Line Change)

18:46 SOL Seq 146 : Line W00INV1366I1 FSP 1001 Hdg 009.0°

24:00 SP 4105 - Midnight SP on Seq 146 : Line W00INV1366I1

3rd April, 2000

00:00 SP 4106 - First SP of the Day on Seq 146 : Line W00INV1366I1

01:41 EOL Seq 146 : Line W00INV1366I1 LSP 5073 Line Completed

Production (Infill L/C)

05:30 SOL Seq 147 : Line W00INV1342I1 FSP 4889 Hdg 189.0°

10:42 EOL Seq 147 : Line W00INV1342I1 LSP 1770 Line Incomplete

Production (Infill L/C)

12:24 SOL Seq 148 : Line W00INV0006 FSP 0 Hdg 009.0°

Line not accepted - incorrect record length due to MSX recording problems. This 2D line acquired with 6 streamers.

16:51 EOL Seq 148 : Line W00INV0006 LSP 0 Line Scratched

Configuration (Recovery)

Recovering gun arrays, in readiness for retrieving streamers. 3D acquisition has been partially completed. Lines still not shot are located in the western extremities of the 3D block. 2D acquisition will continue with a single source/streamer configuration.

19:40 Configuration (Recovery)

Commence recovery of streamers 2, 3, 4, 5, and 6. In preparation for 2D acquisition.

4th April, 2000

00:00 Configuration (Recovery)

Complete recovery of streamers 2, 3, 4, 5, and 6.

07:00 Configuration (Deploying)

Deploy single streamer and 1 source and travel to the start of the first 2D line W00INV004

14:33 SOL Seq 149 : Line W00INV0004P1 FSP 1001 Hdg 010.0°

Acquire 2D data
 18:58 EOL Seq 149 : Line W00INV0004P1 LSP 2508 Line Completed
 2D Production (2D line change)
 22:01 SOL Seq 150 : Line W00INV0007P1 FSP 1801 Hdg 188.0°
 24:00 SP 1118 - Midnight SP on Seq 150 : Line W00INV0007P1

5th April, 2000

00:00 SP 1117 - First SP of the Day on Seq 150 : Line W00INV0007P1
 00:36 EOL Seq 150 : Line W00INV0007P1 LSP 909 Line Completed
 2D Production (2D line change)
 05:39 SOL Seq 151 : Line W00INV0006P2 FSP 3286 Hdg 009.0°
 09:10 EOL Seq 151 : Line W00INV0006P2 LSP 1114 Line Incomplete
 2D Production (2D line change)
 12:10 Standby (Fishing Interferences)
 Avoiding a number of crayfish pots - no incident, hits or damage occurred.
 12:42 SOL Seq 152 : Line W00INV0005P1 FSP 2415 Hdg 152.0°
 Line cut off early due to large swell - boat rolling up to 34°- unable to control cable depths - cable on the surface.
 14:41 EOL Seq 152 : Line W00INV0005P1 LSP 1820 Line Incomplete
 Miscellaneous (Demobilisation)
 Turn and recover gun arrays after abandoning 2D line 0005 due to loss of streamer control and excessive noise on the data.
 15:30 Miscellaneous (Demobilisation)
 Continue with cable recovery - on instruction from Western management in Perth - advised we have to go back to complete the last line of the 2D 16 kms.
 16:50 Deployment (Deploying)
 Deploy cable again at the request of Western management in Perth to complete the 2D acquisition.
 19:05 Deployment (Deploying)
 Head back on instructions from Western Management, to continue line W00INV0005, the last 16 km of 2D previously abandoned due to weather and swell.
 20:45 Miscellaneous (Demobilisation)
 Advised again by Western management if Woodside are satisfied with the kms acquired, then the streamer can be retrieved again. Continue with streamer retrieval.
 22:40 Miscellaneous (Travel t/f Port)
 Array and streamer on deck and stowed. Continue travel back to Portland on instructions from Western. Acquisition still not completed in the Investigator 3D area.

6th April, 2000

00:00 Miscellaneous (Travel t/f Port)
 Continue travel to Portland and arrive at the Pilot Station.
 07:30 Miscellaneous (Travel t/f Port)
 Final stages of transit to Portland - secured alongside. Client representatives prepare to depart from the vessel. Acquisition of the Investigator 3D is still incomplete.

10.0 DAILY PRODUCTION

The following are the daily chargeable sail-line production kilometres acquired. Total sail-line, sub-surface CMP and full-fold totals plus square kilometre coverage area included at the end of this section.

December 22nd, 1999

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
001	W00INV1840P1		189.0 Prime	Scratched	0	0	0.0000
002	W00INV2048P1		009.0 Prime	End of Day	1001	1607	7.5875
	Total 22/12/99 :		7.5875				

December 23rd, 1999

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
002	W00INV2048P1		009.0 Prime	Incomplete	1608	3395	22.3500
003	W00INV1936P1		189.0 Prime	Incomplete	3617	817	35.0125
004	W00INV1952P1		009.0 Prime	End of Day	1001	3612	32.6500
	Total 23/12/99 :		90.0125				

December 24th, 1999

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
004	W00INV1952P1		009.0 Prime	Completed	3613	3784	2.1500
005	W00INV2032P1		189.0 Prime	Completed	3515	817	33.7375
006	W00INV2016P1		009.0 Prime	Completed	1001	3716	33.9500
007	W00INV1968P1		189.0 Prime	End of Day	3583	3504	1.0000
	Total 24/12/99 :		70.8375				

December 25th, 1999

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
007	W00INV1968P1		189.0 Prime	Completed	3503	818	33.5750
008	W00INV1888P1		009.0 Prime	Completed	1001	3852	35.6500
	Total 25/12/99 :		69.2250				

January 3rd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
009	W00INV2026P1		009.0 Prime	Scratched	0	0	0.0000
010	W00INV1954P1		189.0 Reshoot	Completed	0	0	0.0000
	No Production						

January 4th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
011	W00INV2026P2		009.0 Reshoot	Completed	0	0	0.0000
	No Production						

January 5th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
012	W00INV1918P1		009.0 Prime	End of Day	1001	2666	20.8250
	Total 05/01/00 :		20.8250				

January 6th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
012	W00INV1918P1		009.0 Prime	Completed	2667	3822	14.4500
013	W00INV1906P1		189.0 Prime	Completed	3651	817	35.4375
014	W00INV1894P1		009.0 Reshoot	Completed	0	0	0.0000
015	W00INV2014P1		189.0 Prime	End of Day	3536	3133	5.0500
Total 06/01/00 :							54.9375

January 7th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
015	W00INV2014P1		189.0 Prime	Completed	3132	817	28.9500
016	W00INV1966P1		009.0 Prime	Completed	1001	3770	34.6250
017	W00INV1894I1		189.0 Infill	Completed	3663	817	35.5875
018	W00INV2002P1		009.0 Prime	End of Day	1001	2143	14.2875
Total 07/01/00 :							113.4500

January 8th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
018	W00INV2002P1		009.0 Prime	Completed	2144	3732	19.8625
019	W00INV1882P1		189.0 Prime	Completed	3675	818	35.7250
020	W00INV1870P1		009.0 Prime	Completed	1001	3872	35.9000
Total 08/01/00 :							91.4875

January 9th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
021	W00INV1990P1		189.0 Prime	Incomplete	3561	2040	19.0250
022	W00INV2048R1		009.0 Prime	Completed	0	0	0.0000
023	W00INV1870I1		189.0 Infill	Completed	3688	817	35.9000
024	W00INV1942I1		009.0 Infill	Completed	1125	2540	17.7000
Total 09/01/00 :							72.6250

January 10th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
024	W00INV1942I1		009.0 Infill	Completed	3120	3796	8.4625
025	W00INV1858P1		189.0 Prime	Completed	3701	817	36.0625
026	W00INV1978P1		009.0 Prime	Completed	1001	3757	34.4625
Total 10/01/00 :							78.9875

January 11th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
027	W00INV1978I1		189.0 Infill	Completed	3573	2040	19.1750
027	W00INV1978I1		189.0 Prime	Completed	2039	1177	10.7875
027	W00INV1978I1		189.0 Prime	Completed	0	0	0.0000
028	W00INV1846P1		009.0 Prime	Completed	0	0	0.0000
029	W00INV1906R1		189.0 Reshoot	Scratched	0	0	0.0000
Total 11/01/00 :							29.9625

January 17th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
030	W00INV2002I1		009.0 Infill	Completed	1001	2179	14.7375
Total 17/01/00 :							14.7375

January 26th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
031	W00INV1918R1		009.0 Reshoot	Scratched	0	0	0.0000

032	W00INV1918R2	009.0	Reshoot	Scratched	0	0	0.0000
	No Production						

January 28th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
033	W00INV2026I2		189.0 Infill	Completed	1350	817	6.6750
	Total 28/01/00 :		6.6750				

January 29th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
034	W00INV1918R3		009.0 Reshoot	Completed	0	0	0.0000
035	W00INV2038I1		189.0 Infill	Completed	3420	2952	5.8625
036	W00INV1930R1		189.0 Reshoot	Completed	0	0	0.0000
037	W00INV1846I1		009.0 Infill	Scratched	0	0	0.0000
038	W00INV1906R2		189.0 Reshoot	End of Day	0	0	0.0000
	Total 29/01/00 :		5.8625				

January 30th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
038	W00INV1906R2		189.0 Reshoot	Scratched	0	0	0.0000
039	W00INV1906R3		189.0 Reshoot	Scratched	0	0	0.0000
	No Production						

January 31st, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
040	W00INV1906R4		189.0 Reshoot	Completed	0	0	0.0000
041	W00INV1918I1		009.0 Infill	Completed	1001	3821	35.2625
042	W00INV1894I2		189.0 Infill	End of Day	3663	3313	4.3875
	Total 31/01/00 :		39.6500				

February 1st, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
042	W00INV1894I2		189.0 Infill	Incomplete	3312	1839	18.4250
043	W00INV1894I3		189.0 Infill	Completed	1838	817	12.7750
044	W00INV1666P1		009.0 Prime	Completed	1001	4988	49.8500
045	W00INV1834P1		189.0 Prime	End of Day	4637	3938	8.7500
	Total 01/02/00 :		89.8000				

February 2nd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
045	W00INV1834P1		189.0 Prime	Completed	3937	817	39.0125
046	W00INV1654P1		009.0 Prime	Completed	1001	5000	50.0000
047	W00INV1834I1		189.0 Infill	End of Day	4637	1444	39.9250
	Total 02/02/00 :		128.9375				

February 3rd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
047	W00INV1834I1		189.0 Infill	Completed	1443	817	7.8375
048	W00INV1642P1		009.0 Prime	Completed	1001	5012	50.1500
049	W00INV1822P1		189.0 Prime	Incomplete	4649	2665	24.8125
050	W00INV1822P2		189.0 Prime	Completed	2664	817	23.1000
	Total 03/02/00 :		105.9000				

February 4th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
051	W00INV1630P1		009.0 Prime	Completed	1001	5024	50.3000

052	W00INV1810P1	189.0	Prime	Completed	4661	817	48.0625
053	W00INV1618P1	009.0	Prime	End of Day	1001	4249	40.6125
	Total 04/02/00 :	138.9750					

February 5th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
053	W00INV1618P1	009.0	Prime	Completed	4250	5036	9.8375
054	W00INV1798P1	189.0	Prime	Incomplete	4673	1650	37.8000
	Total 05/02/00 :	47.6375					

February 7th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
055	W00INV1606P1	009.0	Prime	Scratched	0	0	0.0000
056	W00INV1630I1	009.0	Infill	Scratched	0	0	0.0000
057	W00INV1846I2	189.0	Infill	Completed	2700	817	23.5500
058	W00INV1606P2	009.0	Prime	Scratched	0	0	0.0000
059	W00INV1786P1	189.0	Prime	End of Day	4685	3919	9.5875
	Total 07/02/00 :	33.1375					

February 8th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
059	W00INV1786P1	189.0	Prime	Incomplete	3918	1874	25.5625
060	W00INV1798P2	189.0	Prime	Completed	1649	817	10.4125
061	W00INV1606P3	009.0	Prime	Completed	1001	5048	50.6000
062	W00INV1774P1	189.0	Prime	End of Day	4697	4457	3.0125
	Total 08/02/00 :	89.5875					

February 9th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
062	W00INV1774P1	189.0	Prime	Completed	4456	817	45.5000
063	W00INV1594P1	009.0	Prime	Completed	1001	5060	50.7500
064	W00INV1762P1	189.0	Prime	Completed	4709	818	48.6500
	Total 09/02/00 :	144.9000					

February 10th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
065	W00INV1594I1	009.0	Infill	Completed	1001	5060	50.7500
066	W00INV1750P1	189.0	Prime	Completed	4721	817	48.8125
067	W00INV1582P1	009.0	Prime	End of Day	1001	2007	12.5875
	Total 10/02/00 :	112.1500					

February 11th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
067	W00INV1582P1	009.0	Prime	Incomplete	2008	2500	6.1625
068	W00INV1786P2	189.0	Prime	Incomplete	1873	1200	8.4250
069	W00INV1582P2	009.0	Prime	Completed	2501	5072	32.1500
070	W00INV1750I1	189.0	Infill	Incomplete	4721	3250	18.4000
	Total 11/02/00 :	65.1375					

February 16th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
071	W00INV1570P1	009.0	Prime	Incomplete	1850	5073	40.3000
	Total 16/02/00 :	40.3000					

February 17th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
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072	W00INV1750I2	198.0	Infill	Completed	3249	817	30.4125
073	W00INV1570P2	009.0	Prime	Completed	1001	1849	10.6125
074	W00INV1786P3	189.0	Infill	Completed	1900	1200	8.7625
074	W00INV1786P3	189.0	Prime	Completed	1199	817	4.7875
075	W00INV1570I1	009.0	Infill	Completed	1001	5073	50.9125
	Total 17/02/00 :						105.4875

February 18th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
076	W00INV1738P1		189.0 Prime	Completed	4733	817	48.9625
077	W00INV1558P1		009.0 Prime	Incomplete	1001	2782	22.2750
078	W00INV1558P2		009.0 Prime	Completed	2783	5073	28.6375
079	W00INV1726P1		189.0 Prime	End of Day	4745	4215	6.6375
	Total 18/02/00 :						106.5125

February 19th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
079	W00INV1726P1		189.0 Prime	Completed	4214	817	42.4750
080	W00INV1546P1		009.0 Prime	Completed	1001	5073	50.9125
081	W00INV1714P1		189.0 Prime	End of Day	4757	1110	45.6000
	Total 19/02/00 :						138.9875

February 20th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
081	W00INV1714P1		189.0 Prime	Completed	1109	817	3.6625
082	W00INV1534P1		009.0 Prime	Completed	1001	5073	50.9125
083	W00INV1714I1		189.0 Infill	Scratched	0	0	0.0000
	Total 20/02/00 :						54.5750

February 28th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
084	W00INV1534I1		009.0 Infill	Scratched	1001	5073	50.9125
	Total 28/02/00 :						50.9125

February 29th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
085	W00INV1522P1		009.0 Prime	End of Day	1001	1265	3.3125
	Total 29/02/00 :						3.3125

March 1st, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
085	W00INV1522P1		009.0 Prime	Completed	1266	5073	47.6000
086	W00INV1714I2		189.0 Infill	Completed	4757	817	49.2625
087	W00INV1510P1		009.0 Prime	End of Day	1001	4360	42.0000
	Total 01/03/00 :						138.8625

March 2nd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
087	W00INV1510P1		009.0 Prime	Completed	4361	5073	8.9125
088	W00INV1702P1		189.0 Prime	Completed	4768	817	49.4000
089	W00INV1678P1		009.0 Prime	Completed	1001	4976	49.7000
090	W00INV1498P1		189.0 Prime	End of Day	4889	4291	7.4875
	Total 02/03/00 :						115.5000

March 3rd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
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090	W00INV1498P1	189.0	Prime	Completed	4290	817	43.4250
091	W00INV1690P1	009.0	Prime	Completed	1001	4964	49.5500
092	W00INV1606I1	189.0	Infill	End of Day	3830	864	37.0875
	Total 03/03/00 :	130.0625					

March 4th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
092	W00INV1606I1	189.0	Infill	Completed	863	817	0.5875
093	W00INV1702I1	189.0	Infill	Scratched	0	0	0.0000
094	W00INV1702I2	189.0	Infill	End of Day	4768	3669	13.7500
	Total 04/03/00 :	14.3375					

March 5th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
094	W00INV1702I2	189.0	Infill	Completed	3668	817	35.6500
095	W00INV1798I1	009.0	Infill	Completed	1001	4530	44.1250
096	W00INV1846I3	189.0	Infill	Scratched	3670	1830	23.0125
096	W00INV1846I3	189.0	Prime	Scratched	0	0	0.0000
	Total 05/03/00 :	102.7875					

March 6th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
097	W00INV1534I2	009.0	Infill	Scratched	0	0	0.0000
	No Production						

March 7th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
098	W00INV1534I3	009.0	Infill	End of Day	1001	1772	9.6500
	Total 07/03/00 :	9.6500					

March 8th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
098	W00INV1534I3	009.0	Infill	Incomplete	1773	2931	14.4875
099	W00INV1534I4	009.0	Infill	Scratched	0	0	0.0000
100	W00INV1690I1	189.0	Infill	Completed	4780	2520	28.2625
100	W00INV1690I1	189.0	Infill	Completed	1660	817	10.5500
	Total 08/03/00 :	53.3000					

March 9th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
101	W00INV1522I1	009.0	Infill	Scratched	0	0	0.0000
102	W00INV1534I5	009.0	Infill	Scratched	2932	5073	26.7750
103	W00INV1846I4	189.0	Reshoot	Completed	0	0	0.0000
103	W00INV1846I4	189.0	Reshoot	Completed	0	0	0.0000
	Total 09/03/00 :	26.7750					

March 10th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
104	W00INV1738I1	009.0	Infill	Completed	1001	1975	12.1875
104	W00INV1738I1	009.0	Infill	Completed	2660	3570	11.3875
104	W00INV1738I1	009.0	Infill	Completed	4050	4917	10.8500
105	W00INV1822I1	189.0	Infill	Completed	4600	3235	17.0750
105	W00INV1822I1	189.0	Infill	Completed	2620	2360	3.2625
105	W00INV1822I1	189.0	Infill	Completed	1700	768	11.6625
106	W00INV1522I2	009.0	Infill	End of Day	1500	1641	1.7750
	Total 10/03/00 :	68.2000					

March 11th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
106	W00INV1522I2		009.0 Infill	Completed	1642	5073	42.9000
107	W00INV1534I6		189.0 Reshoot	Completed	0	0	0.0000
107	W00INV1534I6		189.0 Infill	Completed	2931	817	26.4375
108	W00INV1642I1		009.0 Infill	Completed	1140	3175	25.4500
	Total 11/03/00 :						94.7875

March 12th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
108	W00INV1642I1		009.0 Infill	Completed	3496	4130	7.9375
109	W00INV1570I2		189.0 Infill	Completed	3030	1566	18.3125
109	W00INV1570I2		189.0 Infill	Completed	1190	817	4.6750
110	W00INV1690I2		009.0 Infill	Scratched	0	0	0.0000
	Total 12/03/00 :						30.9250

March 13th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
111	W00INV1690I3		009.0 Infill	End of Day	3180	4424	15.5625
	Total 13/03/00 :						15.5625

March 14th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
111	W00INV1690I3		009.0 Infill	Completed	4425	4964	6.7500
112	W00INV1846I5		189.0 Infill	Completed	3714	2300	17.6875
113	W00INV1330P1		009.0 Prime	Completed	1001	5073	50.9125
114	W00INV1486P1		189.0 Prime	Scratched	0	0	0.0000
	Total 14/03/00 :						75.3500

March 15th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
115	W00INV1318P1		009.0 Prime	Completed	1001	5073	50.9125
116	W00INV1486P2		189.0 Prime	End of Day	4889	1829	38.2625
	Total 15/03/00 :						89.1750

March 16th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
116	W00INV1486P2		189.0 Prime	Completed	1828	817	12.6500
117	W00INV1306P1		009.0 Prime	Completed	1001	5073	50.9125
118	W00INV1486I1		189.0 Infill	Completed	4889	817	50.9125
	Total 16/03/00 :						114.4750

March 17th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
119	W00INV1294P1		009.0 Prime	Completed	1001	5073	50.9125
120	W00INV1474P1		189.0 Prime	Completed	4889	817	50.9125
121	W00INV1282P1		009.0 Prime	End of Day	1001	2272	15.9000
	Total 17/03/00 :						117.7250

March 18th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
121	W00INV1282P1		009.0 Prime	Completed	2273	5073	35.0125
122	W00INV1462P1		189.0 Prime	Completed	4889	817	50.9125
123	W00INV1270P1		009.0 Prime	End of Day	1001	4993	49.9125
	Total 18/03/00 :						135.8375

March 19th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
123	W00INV1270P1		009.0 Prime	Completed	4994	5073	1.0000
124	W00INV1462I1		189.0 Infill	Completed	4889	817	50.9125
125	W00INV1270I1		009.0 Infill	Completed	1001	5073	50.9125
126	W00INV1450P1		189.0 Prime	End of Day	4889	4705	2.3125
Total 19/03/00 :					105.1375		

March 20th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
126	W00INV1450P1		189.0 Prime	Completed	4704	817	48.6000
127	W00INV1258P1		009.0 Prime	Completed	1001	5073	50.9125
128	W00INV1438P1		189.0 Prime	Scratched	0	0	0.0000
Total 20/03/00 :					99.5125		

March 21st, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
129	W00INV1246P1		009.0 Prime	Completed	1001	5073	50.9125
130	W00INV1438P2		189.0 Prime	Completed	4889	817	50.9125
Total 21/03/00 :					101.8250		

March 22nd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
131	W00INV1234P1		009.0 Prime	Completed	1001	5073	50.9125
132	W00INV1426P1		189.0 Prime	Completed	4889	817	50.9125
Total 22/03/00 :					101.8250		

March 24th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
133	W00INV1222P1		009.0 Prime	Completed	1001	5073	50.9125
134	W00INV1414P1		189.0 Prime	End of Day	4889	1463	42.8375
Total 24/03/00 :					93.7500		

March 25th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
134	W00INV1414P1		189.0 Prime	Completed	1462	817	8.0750
135	W00INV1210P1		009.0 Prime	Completed	1001	5073	50.9125
136	W00INV1414I1		189.0 Infill	Completed	4889	817	50.9125
137	W00INV1198P1		009.0 Prime	End of Day	1001	1310	3.8750
Total 25/03/00 :					113.7750		

March 26th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
137	W00INV1198P1		009.0 Prime	Completed	1311	5073	47.0375
138	W00INV1402P1		189.0 Prime	Completed	4889	817	50.9125
139	W00INV1198I1		009.0 Infill	End of Day	1001	4979	49.7375
Total 26/03/00 :					147.6875		

March 27th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
139	W00INV1198I1		009.0 Infill	Completed	4980	5073	1.1750
140	W00INV1390P1		189.0 Prime	Completed	4889	817	50.9125
141	W00INV1186P1		009.0 Prime	Completed	1001	5073	50.9125
Total 27/03/00 :					103.0000		

April 1st, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
142	W00INV1342P1		009.0 Prime	Completed	1001	5073	50.9125
143	W00INV1378P1		189.0 Prime	Completed	4889	817	50.9125
144	W00INV1354P1		009.0 Prime	End of Day	1002	2287	16.0750
	Total 01/04/00 :		117.9000				

April 2nd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
144	W00INV1354P1		009.0 Prime	Completed	2288	5073	34.8250
145	W00INV1366P1		189.0 Prime	Completed	4889	817	50.9125
146	W00INV1366I1		009.0 Infill	End of Day	1001	4105	38.8125
	Total 02/04/00 :		124.5500				

April 3rd, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
146	W00INV1366I1		009.0 Infill	Completed	4106	5073	12.1000
147	W00INV1342I1		189.0 Infill	Incomplete	4889	1770	39.0000
148	W00INV0006	009.0	2D Scratched	0	0	0.0000	
	Total 03/04/00 :		51.1000				

April 4th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
149	W00INV0004P1		010.0 2D	Completed	1001	2508	37.7000
150	W00INV0007P1		188.0 2D	End of Day	1801	1118	17.1000
	Total 04/04/00 :		54.8000				

April 5th, 2000

Seq	Line Name	Hdg	Line Type	Line Status	FcSP	LcSP	Ch Sailed
150	W00INV0007P1		188.0 2D	Completed	1117	909	5.2250
151	W00INV0006P2		009.0 2D	Incomplete	3286	1114	54.3250
152	W00INV0005P1		152.0 2D	Incomplete	2415	1820	14.9000
	Total 05/04/00 :		74.4500				

11.0 **APPENDICES**

APPENDIX A: MAP(S) – SURVEY LOCATION AND LAYOUT CHARTS

APPENDIX B: PRE-PLOTTED LINE CO-ORDINATES

Following are the line co-ordinates and way-points as supplied by Western. These co-ordinates are for both the 8 and 6 streamer acquisition methods.

3D Line Co-ordinates and General Survey Parameters for the 8 streamer Configuration

Client name : WOODSIDE
 Survey Area : INVESTIGATOR
 Survey details : 3D
 Survey datum : AGD84
 Line prefix : W00INV

*** SPHEROID PARAMETERS ***

Spheroid name : Australian National Spheroid
 Semi-major axis : 6378160.000
 Flattening : 298.2500000

*** PROJECTION PARAMETERS ***

Latitude of Origin : 0 0 0.0000 N
 Central Meridian : 141 0 0.0000 E
 UTM Zone number (1 - 60) : 54
 Hemisphere code (N or S) : S
 Scale Factor on CM : 0.9996000000
 False Northing : 10000000
 False Easting : 500000.00
 Grid unit equals to 1 meter : 1.000000000000
 Name of Grid unit : INTERNATIONAL METRES
 Name of Grid system : U.T.M.

*** GRID DEFINITION PARAMETERS ***

Point 1 : X: 644840.0 Y: 5650340.0
 LAT: 39 17 2.6444 S LON: 142 40 45.6896 E
 Point 2 : X: 652442.7 Y: 5698341.6
 LAT: 38 51 1.4936 S LON: 142 45 24.1830 E
 Point 3 : X: 699671.9 Y: 5641655.5
 LAT: 39 21 4.8897 S LON: 143 19 2.1765 E

Azimuth P1->P2 : Grid: 9.00 degs Geodetic: 7.94 degs
 Azimuth P1->P3 : Grid: 319.14 degs Geodetic: 97.94 degs

Cell length : 12.500 Cell width : 25.000
 Number of lines : 2220 Number of cells : 3887
 First line number: 1001 Line increment : 1
 First shot number: 1001 Shot increment : 1

*** FULL-FOLD COVERAGE DEFINITION ***

LINE NO.	FIRST CELL	LAST CELL	LINE NO.	FIRST CELL	LAST CELL
1	1	2626	2	177	2454
3	177	1	4	581	1
5	832	1	6	832	1
7	1048	1	8	0	0
9	0	0	10	0	0
11	0	0	12	0	0
13	0	0	14	0	0

*** WAYPOINTS LISTING ***

LINE	POINT	LATITUDE		LONGITUDE		EASTINGS	NORTHINGS	RANGE
W00INV1008	3619	38 59	32.2972 S	142 44	1.2679 E	650144.5	5682632.8	0
W00INV1008	4889	38 51	2.3297 S	142 45	31.8854 E	652627.9	5698312.3	15874
W00INV1024	3603	38 59	40.5063 S	142 44	16.5904 E	650508.3	5682372.7	0
W00INV1024	4889	38 51	4.1125 S	142 45	48.3193 E	653023.0	5698249.7	16074
W00INV1040	3587	38 59	48.7179 S	142 44	31.9139 E	650872.1	5682112.5	0
W00INV1040	4889	38 51	5.8914 S	142 46	4.7534 E	653418.1	5698187.2	16275
W00INV1056	3572	38 59	56.5225 S	142 44	47.3073 E	651237.8	5681864.8	0
W00INV1056	4889	38 51	7.6729 S	142 46	21.1836 E	653813.1	5698124.6	16462
W00INV1072	3556	39 0	4.7298 S	142 45	2.6327 E	651601.6	5681604.7	0
W00INV1072	4889	38 51	9.4537 S	142 46	37.6181 E	654208.2	5698062.0	16662
W00INV1088	3540	39 0	12.9365 S	142 45	17.9590 E	651965.4	5681344.6	0
W00INV1088	4889	38 51	11.2307 S	142 46	54.0528 E	654603.3	5697999.5	16862
W00INV1104	3525	39 0	20.7425 S	142 45	33.3595 E	652331.2	5681096.8	0
W00INV1104	4889	38 51	13.0102 S	142 47	10.4878 E	654998.4	5697936.9	17050
W00INV1120	3509	39 0	28.9481 S	142 45	48.6836 E	652694.9	5680836.7	0
W00INV1120	4889	38 51	14.7892 S	142 47	26.9188 E	655393.4	5697874.3	17249
W00INV1136	3494	39 0	36.7529 S	142 46	4.0860 E	653060.7	5680588.9	0
W00INV1136	4889	38 51	16.5674 S	142 47	43.3542 E	655788.5	5697811.7	17437
W00INV1152	3478	39 0	44.9573 S	142 46	19.4162 E	653424.5	5680328.8	0
W00INV1152	4889	38 51	18.3417 S	142 47	59.7896 E	656183.6	5697749.2	17637
W00INV1168	3462	39 0	53.1610 S	142 46	34.7473 E	653788.3	5680068.7	0
W00INV1168	4889	38 51	20.1187 S	142 48	16.2254 E	656578.7	5697686.6	17837
W00INV1184	1001	39 17	23.1421 S	142 43	55.3093 E	649371.0	5649622.4	0
W00INV1184	4888	38 51	22.2951 S	142 48	32.5886 E	656971.8	5697611.7	48587
W00INV1200	1001	39 17	24.9263 S	142 44	11.8454 E	649766.1	5649559.8	0
W00INV1200	4888	38 51	24.0707 S	142 48	49.0248 E	657366.9	5697549.1	48587
W00INV1216	1001	39 17	26.7097 S	142 44	28.3816 E	650161.2	5649497.2	0
W00INV1216	4888	38 51	25.8458 S	142 49	5.4570 E	657761.9	5697486.5	48587
W00INV1232	1001	39 17	28.4926 S	142 44	44.9139 E	650556.2	5649434.6	0
W00INV1232	4887	38 51	28.0202 S	142 49	21.8250 E	658155.1	5697411.6	48575
W00INV1248	1001	39 17	30.2715 S	142 45	1.4505 E	650951.3	5649372.1	0
W00INV1248	4887	38 51	29.7940 S	142 49	38.2577 E	658550.1	5697349.0	48574
W00INV1264	1001	39 17	32.0530 S	142 45	17.9873 E	651346.4	5649309.5	0
W00INV1264	4887	38 51	31.5670 S	142 49	54.6948 E	658945.2	5697286.4	48574
W00INV1280	1001	39 17	33.8338 S	142 45	34.5244 E	651741.5	5649246.9	0
W00INV1280	4886	38 51	33.7396 S	142 50	11.0593 E	659338.3	5697211.5	48562
W00INV1296	1001	39 17	35.6141 S	142 45	51.0575 E	652136.5	5649184.3	0
W00INV1296	4886	38 51	35.5081 S	142 50	27.4967 E	659733.4	5697149.0	48562
W00INV1312	1001	39 17	37.3903 S	142 46	7.5950 E	652531.6	5649121.8	0
W00INV1312	4886	38 51	37.2792 S	142 50	43.9344 E	660128.5	5697086.4	48562
W00INV1328	1001	39 17	39.1692 S	142 46	24.1327 E	652926.7	5649059.2	0
W00INV1328	4886	38 51	39.0497 S	142 51	0.3722 E	660523.6	5697023.8	48562
W00INV1344	1001	39 17	40.9474 S	142 46	40.6706 E	653321.8	5648996.6	0
W00INV1344	4885	38 51	41.2196 S	142 51	16.7377 E	660916.7	5696948.9	48550

LINE	POINT	LATITUDE		LONGITUDE		EASTINGS	NORTHINGS	RANGE
W00INV1360	1001	39 17 42.7250	S 142 46	57.2045	E	653716.8	5648934.0	0
W00INV1360	4885	38 51 42.9889	S 142 51	33.1719	E	661311.7	5696886.3	48550
W00INV1376	1001	39 17 44.4986	S 142 47	13.7428	E	654111.9	5648871.5	0
W00INV1376	4885	38 51 44.7574	S 142 51	49.6104	E	661706.8	5696823.7	48549
W00INV1392	1001	39 17 46.2749	S 142 47	30.2813	E	654507.0	5648808.9	0
W00INV1392	4884	38 51 46.9254	S 142 52	5.9766	E	662099.9	5696748.8	48537
W00INV1408	1001	39 17 48.0504	S 142 47	46.8201	E	654902.1	5648746.3	0
W00INV1408	4884	38 51 48.6926	S 142 52	22.4155	E	662495.0	5696686.2	48537
W00INV1424	1001	39 17 49.8253	S 142 48	3.3590	E	655297.2	5648683.7	0
W00INV1424	4884	38 51 50.4560	S 142 52	38.8545	E	662890.1	5696623.7	48537
W00INV1440	1001	39 17 51.5964	S 142 48	19.8939	E	655692.2	5648621.2	0
W00INV1440	4883	38 51 52.6220	S 142 52	55.2214	E	663283.2	5696548.8	48525
W00INV1456	1001	39 17 53.3700	S 142 48	36.4333	E	656087.3	5648558.6	0
W00INV1456	4883	38 51 54.3873	S 142 53	11.6610	E	663678.3	5696486.2	48525
W00INV1472	1001	39 17 55.1429	S 142 48	52.9729	E	656482.4	5648496.0	0
W00INV1472	4883	38 51 56.1519	S 142 53	28.1007	E	664073.4	5696423.6	48525
W00INV1488	1001	39 17 56.9120	S 142 49	9.5126	E	656877.5	5648433.5	0
W00INV1488	4882	38 51 58.3161	S 142 53	44.4683	E	664466.5	5696348.7	48512
W00INV1504	1001	39 17 58.6836	S 142 49	26.0484	E	657272.5	5648370.9	0
W00INV1504	4882	38 52 0.0794	S 142 54	0.9085	E	664861.6	5696286.1	48512
W00INV1520	1001	39 18 0.4546	S 142 49	42.5886	E	657667.6	5648308.3	0
W00INV1520	4882	38 52 1.8422	S 142 54	17.3447	E	665256.6	5696223.5	48512
W00INV1536	1001	39 18 2.2249	S 142 49	59.1290	E	658062.7	5648245.7	0
W00INV1536	4881	38 52 4.0043	S 142 54	33.7172	E	665649.8	5696148.6	48500
W00INV1552	1001	39 18 3.9913	S 142 50	15.6695	E	658457.8	5648183.2	0
W00INV1552	4881	38 52 5.7658	S 142 54	50.1539	E	666044.8	5696086.0	48499
W00INV1568	1001	39 18 5.7603	S 142 50	32.2062	E	658852.8	5648120.6	0
W00INV1568	4881	38 52 7.5233	S 142 55	6.5948	E	666439.9	5696023.5	48500
W00INV1584	1001	39 18 7.5287	S 142 50	48.7472	E	659247.9	5648058.0	0
W00INV1584	4878	38 52 10.4870	S 142 55	22.8236	E	666829.1	5695923.9	48462
W00INV1600	1001	39 18 9.2963	S 142 51	5.2884	E	659643.0	5647995.4	0
W00INV1600	4862	38 52 18.6747	S 142 55	38.1400	E	667192.9	5695663.7	48262
W00INV1616	1001	39 18 11.0601	S 142 51	21.8298	E	660038.1	5647932.9	0
W00INV1616	4847	38 52 26.4552	S 142 55	53.5252	E	667558.6	5695416.0	48074
W00INV1632	1001	39 18 12.8265	S 142 51	38.3673	E	660433.1	5647870.3	0
W00INV1632	4832	38 52 34.2383	S 142 56	8.9155	E	667924.4	5695168.2	47887
W00INV1648	1001	39 18 14.5922	S 142 51	54.9091	E	660828.2	5647807.7	0
W00INV1648	4816	38 52 42.4210	S 142 56	24.2346	E	668288.2	5694908.1	47687
W00INV1664	1001	39 18 16.3572	S 142 52	11.4512	E	661223.3	5647745.1	0
W00INV1664	4801	38 52 50.2030	S 142 56	39.6227	E	668653.9	5694660.3	47499
W00INV1680	1001	39 18 18.1183	S 142 52	27.9933	E	661618.4	5647682.6	0
W00INV1680	4785	38 52 58.3845	S 142 56	54.9437	E	669017.7	5694400.2	47299
W00INV1696	1001	39 18 19.8821	S 142 52	44.5316	E	662013.4	5647620.0	0
W00INV1696	4770	38 53 6.1620	S 142 57	10.3377	E	669383.5	5694152.5	47112
W00INV1712	1001	39 18 21.6452	S 142 53	1.0743	E	662408.5	5647557.4	0
W00INV1712	4755	38 53 13.9422	S 142 57	25.7285	E	669749.2	5693904.7	46925

LINE	POINT	LATITUDE	LONGITUDE	EASTINGS	NORTHINGS	RANGE	
							W00INV1728 1001
39 18 23.4075 S 142 53 17.6172 E			662803.6 5647494.8	0			
W00INV1728 4739 38 53 22.1219 S 142 57 41.0524 E				670113.0	5693644.6	46725	
W00INV1744 1001 39 18 25.1660 S 142 53 34.1601 E				663198.7	5647432.3	0	
W00INV1744 4724 38 53 29.9009 S 142 57 56.4451 E				670478.7	5693396.8	46537	
W00INV1760 1001 39 18 26.9272 S 142 53 50.6993 E				663593.7	5647369.7	0	
W00INV1760 4709 38 53 37.6761 S 142 58 11.8427 E				670844.5	5693149.1	46350	
W00INV1776 1001 39 18 28.6876 S 142 54 7.2427 E				663988.8	5647307.1	0	
W00INV1776 4693 38 53 45.8573 S 142 58 27.1696 E				671208.3	5692888.9	46149	
W00INV1792 1001 39 18 30.4441 S 142 54 23.7863 E				664383.9	5647244.6	0	
W00INV1792 4678 38 53 53.6313 S 142 58 42.5650 E				671574.0	5692641.2	45962	
W00INV1808 1001 39 18 32.2032 S 142 54 40.3302 E				664779.0	5647182.0	0	
W00INV1808 4663 38 54 1.4079 S 142 58 57.9655 E				671939.8	5692393.4	45774	
W00INV1824 1001 39 18 33.9617 S 142 54 56.8702 E				665174.0	5647119.4	0	
W00INV1824 4647 38 54 9.5842 S 142 59 13.2909 E				672303.5	5692133.3	45575	
W00INV1840 1001 39 18 35.7195 S 142 55 13.4145 E				665569.1	5647056.8	0	
W00INV1840 3719 39 0 24.0750 S 142 58 24.7474 E				670884.0	5680613.5	33974	
W00INV1856 1001 39 18 37.4734 S 142 55 29.9589 E				665964.2	5646994.3	0	
W00INV1856 3702 39 0 32.6519 S 142 58 40.0274 E				671245.8	5680341.1	33762	
W00INV1872 1001 39 18 39.2298 S 142 55 46.5036 E				666359.3	5646931.7	0	
W00INV1872 3685 39 0 41.2314 S 142 58 55.3086 E				671607.6	5680068.6	33549	
W00INV1888 1001 39 18 40.9857 S 142 56 3.0443 E				666754.3	5646869.1	0	
W00INV1888 3668 39 0 49.8071 S 142 59 10.5948 E				671969.5	5679796.2	33337	
W00INV1904 1001 39 18 42.7408 S 142 56 19.5895 E				667149.4	5646806.5	0	
W00INV1904 3651 39 0 58.3855 S 142 59 25.8780 E				672331.3	5679523.7	33125	
W00INV1920 1001 39 18 44.4921 S 142 56 36.1347 E				667544.5	5646744.0	0	
W00INV1920 3634 39 1 6.9600 S 142 59 41.1621 E				672693.1	5679251.3	32912	
W00INV1936 1001 39 18 46.2459 S 142 56 52.6802 E				667939.6	5646681.4	0	
W00INV1936 3617 39 1 15.5372 S 142 59 56.4514 E				673055.0	5678978.8	32699	
W00INV1952 1001 39 18 47.9991 S 142 57 9.2218 E				668334.6	5646618.8	0	
W00INV1952 3600 39 1 24.1138 S 143 0 11.7376 E				673416.8	5678706.3	32487	
W00INV1968 1001 39 18 49.7516 S 142 57 25.7677 E				668729.7	5646556.2	0	
W00INV1968 3583 39 1 32.6866 S 143 0 27.0248 E				673778.6	5678433.9	32275	
W00INV1984 1001 39 18 51.5002 S 142 57 42.3137 E				669124.8	5646493.7	0	
W00INV1984 3566 39 1 41.2620 S 143 0 42.3172 E				674140.5	5678161.4	32062	
W00INV2000 1001 39 18 53.2514 S 142 57 58.8601 E				669519.9	5646431.1	0	
W00INV2000 3549 39 1 49.8336 S 143 0 57.6064 E				674502.3	5677889.0	31850	
W00INV2016 1001 39 18 55.0020 S 142 58 15.4024 E				669914.9	5646368.5	0	
W00INV2016 3532 39 1 58.4078 S 143 1 12.8966 E				674864.1	5677616.5	31637	
W00INV2032 1001 39 18 56.7518 S 142 58 31.9492 E				670310.0	5646305.9	0	
W00INV2032 3515 39 2 6.9815 S 143 1 28.1921 E				675226.0	5677344.0	31425	
W00INV2048 1001 39 18 58.4978 S 142 58 48.4960 E				670705.1	5646243.4	0	
W00INV2048 3499 39 2 15.1511 S 143 1 43.5560 E				675589.8	5677083.9	31224	

Area enclosed km2	:	1035.780					
Total distance in Km	:	2607.650					
Total number of sail-lines:			66				

2D Line Co-ordinates

Client name : WOODSIDE ENERGY
 Survey Area : INVESTIGATOR 2D
 Survey details : 2D
 Survey datum : AGD84
 Line prefix : W00INV

*** SPHEROID PARAMETERS ***

Spheroid name : A.N.S.
 Semi-major axis : 6378160
 Flatenning : 298.25

*** PROJECTION PARAMETERS ***

Latitude of Origin : 0 0 0.0000 E
 Central Meridian : 141 0 0.0000 E
 UTM Zone number (1 - 60) : 54
 Hemisphere code (N or S) : S
 Scale Factor on CM : 0.9996000000
 False Northing : 10000000
 False Easting : 500000.00
 Grid unit equals to 1 meter : 1.000000000000
 Name of Grid unit : INTERNATIONAL METRES
 Name of Grid system : U.T.M.

Shotpoint Interval : 25m

LINE	POINT	LATITUDE	LONGITUDE	EASTINGS	NORTHINGS	RANGE
W00INV0001	101 39 1	18.7789 S 142 40	47.1924 E	645414.8	5679437.7	0
W00INV0001	1885 38 41	18.0572 S 142 57	58.6678 E	671017.5	5715957.1	44600
W00INV0002	101 39 0	12.2377 S 142 40	3.2183 E	644394.9	5681508.5	0
W00INV0002	2361 39 0	53.0600 S 143 19	11.0138 E	700839.7	5679012.6	56499
W00INV0003	101 39 10	20.1297 S 142 57	56.8017 E	669814.1	5662251.9	0
W00INV0003	1610 38 56	16.2095 S 143 16	52.6254 E	697725.0	5687632.2	37725
W00INV0004	101 39 32	3.6800 S 143 0	40.1789 E	672839.9	5621976.1	0
W00INV0004	2135 39 4	58.7673 S 143 6	40.7948 E	682619.4	5671876.9	50850
W00INV0005	101 39 16	40.3815 S 142 47	31.3105 E	654571.9	5650839.9	0
W00INV0005	1515 39 31	38.2905 S 143 2	49.8328 E	675953.1	5622689.1	35350
W00INV0006	101 39 16	15.2313 S 142 50	18.3018 E	658589.0	5651535.0	0
W00INV0006	1486 39 23	14.7043 S 143 12	39.3069 E	690408.9	5637882.8	34624
W00INV0007	201 39 29	41.1126 S 142 56	55.7239 E	667576.4	5626489.6	0
W00INV0007	1001 39 18	58.4978 S 142 58	48.4960 E	670705.1	5646243.4	20000

 Total distance in Km : 279.650

Total number of sail-lines: 7

3D Line Co-ordinates for the 6 streamer Configuration

W00INV1006	3621	142	43	59.35	E	38	59	31.27	S	650099.0	5682665.2
	4889	142	45	29.83	E	38	51	02.11	S	652578.5	5698320.1
W00INV1018	3609	142	44	10.85	E	38	59	37.43	S	650371.9	5682470.2
	4889	142	45	42.15	E	38	51	03.44	S	652874.8	5698273.2
W00INV1030	3597	142	44	22.34	E	38	59	43.59	S	650644.7	5682275.1
	4889	142	45	54.48	E	38	51	04.78	S	653171.1	5698226.2
W00INV1042	3585	142	44	33.83	E	38	59	49.74	S	650917.5	5682080.0
	4889	142	46	06.80	E	38	51	06.12	S	653467.4	5698179.3
W00INV1054	3573	142	44	45.32	E	38	59	55.90	S	651190.4	5681884.9
	4889	142	46	19.13	E	38	51	07.45	S	653763.7	5698132.4
W00INV1066	3562	142	44	56.89	E	39	00	01.65	S	651465.2	5681702.2
	4889	142	46	31.45	E	38	51	08.79	S	654060.0	5698085.4
W00INV1078	3550	142	45	08.38	E	39	00	07.81	S	651738.0	5681507.1
	4889	142	46	43.78	E	38	51	10.12	S	654356.3	5698038.5
W00INV1090	3538	142	45	19.88	E	39	00	13.97	S	652010.9	5681312.0
	4889	142	46	56.10	E	38	51	11.46	S	654652.6	5697991.6
W00INV1102	3526	142	45	31.37	E	39	00	20.12	S	652283.7	5681116.9
	4889	142	47	08.43	E	38	51	12.79	S	654949.0	5697944.7
W00INV1114	3514	142	45	42.86	E	39	00	26.28	S	652556.5	5680921.8
	4889	142	47	20.76	E	38	51	14.12	S	655245.3	5697897.7
W00INV1126	3503	142	45	54.43	E	39	00	32.03	S	652831.3	5680739.1
	4889	142	47	33.08	E	38	51	15.46	S	655541.6	5697850.8
W00INV1138	3491	142	46	05.93	E	39	00	38.18	S	653104.2	5680544.0
	4889	142	47	45.41	E	38	51	16.79	S	655837.9	5697803.9
W00INV1150	3479	142	46	17.43	E	39	00	44.34	S	653377.0	5680348.9
	4889	142	47	57.73	E	38	51	18.12	S	656134.2	5697756.9
W00INV1162	3467	142	46	28.93	E	39	00	50.49	S	653649.9	5680153.8
	4889	142	48	10.06	E	38	51	19.45	S	656430.5	5697710.0
W00INV1174	1001	142	43	44.98	E	39	17	22.03	S	649124.1	5649661.4
	4889	142	48	22.39	E	38	51	20.79	S	656726.8	5697663.1
W00INV1186	1001	142	43	57.38	E	39	17	23.37	S	649420.4	5649614.5
	4889	142	48	34.71	E	38	51	22.12	S	657023.1	5697616.1
W00INV1198	1001	142	44	09.78	E	39	17	24.70	S	649716.7	5649567.6
	4889	142	48	47.04	E	38	51	23.45	S	657319.4	5697569.2
W00INV1210	1001	142	44	22.18	E	39	17	26.04	S	650013.0	5649520.6
	4889	142	48	59.36	E	38	51	24.78	S	657615.7	5697522.3
W00INV1222	1001	142	44	34.58	E	39	17	27.38	S	650309.3	5649473.7
	4889	142	49	11.69	E	38	51	26.11	S	657912.0	5697475.3
W00INV1234	1001	142	44	46.98	E	39	17	28.71	S	650605.6	5649426.8
	4889	142	49	24.02	E	38	51	27.44	S	658208.3	5697428.4
W00INV1246	1001	142	44	59.38	E	39	17	30.05	S	650901.9	5649379.8
	4889	142	49	36.34	E	38	51	28.77	S	658504.6	5697381.5
W00INV1258	1001	142	45	11.78	E	39	17	31.39	S	651198.2	5649332.9
	4889	142	49	48.67	E	38	51	30.10	S	658800.9	5697334.6
W00INV1270	1001	142	45	24.19	E	39	17	32.72	S	651494.5	5649286.0
	4889	142	50	01.00	E	38	51	31.43	S	659097.2	5697287.6

W00INV1282	1001	142	45	36.59	E	39	17	34.06	S	651790.8	5649239.0
	4889	142	50	13.33	E	38	51	32.76	S	659393.6	5697240.7
W00INV1294	1001	142	45	48.99	E	39	17	35.39	S	652087.1	5649192.1
	4889	142	50	25.66	E	38	51	34.08	S	659689.9	5697193.8
W00INV1306	1001	142	46	01.39	E	39	17	36.73	S	652383.4	5649145.2
	4889	142	50	37.98	E	38	51	35.41	S	659986.2	5697146.8
W00INV1318	1001	142	46	13.80	E	39	17	38.06	S	652679.8	5649098.3
	4889	142	50	50.31	E	38	51	36.74	S	660282.5	5697099.9
W00INV1330	1001	142	46	26.20	E	39	17	39.39	S	652976.1	5649051.3
	4889	142	51	02.64	E	38	51	38.07	S	660578.8	5697053.0
W00INV1342	1001	142	46	38.60	E	39	17	40.73	S	653272.4	5649004.4
	4889	142	51	14.96	E	38	51	39.40	S	660875.1	5697006.0
W00INV1354	1001	142	46	51.01	E	39	17	42.06	S	653568.7	5648957.5
	4889	142	51	27.29	E	38	51	40.72	S	661171.4	5696959.1
W00INV1366	1001	142	47	03.41	E	39	17	43.39	S	653865.0	5648910.5
	4889	142	51	39.62	E	38	51	42.05	S	661467.7	5696912.2
W00INV1378	1001	142	47	15.81	E	39	17	44.72	S	654161.3	5648863.6
	4889	142	51	51.95	E	38	51	43.37	S	661764.0	5696865.3
W00INV1390	1001	142	47	28.21	E	39	17	46.05	S	654457.6	5648816.7
	4889	142	52	04.28	E	38	51	44.70	S	662060.3	5696818.3
W00INV1402	1001	142	47	40.62	E	39	17	47.39	S	654753.9	5648769.7
	4889	142	52	16.60	E	38	51	46.02	S	662356.6	5696771.4
W00INV1414	1001	142	47	53.02	E	39	17	48.72	S	655050.2	5648722.8
	4889	142	52	28.93	E	38	51	47.35	S	662652.9	5696724.5
W00INV1426	1001	142	48	05.42	E	39	17	50.05	S	655346.5	5648675.9
	4889	142	52	41.26	E	38	51	48.67	S	662949.2	5696677.5
W00INV1438	1001	142	48	17.83	E	39	17	51.38	S	655642.8	5648628.9
	4889	142	52	53.59	E	38	51	49.99	S	663245.5	5696630.6
W00INV1450	1001	142	48	30.23	E	39	17	52.71	S	655939.1	5648582.0
	4889	142	53	05.92	E	38	51	51.32	S	663541.8	5696583.7
W00INV1462	1001	142	48	42.63	E	39	17	54.04	S	656235.4	5648535.1
	4889	142	53	18.25	E	38	51	52.64	S	663838.1	5696536.7
W00INV1474	1001	142	48	55.04	E	39	17	55.36	S	656531.7	5648488.2
	4889	142	53	30.58	E	38	51	53.96	S	664134.5	5696489.8
W00INV1486	1001	142	49	07.44	E	39	17	56.69	S	656828.0	5648441.2
	4889	142	53	42.91	E	38	51	55.29	S	664430.8	5696442.9
W00INV1498	1001	142	49	19.84	E	39	17	58.02	S	657124.3	5648394.3
	4889	142	53	55.24	E	38	51	56.61	S	664727.1	5696395.9
W00INV1510	1001	142	49	32.25	E	39	17	59.35	S	657420.7	5648347.4
	4889	142	54	07.56	E	38	51	57.93	S	665023.4	5696349.0
W00INV1522	1001	142	49	44.66	E	39	18	00.68	S	657717.0	5648300.4
	4889	142	54	19.89	E	38	51	59.25	S	665319.7	5696302.1
W00INV1534	1001	142	49	57.06	E	39	18	02.00	S	658013.3	5648253.5
	4889	142	54	32.22	E	38	52	00.57	S	665616.0	5696255.2
W00INV1546	1001	142	50	09.47	E	39	18	03.33	S	658309.6	5648206.6
	4889	142	54	44.55	E	38	52	01.89	S	665912.3	5696208.2
W00INV1558	1001	142	50	21.87	E	39	18	04.66	S	658605.9	5648159.6
	4889	142	54	56.88	E	38	52	03.21	S	666208.6	5696161.3

W00INV1570	1001	142	50	34.27	E	39	18	05.98	S	658902.2	5648112.7
	4889	142	55	09.21	E	38	52	04.53	S	666504.9	5696114.4
W00INV1582	1001	142	50	46.68	E	39	18	07.31	S	659198.5	5648065.8
	4888	142	55	21.47	E	38	52	06.25	S	666799.3	5696055.1
W00INV1594	1001	142	50	59.08	E	39	18	08.63	S	659494.8	5648018.9
	4876	142	55	32.96	E	38	52	12.39	S	667072.1	5695860.0
W00INV1606	1001	142	51	11.49	E	39	18	09.96	S	659791.1	5647971.9
	4864	142	55	44.44	E	38	52	18.53	S	667344.9	5695664.9
W00INV1618	1001	142	51	23.89	E	39	18	11.28	S	660087.4	5647925.0
	4852	142	55	55.93	E	38	52	24.67	S	667617.8	5695469.8
W00INV1630	1001	142	51	36.30	E	39	18	12.61	S	660383.7	5647878.1
	4840	142	56	07.42	E	38	52	30.81	S	667890.6	5695274.8
W00INV1642	1001	142	51	48.70	E	39	18	13.93	S	660680.0	5647831.1
	4828	142	56	18.91	E	38	52	36.94	S	668163.5	5695079.7
W00INV1654	1001	142	52	01.11	E	39	18	15.25	S	660976.3	5647784.2
	4816	142	56	30.40	E	38	52	43.08	S	668436.3	5694884.6
W00INV1666	1001	142	52	13.52	E	39	18	16.58	S	661272.6	5647737.3
	4804	142	56	41.89	E	38	52	49.22	S	668709.1	5694689.5
W00INV1678	1001	142	52	25.92	E	39	18	17.90	S	661568.9	5647690.3
	4792	142	56	53.38	E	38	52	55.35	S	668982.0	5694494.4
W00INV1690	1001	142	52	38.33	E	39	18	19.22	S	661865.3	5647643.4
	4780	142	57	04.87	E	38	53	01.49	S	669254.8	5694299.3
W00INV1702	1001	142	52	50.74	E	39	18	20.54	S	662161.6	5647596.5
	4768	142	57	16.36	E	38	53	07.62	S	669527.7	5694104.3
W00INV1714	1001	142	53	03.14	E	39	18	21.86	S	662457.9	5647549.6
	4757	142	57	27.92	E	38	53	13.36	S	669802.5	5693921.5
W00INV1726	1001	142	53	15.55	E	39	18	23.19	S	662754.2	5647502.6
	4745	142	57	39.42	E	38	53	19.50	S	670075.3	5693726.4
W00INV1738	1001	142	53	27.95	E	39	18	24.51	S	663050.5	5647455.7
	4733	142	57	50.91	E	38	53	25.63	S	670348.2	5693531.4
W00INV1750	1001	142	53	40.36	E	39	18	25.83	S	663346.8	5647408.8
	4721	142	58	02.40	E	38	53	31.76	S	670621.0	5693336.3
W00INV1762	1001	142	53	52.77	E	39	18	27.15	S	663643.1	5647361.8
	4709	142	58	13.90	E	38	53	37.90	S	670893.8	5693141.2
W00INV1774	1001	142	54	05.17	E	39	18	28.47	S	663939.4	5647314.9
	4697	142	58	25.39	E	38	53	44.03	S	671166.7	5692946.1
W00INV1786	1001	142	54	17.58	E	39	18	29.79	S	664235.7	5647268.0
	4685	142	58	36.89	E	38	53	50.17	S	671439.5	5692751.0
W00INV1798	1001	142	54	29.99	E	39	18	31.11	S	664532.0	5647221.0
	4673	142	58	48.38	E	38	53	56.30	S	671712.4	5692555.9
W00INV1810	1001	142	54	42.39	E	39	18	32.43	S	664828.3	5647174.1
	4661	142	58	59.88	E	38	54	02.43	S	671985.2	5692360.8
W00INV1822	1001	142	54	54.80	E	39	18	33.74	S	665124.6	5647127.2
	4649	142	59	11.37	E	38	54	08.56	S	672258.0	5692165.8
W00INV1834	1001	142	55	07.21	E	39	18	35.06	S	665420.9	5647080.2
	4637	142	59	22.87	E	38	54	14.70	S	672530.9	5691970.7
W00INV1846	1001	142	55	19.62	E	39	18	36.38	S	665717.2	5647033.3
	3714	142	58	30.57	E	39	00	26.74	S	671022.3	5680528.3

W00INV1858	1001	142	55	32.02	E	39	18	37.70	S	666013.5	5646986.4
	3701	142	58	42.02	E	39	00	33.27	S	671293.2	5680320.9
W00INV1870	1001	142	55	44.44	E	39	18	39.01	S	666309.9	5646939.5
	3688	142	58	53.46	E	39	00	39.81	S	671564.1	5680113.4
W00INV1882	1001	142	55	56.84	E	39	18	40.33	S	666606.2	5646892.5
	3675	142	59	04.91	E	39	00	46.34	S	671835.0	5679906.0
W00INV1894	1001	142	56	09.25	E	39	18	41.64	S	666902.5	5646845.6
	3663	142	59	16.42	E	39	00	52.47	S	672107.8	5679710.9
W00INV1906	1001	142	56	21.66	E	39	18	42.96	S	667198.8	5646798.7
	3650	142	59	27.87	E	39	00	59.01	S	672378.7	5679503.5
W00INV1918	1001	142	56	34.07	E	39	18	44.28	S	667495.1	5646751.7
	3637	142	59	39.31	E	39	01	05.54	S	672649.6	5679296.1
W00INV1930	1001	142	56	46.47	E	39	18	45.59	S	667791.4	5646704.8
	3624	142	59	50.76	E	39	01	12.07	S	672920.5	5679088.6
W00INV1942	1001	142	56	58.88	E	39	18	46.90	S	668087.7	5646657.9
	3612	143	00	02.28	E	39	01	18.20	S	673193.3	5678893.6
W00INV1954	1001	142	57	11.29	E	39	18	48.22	S	668384.0	5646610.9
	3599	143	00	13.73	E	39	01	24.73	S	673464.2	5678686.1
W00INV1966	1001	142	57	23.70	E	39	18	49.53	S	668680.3	5646564.0
	3586	143	00	25.18	E	39	01	31.27	S	673735.1	5678478.7
W00INV1978	1001	142	57	36.11	E	39	18	50.85	S	668976.6	5646517.1
	3573	143	00	36.63	E	39	01	37.80	S	674006.0	5678271.3
W00INV1990	1001	142	57	48.52	E	39	18	52.16	S	669272.9	5646470.2
	3561	143	00	48.14	E	39	01	43.92	S	674278.8	5678076.2
W00INV2002	1001	142	58	00.92	E	39	18	53.47	S	669569.2	5646423.2
	3548	143	00	59.60	E	39	01	50.46	S	674549.7	5677868.7
W00INV2014	1001	142	58	13.33	E	39	18	54.78	S	669865.5	5646376.3
	3535	143	01	11.05	E	39	01	56.99	S	674820.6	5677661.3
W00INV2026	1001	142	58	25.74	E	39	18	56.09	S	670161.8	5646329.4
	3522	143	01	22.50	E	39	02	03.52	S	675091.5	5677453.9
W00INV2038	1001	142	58	38.15	E	39	18	57.41	S	670458.1	5646282.4
	3510	143	01	34.02	E	39	02	09.64	S	675364.3	5677258.8
W00INV2050	1001	142	58	50.56	E	39	18	58.72	S	670754.4	5646235.5
	3497	143	01	45.47	E	39	02	16.17	S	675635.2	5677051.4

**APPENDIX C: SURVEY PARAMETERS AND VESSEL DRAWINGS.
SYSTEM SET-UP, CONFIGURATION AND OFFSET DIAGRAMS FOR 6 AND 8 STREAMERS**

APPENDIX D: CREW LIST

Joined 10th/11th November 1999

1	Dixon	Richard	Master	Total Marine
2	Laurence	Glen	Chief Mate	Total Marine
3	Egitto	Anthony	2nd Mate	Total Marine
4	McLean	John	Chief Engineer	Total Marine
5	Samuelson	Oddur	1st Engineer	Polsa
6	Egan	Robert	1st Engineer	Total Marine
7	Hegarty	Eamon	2nd Engineer	Total Marine
8	Wray	Adam	Integrated Rating	Total Marine
9	Crane	Daryl	Integrated Rating	Total Marine
10	MacFarlane	Neil	Integrated Rating	Total Marine
11	Lochowicz	Lane	Integrated Rating	Total Marine
12	Hall	Ernest	Chief Cook	Total Marine
13	Hart	Joe	Cook	Total Marine
14	Pareira	Brendon	Chief Steward	Total Marine
15	Molison	Doug	Steward	Total Marine
16	Coughlan	Dave	Party Chief	Western
Geophysical				
(Departed for Perth on Saturday 28 th November, returning on Tuesday 30 th November)				
17	Gunderson	Eric	Coordinator	Western
Geophysical				
18	Spooner	Brent	Coordinator	Western
Geophysical				
19	Millard	David	FDQA Group Leader	Western
Geophysical				
20	Dusolt	Larry	Senior Technician	Western
Geophysical				
21	Cowin	Lyall	HSE Advisor	Western
Geophysical				
22	Robertson	Ian	HSE Advisor	Western
Geophysical				
(Departed 14 th November on SMIT LLOYD 28 to Exmouth)				
23	Gibson	Anthony	Senior Observer	Western
Geophysical				
24	Norris	Adam	Senior Observer	Western
Geophysical				
25	Feist	Brad	Observer	Western
Geophysical				
26	Birkett	Gary	Observer	Western
Geophysical				
27	Dugdale	Clive	Observer	Western
Geophysical				
28	Young	Andrew	Senior Navigator	Western
Geophysical				
29	Shepherd	Colin	Navigator	Western
Geophysical				
30	Cane	Kevin	Navigator	Western
Geophysical				
31	Lee	Dominic	Navigator	Western
Geophysical				
32	Gibbons	Christopher	Navigator	Western

Geophysical				
33	Martin	Nicholas	Navigation Analyst	Western
Geophysical				
34	Vink	Michael	F Positioning Analyst III	Western
Geophysical				
35	Necmioglu	Ocal	Field Seismic Analyst II	Western
Geophysical				
36	Skirving	Martin	Field Seismic Analyst I	Western
Geophysical				
37	Carreon	Virgilio	Field Seismic Analyst I	Western
Geophysical				
38	Davidson	Trevor	Field Seismic Analyst	Western
Geophysical				
39	Currey	Edward	Sr Airgun Mechanic	Western
Geophysical				
40	Back	Greg	Airgun Mechanic	Western
Geophysical				
41	Morales	Ronaldo	Airgun Mechanic	Western
Geophysical				
(Departed 14 th November on SMIT LLOYD 28 to Exmouth)				
42	Hayes	Robin	Airgun Mechanic	Western
Geophysical				
43	Dean	John	Backdeck Supervisor	Polsa
44	Roach	Patrick	Cable Technician	Western
Geophysical				
45	Leger	Robert	I/O Technician	
46	Richmond	Wes	LCT Gravity Operator	
47	Troy	Robert	Syntron Tech	
(Departed 22 nd November on SMIT LLOYD 28 to Dampier)				
48	Burt	Stephen	EDR Client Rep	
49	Haig	Ken	ECA Client Rep	
50	Franklin	John	Field Service	Western
Geophysical				
(Departed 26 th November in Exmouth)				
51	Bailey	Courtney	Gun Mechanic	Western
Geophysical				
(Joined 14 th November on SMIT LLOYD 28 from Exmouth)				
52	Craven	Andrew	Technician	Western
Geophysical				
(Joined 25 th November from SMIT LLOYD 28 from Dampier)				

Joined 14th/15th December 1999**Western**

1	Wayne	Buffham	Senior Coordinator	Western Pride
2	Luke	Cannon	Navigation Analyst	Western Pride
3	Marcus	Eginton	Airgun Mechanic	Western Pride
4	Abd El Aleem	El Essawy	Field Seismic Analyst	Western Pride
5	Geoffrey	Garratt	Field Seismic Analyst	Western Pride
6	Justin	Hall	Observer	Western Pride
7	Leslie	Hayden	Senior Observer	Western Pride
8	Pete	Hayward	Navigation Analyst	Western Pride
9	Peter	Huxford	Navigator	Western Pride
10	Rolando	Jaberina	Senior Observer	Western Pride
11	Kevin	Jones	Senior Technician	Western Pride
12	Chris	King	Marine Administrator	X Shore Based
13	Terry	Leighton	Marine Supervisor	X Shore Based
14	Giorgio	Liberati	Field Seismic Analyst	Western Pride
15	Jason	Liddell	Navigator	Western Pride
16	Gairn	McLennan	Cable Technician	Western Pride
17	Ronaldo	Morales	Airgun Mechanic	Western Pride
18	Rhodri	Morrison	FDQA Group Leader	Western Pride
19	Gary	Nicholson	Navigation Analyst	Western Pride
20	Jason	Phillips	Airgun Mechanic	Western Pride
21	Adam	Powell	Observer	Western Pride
22	Michael	Ray	Senior Navigator	Western Pride
23	Ian	Robertson	HSE Advisor	Western Pride
24	Robin	Secker	Party Chief	Western Pride
25	Nicholas	Skingle	Senior Technician	Western Pride
26	Ian	Smith	Coordinator	Western Pride
27	Andy	Statham	Airgun Mechanic	Western Pride
28	Richard	Stirrup	Navigator	Western Pride
29	Mark	Trickett	Field Seismic Analyst	Western Pride
30	Nolan	Veness	Trainee Technician	Western Pride
31	Barry	Williams	Marine Administrator	X Shore Based

Total Marine

1	Ron	Graham	Integrated Rating	Western Pride
2	Lee	Gravolin	Integrated Rating	Western Pride
3	Grant	Hopper	Steward	Western Pride
4	Jonathon	Jones	Master	Western Pride
5	Mark	Jones	1st Engineer	Western Pride
6	Bryan	Meaker	Integrated Rating	Western Pride
7	Robert	Moore	Chief Engineer	Western Pride
8	Peter	Morgan	Chief Cook	Western Pride
9	Dominic	Neeson	Integrated Rating	Western Pride
10	Victor	Pinto	Chief Mate	Western Pride
11	Peter	Shanahan	Chief Steward	Western Pride
12	Russell	Vik	2nd Engineer	Western Pride
13	Darren	Webster	2nd Mate	Western Pride
14	Mark	Wood	Cook	Western Pride
15	Mike	Grimes	Field Seismic Analyst	Western Pride

Polsa

1	Elian	Jensen	Backdeck Supervisor	Western Pride
2	Malcolm	Scott	Backdeck Supervisor	Western Pride

QC Personnel

1	Dave	Myers	Client Rep	Hydrosearch
1	Matthew	Ulvr-Green	Client Rep	ECA

Joining Crew at Portland 18th/19th January 2000

1	Dixon	Richard	Master	Total Marine
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2	Laurence	Glen	Chief Mate	Total Marine
3	Egitto	Anthony	2nd Mate	Total Marine
4	McLean	John	Chief Engineer	Total Marine
5	Egan	Robert	1st Engineer	Total Marine
6	Hegarty	Eamon	2nd Engineer	Total Marine
7	Lochowicz	Kane	Integrated Rating	Total Marine
8	Wray	Adam	Integrated Rating	Total Marine
9	Crane	Daryl	Integrated Rating	Total Marine
10	MacFarlane	Neil	Integrated Rating	Total Marine
11	Hall	Ernest	Chief Cook	Total Marine
12	Hart	Joseph	Cook	Total Marine
13	Molison	Doug	Chief Steward	Total Marine
14	Pereira	Brendon	Steward	Total Marine
15	Coughlan	Dave	Party Chief	Western
Geophysical				
16	Gunderson	Eric	Coordinator	Western
Geophysical				
17	Lewis	Alan	Coordinator	Western
Geophysical				
18	Millard	David	FDQA Group Leader	Western
Geophysical				
19	Parker	Steven	Technician	Western
Geophysical				
20	Ramsey	Julian	Technician	Western
Geophysical				
21	Craven	Andrew	Technician	Western
Geophysical				
22	Cowin	Lyall	HSE Advisor	Western
Geophysical				
23	Gibson	Anthony	Senior Observer	Western
Geophysical				
24	Feist	Brad	Observer	Western
Geophysical				
25	Norris	Adam	Observer	Western
Geophysical				
26	Birkett	Gary	Observer	Western
Geophysical				
27	Coe Robert	Observer	Western Geophysical	
28	Dugdale	Clive	Observer	Western
Geophysical				
29	Young	Andrew	Senior Navigator	Western
Geophysical				
30	Cane	Kevin	Navigator	Western
Geophysical				
31	Gibbons	Christopher	Navigator	Western
Geophysical				
32	Shepherd	Colin	Navigator	Western
Geophysical				
33	Martin	Nicholas	Navigation Analyst	Western
Geophysical				
34	Vink	Michael	Positioning Analyst III	Western
Geophysical				
35	Necmioglu	Ocal	Field Seismic Analyst II	Western
Geophysical				
36	Carreon	Virgilio	Field Seismic Analyst I	Western

Geophysical				
37	Skirving	Martin	Field Seismic Analyst I	Western
Geophysical				
38	Currey	Edward	Sr Airgun Mechanic	Western
Geophysical				
39	French	Steve	Airgun Mechanic	Western
Geophysical				
40	Hayes	Robin	Airgun Mechanic	Western
Geophysical				
41	Back	Greg	Airgun Mechanic	Western
Geophysical				
42	Dean	John	Backdeck Supervisor	Polsa
43	Samuelsen	Oddur	Backdeck Supervisor	Polsa
44	Roach	Patrick	Cable Technician	Western
Geophysical				
45	Burt	Stephen	Client Rep EDR	
46	Haig	Ken	Client Rep ECA	
47	Johnson	Colin	Field Service	Western
Geophysical				
48	Sherry	Mark	Field Service	Western
Geophysical				
49	Barker	Glen	Field Service	Western
Geophysical				
50	Hayden		Grant	Field Service
	Western Geophysical			

Joined 22nd February 2000**Western Geophysical Employees**

1	Frederic	Aiken	Field Seismic Analyst III	Western Pride
2	Russ	Blohn	Senior Coordinator	Western Pride
3	Luke	Cannon	Navigation Analyst	Western Pride
4	Abd El Aleem	El Essawy	Field Seismic Analyst III	Western Pride
5	John	Ferdinand	Airgun Mechanic	Western Pride
6	Geoffrey	Garratt	Field Seismic Analyst I	Western Pride
7	Gudren	Griffin	Other	Western Pride
8	Mike	Grimes	Field Seismic Analyst	Western Pride
9	Justin	Hall	Observer	Western Pride
10	Leslie	Hayden	Senior Observer	Western Pride
11	Pete	Hayward	Navigation Analyst	Western Pride
12	Peter	Huxford	Navigator	Western Pride
13	Rolando	Jaberina	Senior Observer	Western Pride
14	Kevin	Jones	Senior Technician	Western Pride
15	Chris	King	Marine Administrator	X Shore Based
16	Giorgio	Liberati	Field Seismic Analyst	Western Pride
17	Jason	Liddell	Navigator	Western Pride
18	Gairn	McLennan	Cable Technician	Western Pride
19	Tom	Meyer	Marine Administrator	X Shore Based
20	Ronaldo	Morales	Airgun Mechanic	Western Pride
21	Dick	Morgan	Other	Western Pride

(Departed 28th February on Perfect Lady to Port Fairy)

22	Rhodri	Morrison	FDQA Group Leader	Western Pride
23	Gary	Nicholson	Navigation Analyst	Western Pride
24	Jason	Phillips	Airgun Mechanic	Western Pride
25	Adam	Powell	Observer	Western Pride
26	Michael	Ray	Senior Navigator	Western Pride
27	Ian	Robertson	HSE Advisor	Western Pride
28	Robin	Secker	Party Chief	Western Pride
29	Nicholas	Skingle	Senior Technician	Western Pride
30	Brent	Spooner	Coordinator	Western Pride
31	Andy	Statham	Airgun Mechanic	Western Pride
32	Richard	Stirrup	Navigator	Western Pride
33	Nolan	Veness	Trainee Technician	Western Pride

Total Marine Employees

1	C	Gonsalves	1st Engineer	Western Pride
2	Ron	Graham	Integrated Rating	Western Pride
3	Lee	Gravolin	Integrated Rating	Western Pride
4	Grant	Hopper	Steward	Western Pride
5	Jonathon	Jones	Master	Western Pride
6	Dwayne	Longbone	Integrated Rating	Western Pride
7	Robert	Moore	Chief Engineer	Western Pride
8	Peter	Morgan	Chief Cook	Western Pride
9	Dominic	Neeson	Integrated Rating	Western Pride
10	Victor	Pinto	Chief Mate	Western Pride
11	Peter	Shanahan	Chief Steward	Western Pride
12	Russell	Vik	2nd Engineer	Western Pride
13	Darren	Webster	2nd Mate	Western Pride
14	Mark	Wood	Cook	Western Pride

Polsa Employees

1	Elian	Jensen	Backdeck Supervisor	Western Pride
2	Malcolm	Scott	Backdeck Supervisor	Western Pride

EDR Employees

1	Patrick	Bonnevier	Client Rep	Western Pride
ECA Employees				
1	Matthew	Ulvr-Green	Client Rep	Western Pride

Joined in Portland on 28th March 2000

	1	Dixon	Richard	Master	Total Marine
	2	Laurence	Glen	Chief Mate	Total Marine
	3	Egitto	Anthony	2nd Mate	Total Marine
	4	McLean	John	Chief Engineer	Total Marine
	5	Egan	Robert	1st Engineer	Total Marine
	6	Hegarty	Eamon	2nd Engineer	Total Marine
	7	Lochowicz	Kane	Integrated Rating	Total Marine
	8	Diggle	Mark	Integrated Rating	Total Marine
	9	Doolan	Michael	Integrated Rating	Total Marine
	10	Wray	Adam	Integrated Rating	Total Marine
	11	Hall	Ernest	Chief Cook	Total Marine
	12	Hart	Joseph	Cook	Total Marine
	13	Ward	Roland	Chief Steward	Total Marine
	14	Pereira	Brendon	Steward	Total Marine
	15	MacCurtain	Paddy	Party Chief	Western
Geophysical					
	16	Buffham	Wayne	Senior Coordinator	Western
Geophysical					
	17	Coe	Robert	Coordinator	Western
Geophysical					
	18	Gunderson	Eric	Coordinator	Western
Geophysical					
	19	Millard	David	FDQA Group Leader	Western
Geophysical					
	20	Dusolt	Larry	Senior Technician	Western
Geophysical					
	21	Ramsey	Julian	Technician	Western
Geophysical					
	22	Parker	Stephen	Technician	Western
Geophysical					
	23	Cowin	Lyll	HSE Advisor	Western
Geophysical					
	24	Gibson	Anthony	Senior Observer	Western
Geophysical					
	25	Norris	Adam	Observer	Western
Geophysical					
	26	Feist	Brad	Observer	Western
Geophysical					
	27	Dugdale	Clive	Observer	Western
Geophysical					
	28	Young	Andrew	Senior Navigator	Western
Geophysical					
	29	Cole	John	Navigator	Western
Geophysical					
	30	Shepherd	Colin	Navigator	Western
Geophysical					
	31	Prinz	Karl-Heinz	Navigator	Western
Geophysical					
	32	Vink	Michael	Navigation Analyst	Western
Geophysical					
	33	Martin	Nicholas	Navigation Analyst	Western
Geophysical					
	34	Necmioglu	Ocal	Field Seismic Analyst II	Western
Geophysical					
	35	Carreon	Virgilio	Field Seismic Analyst I	Western
Geophysical					
	36	Skirving	Martin	Field Seismic Analyst I	Western
Geophysical					
	37	Currey	Edward	Sr Airgun Mechanic	Western
Geophysical					
	38	Eginton	Marcus	Airgun Mechanic	Western
Geophysical					

Geophysical	39	Back	Greg	Airgun Mechanic	Western
Geophysical	40	Hayes	Robin	Airgun Mechanic	Western
Geophysical	41	Parish	Darren	Backdeck Supervisor	Western
	42	Dean	John	Backdeck Supervisor	Polsa
	43	Samuelsen	Oddur	Compressor Mechanic	Polsa
Geophysical	44	Roach	Patrick	Cable Technician	Western
	45	Haig	Ken	Client Rep	ECA
Client Rep	46	Burt		Stephen	
		EDR			

APPENDIX E: HEALTH, SAFETY AND ENVIRONMENT

REFER TO THE HARD COPIES THE REPORTS SUPPLIED SEPARATELY FOR INCLUSION INTO
THE FOLLOWING HSE REPORT SECTIONS.??

Minutes of Safety Meetings

Incident, Injury and Observation Reports

Environment Reports

Occupational Illness Reports

Property Damage Reports

Medic Reports

Cetacean Sightings

Crayfish Pot Locations

The following table lists the location of all crayfish pots lifted, moved or cut during the survey. All recovered pots and those pulled by the MV PERFECT LADY were returned to their registered owners.

Date	Location	Item	ID	Photo	Action
26 th January	South of block	1 crayfish pot	NIL	NIL	Lost during recovery by CMV
27 th January	South of block	1 crayfish pot	X6K 16/19?	Yes	Returned to Perfect Lady from W. Pride.
15 th December	38° 56.08'S 142° 24.84'E	4 pots	X6K	No	Pulled by Perfect Lady
15 th December	38° 581.81'S 142° 25.52'E	8 pots	XSY	No	Pulled by Perfect lady
3 rd January	38° 54.44'S 143° 02.98'E	6 pots	XNL	No	Pulled by Perfect Lady
11 th January	39° 03.27'S 142° 41.15'E	2 pots	XCF	No	Pulled by Perfect Lady
26 th January	39° 17.89'S 142° 59.82'E	4 pots	X6K	No	Pulled by Perfect Lady
26 th January	38° 17.09'S 142° 59.46'E	4 pots	X6K	No	Pulled by Perfect Lady
28 th January	39° 16.78'S 142° 59.63'E	7 pots	X6K	No	Pulled by Perfect Lady
28 th January	39° 16.01'S 142° 59.97'E	1 pot	X6K	No	Broke off during recovery
29 th January	39° 18.10'S 142° 24.84'E	4 pots	X6K	No	Pulled by Perfect Lady
29 th January	39° 17.69'S 142° 54.51'E	3 pots	X6K	No	Pulled by Perfect Lady
31 st January	39° 21.26'S 142° 53.44'E	1 pot	UPA	No	Pulled by Perfect Lady
1 st February	38° 17.86'S 142° 52.12'E	1 pot	X6K	No	Pulled by Perfect Lady
1 st February	38° 17.14'S 142° 52.36'E	2 pots	X6K	No	Pulled by Perfect Lady
1 st February	38° 16.39'S 142° 52.88'E	1 pot	X6K	No	Pulled by Perfect Lady
2 nd February	NE sector of swathe 2.	1 pot	N/A	No	Broke during recovery. Floats returned to Perfect Lady
10 th March	Swathe 2	6 pots	XSZ	No	Pulled and returned to Gwen Kane
16 th March	Swathe 2	1 pot	VHQ	No	Moved – belonged to 'Putty's Pride' – advised new location
3 rd April	2D area. SOL W00INV006	7 pots	Georges Bay	No	Retrieved and replaced back in original location by the Perfect Lady

Radio Communications Log

Date	Time	Mode	Vessel Name	Comments
10 Feb	14:45	VHF 77	Breakwater Bay	Requested permission to travel through area, and asked if we required any urgent spares from shore on his return in 2 days.
14 Feb	14:00	VHF 77	Sea Fox	Called for a position and location update and passed 2 miles clear of our location. 39° 39' South 143° 05' East
15 Feb	07:25	VHF 77	Empress Pearl	Contacted this vessel and requested 5 mile clearance. This was given and he advised us that crab boats operated on VHF 72 and the normal trawlers operated on VHF 73.
19 Feb	06:35	VHF 77	Empress Pearl	Contacted the vessel with a position up date – and advised him we were still operating in blocks 2 and 3. He was aware of the boundary locations and our area of operations. 39° 22' South 142° 51 East.
23 Feb	12:30	VHF 77	Gwen Kane	Five fishing pot locations. 39° 03.215'S 142° 45.106'E ; 39° 02.089'S 142° 45.100'E; 39° 00.7'S 142° 46.3'E ; 39° 00.3'S 142° 46.4'E ; 38° 59.9'S 142° 46.5'E
23 Feb	21:45	VHF 16/69	Robert Nicholas	Advised of shark fishing line locations. West end 39° 07.7'S 142° 56.80'E ; East end 39° 07.6'S 142° 58.40'E
25 Feb	15:45	VHF 77	Sea Fox	Confirmed by Perfect Lady that long-line 39° 39' South 143° 05' East has been removed.
26 Feb	03:00	VHF 77	George's Bay	Confirmed by Perfect Lady, that pots exist in 39° 29.84'S 142° 57.04'E, extending NNE into section 1.
29 Feb	18:10	VHF 73	Breakwater Bay	Informed position 39° 16.3'S 142° 58.7'E, on course of 30.4 degrees at 8.5 knot. Passing by.
1 Mar	08:45	VHF 77	Putty's Pride	Perfect Lady advised us that Putty's Pride off location and heading for Moonlight Head.
1 Mar	15:30	4620 HF	Gwen Kane	Gwen Kane contacted by SMIT LLOYD 28, after receiving message from WEL in response to telephone call to WEL. Gwen Kane stated he was upset that his fishing had been restricted. Pride location at time 39° 18.7'S 142° 53'E. His location was <24 nmiles west of the Pride location at the time, as he was not visible on the 12 or 24 nmile radars.
4 Mar	05:15		Jane K	Anchored in pos. 38° 53'S 142° 41'E
5 th Mar	02:30	VHF 77	Breakwater Bay	Advised that vessel to returned to pick up gear located 5 nmiles North of lower SE corner of prospect.
	05:55	VHF 77	Breakwater Bay	At location 39° 16.8'S 142° 58.6'E, proceeding to retrieve cray-pots.
	10:20	VHF 77	Breakwater Bay	Advised all pots clear, moving east, will contact us later (couple of days) on 405.
9 th Mar	Approx 20:00	Phone	Gwen Kane	Party Chief contacted by Wayne Towers, verifying pots being laid in zone 4.
9 th Mar	18:30	VHF 77	Melina E	Laying long line at 38° 43.05'S 142° 48.4'E extending 1.5 nmiles to South
10 th Mar	18:20	VHF 77	Gwen Kane	Perfect Lady in contact with Gwen Kane, regarding pots located inside zone 2 boundary.
12 th Mar	22:00 -	VHF 77 / Ch 16	Unknown	Unknown fishing vessel contacted during turn to line. Unable to establish contact with vessel. Flares,

	23:00			flood light and radio communications used.
13 th Mar	10:30	VHF 77	Georges Bay	Advised of gear out at pos. 39° 24.56'S 142° 55.17'E, with 4 nmile area clearance.
14 th Mar	08:00	4417.2 / 4620Mhz	Midwater Trawler	Passing vessel SW of prospect advised of our location and operations. Trawler heading for Tasmania.
15 th Mar	14:10	VHF 77 & 4620 Mhz	Paddy's Pride	Vessel laying pots at pos. 38° 44.02'S 142° 50.95'E, to NW of position.
15 th Mar	23:21			Bridge reports vessel at anchor at pos. 39° 20.0'S 142° 52.0'E
16 th Mar	01:00	VHF 77	Georges Bay	Retrieving pot from pos. 39° 20.0'S 142° 51.0'E to NW of positioning given, very close to cables when passing. Moved to pos. 39° 19.5'S 142° 50'E, to give clearance.
17 th Mar	13:00	VHF 77	Putty's Pride	Laying nets between 38° 47.28'S 143° 58.96'E to 38° 50.114'S 143° 01.963'E
20 th Mar	18:50	VHF 77	Putty's Pride	Informed us of pots at pos. 38° 47.462'S 142° 58.918'E to 38° 45.875'S 142° 57.70'E
22 nd Mar	17:50	VHF 77		Informed by Smit Lloyd of pots, at pos. 38° 18.56'S 142° 50.198'E
24 th Mar	17:30	VHF 77	George's Bay	Relayed via Perfect Lady, pos. of pots between 39° 20.22'S 142° 49.12'E to 39° 22.06'S 142° 49.98'E
3 rd April	09:30	VHF	Perfect lady	Requested number of pots and location near the start of the 2D line W00INV006.
3 rd April	09:45	Telephone	A. Levings	Advised of the plan to acquire 2D line W00INV006. Gave current vessel location.

**APPENDIX F: DROPOUT SPECIFICATIONS – 2250 CU. IN. ARRAY
SCHEMATIC**

**2250 ci Array
Gun Dropout
Analysis**

Drop Elements	Drop Volumes	0-P Amp.	P-Tr Amp	% 0-P	Post Decon Correlation Coefficient	P/B	Accept ?
-	-	40.7	74.1	100	0.99995	-	Y
1	300*	37.2	70.4	91.4	0.99788	38.5	Y
2	160*	38	71.5	93.4	0.99891	37.7	Y
3	115	38.6	72.9	94.8	0.99889	28.3	Y
4	80	39	73.6	95.8	0.99942	24.5	Y
5	55	39.4	74.1	96.8	0.99971	65.3	Y
6	40	39.5	74.2	97.1	0.99983	69.4	Y
1,7	300*,300*	33.7	63.7	82.8	0.98724	14	N
1,8	300*,160*	34.4	64.5	84.5	0.99494	19.5	N
1,9	300*,115	35.1	66.1	86.2	0.99757	46	N
1,10	300*,80	35.5	67.5	87.2	0.99815	47.5	N
1,11	300*,55	35.9	67.9	88.2	0.99777	35.9	N
1,12	300*,40	36	67.8	88.5	0.99771	36.3	N
1,13	300*,300*	33.8	64.2	83	0.98892	15.5	N
1,14	300*,160*	34.4	65	84.5	0.99599	25	N
1,15	300*,115	35.1	66.4	86.2	0.99806	49.9	N
1,16	300*,80	35.5	67	87.2	0.99806	52.8	N
1,17	300*,55	35.9	67.6	88.2	0.99756	33.9	N
1,18	300*,40	36	67.6	88.5	0.99765	35.4	N
2,8	160*,160*	35.1	65.6	86.2	0.9943	19.3	N
2,9	160*,115	35.9	67.2	88.2	0.99572	18.6	N
2,10	160*,80	36.3	67.9	89.2	0.9976	24.8	M
2,11	160*,55	36.6	68.4	89.9	0.99852	48.5	M
2,12	160*,40	36.7	68.2	90.2	0.9983	37.3	Y
2,14	160*,160*	35.2	65.4	86.5	0.99502	18.3	N
2,15	160*,115	35.9	66.8	88.2	0.99681	22.5	N
2,16	160*,80	36.3	67.5	89.2	0.99793	26.3	M
2,17	160*,55	36.6	68	89.9	0.99861	38.1	M

* Elements composed of two gun clusters

M Marginal

Drop Elements	Drop Volumes	0-P Amp.	P-Tr Amp	% 0-P	Post Decon Correlation Coefficient	P/B	Accept ?
3,9	115,115	36.5	68.6	89.7	0.99466	16.5	M
3,15	115,115	36.6	68.3	89.9	0.99487	15.7	M
3,10	115,80	37	69.3	90.9	0.99687	24.4	Y
4,10	80,80	37.3	69.9	91.6	0.99718	17.2	Y
4,16	80,80	37.3	69.5	91.6	0.99726	16.1	Y
5,11	55,55	38	70.8	93.4	0.99868	48.7	Y
5,17	55,55	38	71.4	93.4	0.99867	49.2	Y
6,12	40,40	38.3	71.6	94.1	0.99918	45.8	Y
6,18	40,40	38.3	71.6	94.1	0.99935	67.5	Y
1,2,3	300*,160*,115	32.1	60	78.9	0.99641	37.2	N
1,7,13	300*,300*,300*	30.3	57.6	74.4	0.96562	7.9	N
1,7,14	300*,300*,160*	30.9	58.3	75.9	0.98226	11.4	N
1,7,15	300*,300*,115	31.6	59.8	77.6	0.98864	17.5	N
1,7,16	300*,300*,80	31.9	60.4	78.4	0.98827	15.7	N
1,7,17	300*,300*,55	32.3	60.9	79.4	0.98623	12.9	N
1,7,18	300*,300*,40	32.4	61	79.6	0.98632	13.2	N
1,8,14	300*,160*,160*	31.6	59.1	77.6	0.98858	12	N
1,8,15	300*,160*,115	32.3	60.6	79.4	0.99522	19.2	N
1,8,16	300*,160*,80	32.7	61.3	80.3	0.99485	18.7	N
1,8,17	300*,160*,55	33.1	61.9	81.3	0.99436	17.9	N
1,8,18	300*,160*,40	33.2	61.9	81.6	0.98518	10.8	N
2,8,14	160*,160*,160*	32.3	60.3	79.4	0.99093	14.4	N
2,8,15	160*,160*,115	33	61.9	81.1	0.99244	15.3	N
2,8,16	160*,160*,80	33.4	62.6	82.1	0.99363	19.1	N
2,8,17	160*,160*,55	33.8	63.1	83	0.99315	18.8	N
2,8,18	160*,160*,40	33.9	63.1	83.3	0.98997	13	N
2,9,15	160*,115,115	33.7	63.4	82.8	0.99538	19	N
2,9,17	160*,115,80	34.5	64.6	84.8	0.99454	40.9	N
3,4,16	115,115,80	35	65.2	86	0.9942	21.5	N
3,9,16	115,115,80	34.8	65.5	85.5	0.99215	14.7	N
3,9,17	115,115,55	35.2	66	86.5	0.99412	17.1	N
3,9,18	115,115,40	35.3	66.1	86.7	0.99419	16.7	N

* Elements composed of two gun clusters

M Marginal

Western recommends the following dropout specifications for the 2250in³ array :

1. If one gun in a cluster fails, the other gun must be turned off.
2. Any single array element, cluster or single gun may be dropped.
3. Any combination of two single guns may be dropped. Two array elements involving a 160in³ cluster may be dropped as long as the other element is a single gun of volume no greater than 55in³.
4. No three gun elements may be dropped.

APPENDIX G: VESSEL SPECIFICATIONS

Vessel Specifications

Vessel Name	:	M/V Western Pride
Port of Registry	:	Panama
Call Sign	:	3EYQ8
Classification Society	:	Det Norske Veritas
Classification	:	DnV+1A1, ICE-C, EO, HELDK
Owners	:	Western Sea Services
Operators	:	Western Geophysical/Baker Hughes
Where Built	:	Ulstein Shipyard, Norway
When Built	:	1991
Builders Name	:	Ulstein Shipyard
Originally Built As	:	Seismic Survey Vessel
Last Major Upgrade	:	Mar-Jun 1998
Overall Length	:	71.50m
Beam	:	17.00m
Draft	:	5.90m
Gross Tonnage	:	2945GRT
Net Tonnage	:	883NRT
Main Engine Lube Oil	:	12 cubic metres
Cable Oil	:	16 cubic metres
Fuel Capacity	:	1000
Fuel Consumption	:	
Transiting	:	25
Surveying	:	28–30
Cruising Speed	:	14 knots
Cruising Range	:	11,000 Nautical Miles
Survey Endurance	:	35 days @ maximum production speed
	:	43 days @ cruising speed
Radar	:	Furuno FAR-2822, Xband ARPA 120 NM Range, X-Band (3cm), ARPA, 72 NM range Decca Marine Bridgmaster 343/12E, S band ARPA.

Inmarsat	:	JRC JUE 45A MKII Voice/Telex/Fax/Data
V-sat	:	Data Marine Systems Cband – Voice, fax, data
Radio	:	(To GMDSS Requirements) Vingtor shipboard communications system Thrane & Thrane TT 3000 standard-C Inmarsat telex system. Thrane & Thrane TT 3210A integrated radio telex system. 2 x Skanti DSC 3000 VHF DSC Controller Receiver 2 x Skanti TRP-3000 VHF radios (to 5 slave handsets) Sailor RT 2047 VHF radio/telephone. Skanti DSC 9000 MF/HF DSC Controller / Receiver. Skanti Control Unit 8000 HF-SSB Transceiver. Skanti WR 6000 Watch Receiver 2182 kHz. 2 x Navico GMDSS hand held VHF radios. Sailor RT 2047 VHF radio / telephone, simplex & duplex. Jotron TR-6102 AM/VHF aeronautical radio Dittel FSG 7MPS UHF Transceiver aeronautical radio
Ship's Navigation	:	Robertson AP9 MKII Autopilot Furuno FSN-50 Transit Satellite RCVR Furuno GP500 GPS Satellite RCVR Furuno LC 90 MKII Loran C RCVR Furuno FC 525 VHF Direction Finder Furuno TDC-318 MF/HF Direction Finder Furuno FE 680 Echo Sounder – Range to 2100m Furuno Fax 208A Weather Facsimile RCVR Sait Navtex 2 - XH5123 receiver. SAL Log 502-6 electromagnetic speed log.
Emergency Positioning	:	2 x Jotron Search and Rescue Transponders (SARTS) Jotron X-94492 Sarsat Cospas 406 MHz EPIRB
Gyro Compasses	:	C-Plath SR-180 Mark 1
Accommodations	:	56 + 1 Hospital
Fresh Water Maker	:	12 Ton/Day Evaporator 1 x 9 Ton/Day Evaporator
Fresh Water Capacity	:	110 cubic metres
Helideck	:	CAA/DNV Approved Rated for AS 332 Super Puma
Lifeboats	:	2 x 48 persons enclosed
Liferafts	:	8 x 16 Per SOLAS Requirements
MOB	:	Seabear 23 Inboard Diesel Davit Deployed
Work Boat	:	Cable Maintenance Vessel (CMV)

Main Engines	:	2 x Bergen Diesel BRM6 3600 HP each
Propeller	:	2 x Ulstein-Liaaen AGSc-KP Controllable Pitch
Bow Thruster	:	Ulstein-Liaaen, 150 TV, 800 HP, with Controllable Pitch Propeller
Main Generator	:	2 x Leroy Somer Shaft driven from main engines, 450 Volt, 60 Hz, 1665 KVA each
Aux Generator	:	Caterpillar 3512 900 KVA, 450 Volt
Clean Power	:	2 x 75 KVA, 208/120, 60 Hz
Incinerator	:	Teamtec/Golar Marine Trash and Waste Oil
Fire-fighting	:	HALON in Engine, Compressor, Recording And Tape Rooms. AAF Foam in Cable Area and Helideck. Paint Locker CO ₂
Hydraulic Equipment	:	ODIM

APPENDIX H: SUPPORT/CHASE BOAT OPERATIONS

Daily Operations and Location report

APPENDIX I: SMALL BOAT OPERATIONS

Small boat launches and exposure man-hours

APPENDIX J: SEISMIC LINE LOG IN SEQUENCE AND LINE NUMBER ORDER

Following is a listing of all lines acquired during the 3D and 2D areas of the Investigator Survey. These lists have been separated and sorted into Line Number and Acquisition Sequence order.

Survey: Investigator 3D (3D MSS)

List Order: Sequence Number

Seq	Line Name	Hdg	Line Type	Line Status	FSP	LSP	FcSP	LcSP
001	W00INV1840P1	189.0	Prime	Scratched	1825	930	0	0
002	W00INV2048P1	009.0	Prime	Incomplete	1001	3500	1001	3395
003	W00INV1936P1	189.0	Prime	Incomplete	3617	817	3617	817
004	W00INV1952P1	009.0	Prime	Completed	1001	3784	1001	3784
005	W00INV2032P1	189.0	Prime	Completed	3515	817	3515	817
006	W00INV2016P1	009.0	Prime	Completed	1001	3716	1001	3716
007	W00INV1968P1	189.0	Prime	Completed	3583	818	3583	818
008	W00INV1888P1	009.0	Prime	Completed	1001	3852	1001	3852
009	W00INV2026P1	009.0	Prime	Scratched	1168	2925	0	0
010	W00INV1954P1	189.0	Reshoot	Completed	3599	817	0	0
011	W00INV2026P2	009.0	Reshoot	Completed	1001	3706	0	0
012	W00INV1918P1	009.0	Prime	Completed	1001	3822	1001	3822
013	W00INV1906P1	189.0	Prime	Completed	3651	817	3651	817
014	W00INV1894P1	009.0	Reshoot	Completed	1001	3848	0	0
015	W00INV2014P1	189.0	Prime	Completed	3536	817	3536	817
016	W00INV1966P1	009.0	Prime	Completed	1001	3770	1001	3770
017	W00INV1894I1	189.0	Infill	Completed	3663	817	3663	817
018	W00INV2002P1	009.0	Prime	Completed	1001	3732	1001	3732
019	W00INV1882P1	189.0	Prime	Completed	3675	818	3675	818
020	W00INV1870P1	009.0	Prime	Completed	1001	3872	1001	3872
021	W00INV1990P1	189.0	Prime	Incomplete	3561	2040	3561	2040
022	W00INV2048R1	009.0	Prime	Completed	3396	3683	0	0
023	W00INV1870I1	189.0	Infill	Completed	3688	817	3688	817
024	W00INV1942I1	009.0	Infill	Completed	1125	2540	1125	2540
024	W00INV1942I1	009.0	Infill	Completed	3120	3796	3120	3796
025	W00INV1858P1	189.0	Prime	Completed	3701	817	3701	817
026	W00INV1978P1	009.0	Prime	Completed	1001	3757	1001	3757
027	W00INV1978I1	189.0	Prime	Completed	2039	1177	2039	1177
027	W00INV1978I1	189.0	Prime	Completed	1176	817	0	0
027	W00INV1978I1	189.0	Infill	Completed	3573	2040	3573	2040
028	W00INV1846P1	009.0	Prime	Completed	1001	3898	0	0
029	W00INV1906R1	189.0	Reshoot	Scratched	3650	3637	0	0
030	W00INV2002I1	009.0	Infill	Completed	1001	2179	1001	2179
031	W00INV1918R1	009.0	Reshoot	Scratched	1001	1113	0	0
032	W00INV1918R2	009.0	Reshoot	Scratched	1001	1282	0	0
033	W00INV2026I2	189.0	Infill	Completed	1350	817	1350	817
034	W00INV1918R3	009.0	Reshoot	Completed	1001	3821	0	0
035	W00INV2038I1	189.0	Infill	Completed	3420	2952	3420	2952
036	W00INV1930R1	189.0	Reshoot	Completed	1913	1877	0	0
037	W00INV1846I1	009.0	Infill	Scratched	0	0	0	0
038	W00INV1906R2	189.0	Reshoot	Scratched	0	0	0	0
039	W00INV1906R3	189.0	Reshoot	Scratched	0	0	0	0
040	W00INV1906R4	189.0	Reshoot	Completed	3650	817	0	0
041	W00INV1918I1	009.0	Infill	Completed	1001	3821	1001	3821
042	W00INV1894I2	189.0	Infill	Incomplete	3663	1839	3663	1839
043	W00INV1894I3	189.0	Infill	Completed	1838	817	1838	817
044	W00INV1666P1	009.0	Prime	Completed	1001	4988	1001	4988
045	W00INV1834P1	189.0	Prime	Completed	4637	817	4637	817
046	W00INV1654P1	009.0	Prime	Completed	1001	5000	1001	5000
047	W00INV1834I1	189.0	Infill	Completed	4637	817	4637	817
048	W00INV1642P1	009.0	Prime	Completed	1001	5012	1001	5012
049	W00INV1822P1	189.0	Prime	Incomplete	4649	2665	4649	2665
050	W00INV1822P2	189.0	Prime	Completed	2664	817	2664	817
051	W00INV1630P1	009.0	Prime	Completed	1001	5024	1001	5024
052	W00INV1810P1	189.0	Prime	Completed	4661	817	4661	817
053	W00INV1618P1	009.0	Prime	Completed	1001	5036	1001	5036
054	W00INV1798P1	189.0	Prime	Incomplete	4673	1650	4673	1650
055	W00INV1606P1	009.0	Prime	Scratched	1388	3902	0	0
056	W00INV1630I1	009.0	Infill	Scratched	3350	3375	0	0
057	W00INV1846I2	189.0	Infill	Completed	2700	817	2700	817
058	W00INV1606P2	009.0	Prime	Scratched	1001	1763	0	0
059	W00INV1786P1	189.0	Prime	Incomplete	4685	1874	4685	1874
060	W00INV1798P2	189.0	Prime	Completed	1649	817	1649	817
061	W00INV1606P3	009.0	Prime	Completed	1001	5048	1001	5048
062	W00INV1774P1	189.0	Prime	Completed	4697	817	4697	817
063	W00INV1594P1	009.0	Prime	Completed	1001	5060	1001	5060
064	W00INV1762P1	189.0	Prime	Completed	4709	818	4709	818
065	W00INV1594I1	009.0	Infill	Completed	1001	5060	1001	5060

066	W00INV1750P1	189.0	Prime	Completed	4721	817	4721	817
067	W00INV1582P1	009.0	Prime	Incomplete	1001	2557	1001	2500
068	W00INV1786P2	189.0	Prime	Incomplete	1873	1128	1873	1200
069	W00INV1582P2	009.0	Prime	Completed	2501	5072	2501	5072
070	W00INV1750I1	189.0	Infill	Incomplete	4721	3250	4721	3250
071	W00INV1570P1	009.0	Prime	Completed	1850	5073	1850	5073
072	W00INV1750I2	198.0	Infill	Completed	3249	817	3249	817
073	W00INV1570P2	009.0	Prime	Completed	1001	1849	1001	1849
074	W00INV1786P3	189.0	Infill	Completed	1900	1200	1900	1200
074	W00INV1786P3	189.0	Prime	Completed	1199	817	1199	817
075	W00INV1570I1	009.0	Infill	Completed	1001	5073	1001	5073
076	W00INV1738P1	189.0	Prime	Completed	4733	817	4733	817
077	W00INV1558P1	009.0	Prime	Incomplete	1001	2782	1001	2782
078	W00INV1558P2	009.0	Prime	Completed	2783	5073	2783	5073
079	W00INV1726P1	189.0	Prime	Completed	4745	817	4745	817
080	W00INV1546P1	009.0	Prime	Completed	1001	5073	1001	5073
081	W00INV1714P1	189.0	Prime	Completed	4757	817	4757	817
082	W00INV1534P1	009.0	Prime	Completed	1001	5073	1001	5073
083	W00INV1714I1	189.0	Infill	Scratched	4757	4564	0	0
084	W00INV1534I1	009.0	Infill	Scratched	1001	5073	1001	5073
085	W00INV1522P1	009.0	Prime	Completed	1001	5073	1001	5073
086	W00INV1714I2	189.0	Infill	Completed	4757	817	4757	817
087	W00INV1510P1	009.0	Prime	Completed	1001	5073	1001	5073
088	W00INV1702P1	189.0	Prime	Completed	4768	817	4768	817
089	W00INV1678P1	009.0	Prime	Completed	1001	4976	1001	4976
090	W00INV1498P1	189.0	Prime	Completed	4889	817	4889	817
091	W00INV1690P1	009.0	Prime	Completed	1001	4964	1001	4964
092	W00INV1606I1	189.0	Infill	Completed	3830	817	3830	817
093	W00INV1702I1	189.0	Infill	Scratched	4768	4387	0	0
094	W00INV1702I2	189.0	Infill	Completed	4768	817	4768	817
095	W00INV1798I1	009.0	Infill	Completed	1001	4530	1001	4530
096	W00INV1846I3	189.0	Infill	Scratched	3670	1830	3670	1830
096	W00INV1846I3	189.0	Prime	Scratched	1344	1161	0	0
097	W00INV1534I2	009.0	Infill	Scratched	1001	5073	0	0
098	W00INV1534I3	009.0	Infill	Incomplete	1001	2931	1001	2931
099	W00INV1534I4	009.0	Infill	Scratched	2932	5073	0	0
100	W00INV1690I1	189.0	Infill	Completed	4780	2520	4780	2520
100	W00INV1690I1	189.0	Infill	Completed	1660	817	1660	817
101	W00INV1522I1	009.0	Infill	Scratched	1480	1700	0	0
102	W00INV1534I5	009.0	Infill	Scratched	2932	5073	2932	5073
103	W00INV1846I4	189.0	Reshoot	Completed	1344	1161	0	0
103	W00INV1846I4	189.0	Reshoot	Completed	3714	1730	0	0
104	W00INV1738I1	009.0	Infill	Completed	4050	4917	4050	4917
104	W00INV1738I1	009.0	Infill	Completed	1001	1975	1001	1975
104	W00INV1738I1	009.0	Infill	Completed	2660	3570	2660	3570
105	W00INV1822I1	189.0	Infill	Completed	4600	3235	4600	3235
105	W00INV1822I1	189.0	Infill	Completed	2620	2360	2620	2360
105	W00INV1822I1	189.0	Infill	Completed	1700	768	1700	768
106	W00INV1522I2	009.0	Infill	Completed	1500	5073	1500	5073
107	W00INV1534I6	189.0	Reshoot	Completed	4889	817	0	0
107	W00INV1534I6	189.0	Infill	Completed	2931	817	2931	817
108	W00INV1642I1	009.0	Infill	Completed	1140	3175	1140	3175
108	W00INV1642I1	009.0	Infill	Completed	3496	4130	3496	4130
109	W00INV1570I2	189.0	Infill	Completed	3030	1566	3030	1566
109	W00INV1570I2	189.0	Infill	Completed	1190	817	1190	817
110	W00INV1690I2	009.0	Infill	Scratched	3180	4964	0	0
111	W00INV1690I3	009.0	Infill	Completed	3180	4964	3180	4964
112	W00INV1846I5	189.0	Infill	Completed	3714	2300	3714	2300
113	W00INV1330P1	009.0	Prime	Completed	1001	5073	1001	5073
114	W00INV1486P1	189.0	Prime	Scratched	4889	4692	0	0
115	W00INV1318P1	009.0	Prime	Completed	1001	5073	1001	5073
116	W00INV1486P2	189.0	Prime	Completed	4889	817	4889	817
117	W00INV1306P1	009.0	Prime	Completed	1001	5073	1001	5073
118	W00INV1486I1	189.0	Infill	Completed	4889	817	4889	817
119	W00INV1294P1	009.0	Prime	Completed	1001	5073	1001	5073
120	W00INV1474P1	189.0	Prime	Completed	4889	817	4889	817
121	W00INV1282P1	009.0	Prime	Completed	1001	5073	1001	5073
122	W00INV1462P1	189.0	Prime	Completed	4889	817	4889	817
123	W00INV1270P1	009.0	Prime	Completed	1001	5073	1001	5073

124	W00INV1462I1	189.0	Infill	Completed	4889	817	4889	817
125	W00INV1270I1	009.0	Infill	Completed	1001	5073	1001	5073
126	W00INV1450P1	189.0	Prime	Completed	4889	817	4889	817
127	W00INV1258P1	009.0	Prime	Completed	1001	5073	1001	5073
128	W00INV1438P1	189.0	Prime	Scratched	4889	3656	0	0
129	W00INV1246P1	009.0	Prime	Completed	1001	5073	1001	5073
130	W00INV1438P2	189.0	Prime	Completed	4889	817	4889	817
131	W00INV1234P1	009.0	Prime	Completed	1001	5073	1001	5073
132	W00INV1426P1	189.0	Prime	Completed	4889	817	4889	817
133	W00INV1222P1	009.0	Prime	Completed	1001	5073	1001	5073
134	W00INV1414P1	189.0	Prime	Completed	4889	817	4889	817
135	W00INV1210P1	009.0	Prime	Completed	1001	5073	1001	5073
136	W00INV1414I1	189.0	Infill	Completed	4889	817	4889	817
137	W00INV1198P1	009.0	Prime	Completed	1001	5073	1001	5073
138	W00INV1402P1	189.0	Prime	Completed	4889	817	4889	817
139	W00INV1198I1	009.0	Infill	Completed	1001	5073	1001	5073
140	W00INV1390P1	189.0	Prime	Completed	4889	817	4889	817
141	W00INV1186P1	009.0	Prime	Completed	1001	5073	1001	5073
142	W00INV1342P1	009.0	Prime	Completed	1001	5073	1001	5073
143	W00INV1378P1	189.0	Prime	Completed	4889	817	4889	817
144	W00INV1354P1	009.0	Prime	Completed	1002	5073	1002	5073
145	W00INV1366P1	189.0	Prime	Completed	4889	817	4889	817
146	W00INV1366I1	009.0	Infill	Completed	1001	5073	1001	5073
147	W00INV1342I1	189.0	Infill	Incomplete	4889	1770	4889	1770

Survey: Investigator 3D (3D MSS)

List Order: Line Number

Seq	Line Name	Hdg	Line Type	Line Status	FSP	LSP	FcSP	LcSP
141	W00INV1186P1	009.0	Prime	Completed	1001	5073	1001	5073
137	W00INV1198P1	009.0	Prime	Completed	1001	5073	1001	5073
139	W00INV1198I1	009.0	Infill	Completed	1001	5073	1001	5073
135	W00INV1210P1	009.0	Prime	Completed	1001	5073	1001	5073
133	W00INV1222P1	009.0	Prime	Completed	1001	5073	1001	5073
131	W00INV1234P1	009.0	Prime	Completed	1001	5073	1001	5073
129	W00INV1246P1	009.0	Prime	Completed	1001	5073	1001	5073
127	W00INV1258P1	009.0	Prime	Completed	1001	5073	1001	5073
123	W00INV1270P1	009.0	Prime	Completed	1001	5073	1001	5073
125	W00INV1270I1	009.0	Infill	Completed	1001	5073	1001	5073
121	W00INV1282P1	009.0	Prime	Completed	1001	5073	1001	5073
119	W00INV1294P1	009.0	Prime	Completed	1001	5073	1001	5073
117	W00INV1306P1	009.0	Prime	Completed	1001	5073	1001	5073
115	W00INV1318P1	009.0	Prime	Completed	1001	5073	1001	5073
113	W00INV1330P1	009.0	Prime	Completed	1001	5073	1001	5073
142	W00INV1342P1	009.0	Prime	Completed	1001	5073	1001	5073
147	W00INV1342I1	189.0	Infill	Incomplete	4889	1770	4889	1770
144	W00INV1354P1	009.0	Prime	Completed	1002	5073	1002	5073
145	W00INV1366P1	189.0	Prime	Completed	4889	817	4889	817
146	W00INV1366I1	009.0	Infill	Completed	1001	5073	1001	5073
143	W00INV1378P1	189.0	Prime	Completed	4889	817	4889	817
140	W00INV1390P1	189.0	Prime	Completed	4889	817	4889	817
138	W00INV1402P1	189.0	Prime	Completed	4889	817	4889	817
134	W00INV1414P1	189.0	Prime	Completed	4889	817	4889	817
136	W00INV1414I1	189.0	Infill	Completed	4889	817	4889	817
132	W00INV1426P1	189.0	Prime	Completed	4889	817	4889	817
128	W00INV1438P1	189.0	Prime	Scratched	4889	3656	0	0
130	W00INV1438P2	189.0	Prime	Completed	4889	817	4889	817
126	W00INV1450P1	189.0	Prime	Completed	4889	817	4889	817
122	W00INV1462P1	189.0	Prime	Completed	4889	817	4889	817
124	W00INV1462I1	189.0	Infill	Completed	4889	817	4889	817
120	W00INV1474P1	189.0	Prime	Completed	4889	817	4889	817
114	W00INV1486P1	189.0	Prime	Scratched	4889	4692	0	0
116	W00INV1486P2	189.0	Prime	Completed	4889	817	4889	817
118	W00INV1486I1	189.0	Infill	Completed	4889	817	4889	817
090	W00INV1498P1	189.0	Prime	Completed	4889	817	4889	817
087	W00INV1510P1	009.0	Prime	Completed	1001	5073	1001	5073
085	W00INV1522P1	009.0	Prime	Completed	1001	5073	1001	5073
101	W00INV1522I1	009.0	Infill	Scratched	1480	1700	0	0
106	W00INV1522I2	009.0	Infill	Completed	1500	5073	1500	5073
082	W00INV1534P1	009.0	Prime	Completed	1001	5073	1001	5073
084	W00INV1534I1	009.0	Infill	Scratched	1001	5073	1001	5073
097	W00INV1534I2	009.0	Infill	Scratched	1001	5073	0	0
098	W00INV1534I3	009.0	Infill	Incomplete	1001	2931	1001	2931
099	W00INV1534I4	009.0	Infill	Scratched	2932	5073	0	0
102	W00INV1534I5	009.0	Infill	Scratched	2932	5073	2932	5073
107	W00INV1534I6	189.0	Infill	Completed	2931	817	2931	817
107	W00INV1534I6	189.0	Reshoot	Completed	4889	817	0	0
080	W00INV1546P1	009.0	Prime	Completed	1001	5073	1001	5073
077	W00INV1558P1	009.0	Prime	Incomplete	1001	2782	1001	2782
078	W00INV1558P2	009.0	Prime	Completed	2783	5073	2783	5073
071	W00INV1570P1	009.0	Prime	Incomplete	1850	5073	1850	5073
073	W00INV1570P2	009.0	Prime	Completed	1001	1849	1001	1849
075	W00INV1570I1	009.0	Infill	Completed	1001	5073	1001	5073
109	W00INV1570I2	189.0	Infill	Completed	1190	817	1190	817
109	W00INV1570I2	189.0	Infill	Completed	3030	1566	3030	1566
067	W00INV1582P1	009.0	Prime	Incomplete	1001	2557	1001	2500
069	W00INV1582P2	009.0	Prime	Completed	2501	5072	2501	5072
063	W00INV1594P1	009.0	Prime	Completed	1001	5060	1001	5060
065	W00INV1594I1	009.0	Infill	Completed	1001	5060	1001	5060
055	W00INV1606P1	009.0	Prime	Scratched	1388	3902	0	0
058	W00INV1606P2	009.0	Prime	Scratched	1001	1763	0	0
061	W00INV1606P3	009.0	Prime	Completed	1001	5048	1001	5048
092	W00INV1606I1	189.0	Infill	Completed	3830	817	3830	817
053	W00INV1618P1	009.0	Prime	Completed	1001	5036	1001	5036
051	W00INV1630P1	009.0	Prime	Completed	1001	5024	1001	5024
056	W00INV1630I1	009.0	Infill	Scratched	3350	3375	0	0
048	W00INV1642P1	009.0	Prime	Completed	1001	5012	1001	5012

108	W00INV1642I1	009.0	Infill	Completed	1140	3175	1140	3175
108	W00INV1642I1	009.0	Infill	Completed	3496	4130	3496	4130
046	W00INV1654P1	009.0	Prime	Completed	1001	5000	1001	5000
044	W00INV1666P1	009.0	Prime	Completed	1001	4988	1001	4988
089	W00INV1678P1	009.0	Prime	Completed	1001	4976	1001	4976
091	W00INV1690P1	009.0	Prime	Completed	1001	4964	1001	4964
100	W00INV1690I1	189.0	Infill	Completed	4780	2520	4780	2520
100	W00INV1690I1	189.0	Infill	Completed	1660	817	1660	817
110	W00INV1690I2	009.0	Infill	Scratched	3180	4964	0	0
111	W00INV1690I3	009.0	Infill	Completed	3180	4964	3180	4964
088	W00INV1702P1	189.0	Prime	Completed	4768	817	4768	817
093	W00INV1702I1	189.0	Infill	Scratched	4768	4387	0	0
094	W00INV1702I2	189.0	Infill	Completed	4768	817	4768	817
081	W00INV1714P1	189.0	Prime	Completed	4757	817	4757	817
083	W00INV1714I1	189.0	Infill	Scratched	4757	4564	0	0
086	W00INV1714I2	189.0	Infill	Completed	4757	817	4757	817
079	W00INV1726P1	189.0	Prime	Completed	4745	817	4745	817
076	W00INV1738P1	189.0	Prime	Completed	4733	817	4733	817
104	W00INV1738I1	009.0	Infill	Completed	4050	4917	4050	4917
104	W00INV1738I1	009.0	Infill	Completed	1001	1975	1001	1975
104	W00INV1738I1	009.0	Infill	Completed	2660	3570	2660	3570
066	W00INV1750P1	189.0	Prime	Completed	4721	817	4721	817
070	W00INV1750I1	189.0	Infill	Incomplete	4721	3250	4721	3250
072	W00INV1750I2	198.0	Infill	Completed	3249	817	3249	817
064	W00INV1762P1	189.0	Prime	Completed	4709	818	4709	818
062	W00INV1774P1	189.0	Prime	Completed	4697	817	4697	817
059	W00INV1786P1	189.0	Prime	Incomplete	4685	1874	4685	1874
068	W00INV1786P2	189.0	Prime	Incomplete	1873	1128	1873	1200
074	W00INV1786P3	189.0	Infill	Completed	1900	1200	1900	1200
074	W00INV1786P3	189.0	Prime	Completed	1199	817	1199	817
054	W00INV1798P1	189.0	Prime	Incomplete	4673	1650	4673	1650
060	W00INV1798P2	189.0	Prime	Completed	1649	817	1649	817
095	W00INV1798I1	009.0	Infill	Completed	1001	4530	1001	4530
052	W00INV1810P1	189.0	Prime	Completed	4661	817	4661	817
049	W00INV1822P1	189.0	Prime	Incomplete	4649	2665	4649	2665
050	W00INV1822P2	189.0	Prime	Completed	2664	817	2664	817
105	W00INV1822I1	189.0	Infill	Completed	1700	768	1700	768
105	W00INV1822I1	189.0	Infill	Completed	2620	2360	2620	2360
105	W00INV1822I1	189.0	Infill	Completed	4600	3235	4600	3235
045	W00INV1834P1	189.0	Prime	Completed	4637	817	4637	817
047	W00INV1834I1	189.0	Infill	Completed	4637	817	4637	817
001	W00INV1840P1	189.0	Prime	Scratched	1825	930	0	0
028	W00INV1846P1	009.0	Prime	Completed	1001	3898	0	0
037	W00INV1846I1	009.0	Infill	Scratched	0	0	0	0
057	W00INV1846I2	189.0	Infill	Completed	2700	817	2700	817
096	W00INV1846I3	189.0	Infill	Scratched	3670	1830	3670	1830
096	W00INV1846I3	189.0	Prime	Scratched	1344	1161	0	0
103	W00INV1846I4	189.0	Reshoot	Completed	3714	1730	0	0
103	W00INV1846I4	189.0	Reshoot	Completed	1344	1161	0	0
112	W00INV1846I5	189.0	Infill	Completed	3714	2300	3714	2300
025	W00INV1858P1	189.0	Prime	Completed	3701	817	3701	817
020	W00INV1870P1	009.0	Prime	Completed	1001	3872	1001	3872
023	W00INV1870I1	189.0	Infill	Completed	3688	817	3688	817
019	W00INV1882P1	189.0	Prime	Completed	3675	818	3675	818
008	W00INV1888P1	009.0	Prime	Completed	1001	3852	1001	3852
014	W00INV1894P1	009.0	Reshoot	Completed	1001	3848	0	0
017	W00INV1894I1	189.0	Infill	Completed	3663	817	3663	817
042	W00INV1894I2	189.0	Infill	Incomplete	3663	1839	3663	1839
043	W00INV1894I3	189.0	Infill	Completed	1838	817	1838	817
013	W00INV1906P1	189.0	Prime	Completed	3651	817	3651	817
029	W00INV1906R1	189.0	Reshoot	Scratched	3650	3637	0	0
038	W00INV1906R2	189.0	Reshoot	Scratched	0	0	0	0
039	W00INV1906R3	189.0	Reshoot	Scratched	0	0	0	0
040	W00INV1906R4	189.0	Reshoot	Completed	3650	817	0	0
012	W00INV1918P1	009.0	Prime	Completed	1001	3822	1001	3822
031	W00INV1918R1	009.0	Reshoot	Scratched	1001	1113	0	0
032	W00INV1918R2	009.0	Reshoot	Scratched	1001	1282	0	0
034	W00INV1918R3	009.0	Reshoot	Completed	1001	3821	0	0
041	W00INV1918I1	009.0	Infill	Completed	1001	3821	1001	3821

036	W00INV1930R1	189.0	Reshoot	Completed	1913	1877	0	0
003	W00INV1936P1	189.0	Prime	Incomplete	3617	817	3617	817
024	W00INV1942I1	009.0	Infill	Completed	1125	2540	1125	2540
024	W00INV1942I1	009.0	Infill	Completed	3120	3796	3120	3796
004	W00INV1952P1	009.0	Prime	Completed	1001	3784	1001	3784
010	W00INV1954P1	189.0	Reshoot	Completed	3599	817	0	0
016	W00INV1966P1	009.0	Prime	Completed	1001	3770	1001	3770
007	W00INV1968P1	189.0	Prime	Completed	3583	818	3583	818
026	W00INV1978P1	009.0	Prime	Completed	1001	3757	1001	3757
027	W00INV1978I1	189.0	Prime	Completed	1176	817	0	0
027	W00INV1978I1	189.0	Prime	Completed	2039	1177	2039	1177
027	W00INV1978I1	189.0	Infill	Completed	3573	2040	3573	2040
021	W00INV1990P1	189.0	Prime	Incomplete	3561	2040	3561	2040
018	W00INV2002P1	009.0	Prime	Completed	1001	3732	1001	3732
030	W00INV2002I1	009.0	Infill	Completed	1001	2179	1001	2179
015	W00INV2014P1	189.0	Prime	Completed	3536	817	3536	817
006	W00INV2016P1	009.0	Prime	Completed	1001	3716	1001	3716
009	W00INV2026P1	009.0	Prime	Scratched	1168	2925	0	0
011	W00INV2026P2	009.0	Reshoot	Completed	1001	3706	0	0
033	W00INV2026I2	189.0	Infill	Completed	1350	817	1350	817
005	W00INV2032P1	189.0	Prime	Completed	3515	817	3515	817
035	W00INV2038I1	189.0	Infill	Completed	3420	2952	3420	2952
002	W00INV2048P1	009.0	Prime	Incomplete	1001	3500	1001	3395
022	W00INV2048R1	009.0	Prime	Completed	3396	3683	0	0

Survey: Investigator 2D (2D)List Order: Sequence Number

Seq	Line Name	Hdg	Line Type	Line Status	FSP	LSP	FcSP	LcSP
148	W00INV0006	009.0	2D	Scratched	1070	2478	0	0
149	W00INV0004P1	010.0	2D	Completed	1001	2508	1001	2508
150	W00INV0007P1	188.0	2D	Completed	1801	909	1801	909
151	W00INV0006P2	009.0	2D	Incomplete	3286	1114	3286	1114
152	W00INV0005P1	152.0	2D	Incomplete	2415	1820	2415	1820

List Order: Line Number

Seq	Line Name	Hdg	Line Type	Line Status	FSP	LSP	FcSP	LcSP
149	W00INV0004P1	010.0	2D	Completed	1001	2508	1001	2508
152	W00INV0005P1	152.0	2D	Incomplete	2415	1820	2415	1820
148	W00INV0006	009.0	2D	Scratched	1070	2478	0	0
151	W00INV0006P2	009.0	2D	Incomplete	3286	1114	3286	1114
150	W00INV0007P1	188.0	2D	Completed	1801	909	1801	909

APPENDIX K: SEISMIC TAPE LOG IN SEQUENCE AND LINE NUMBER ORDER

Following is a listing of data tape usage during the 3D and 2D areas of the Investigator Survey. These lists have been separated and sorted into Line Number and Acquisition Sequence order.

Seismic Tape Log

Survey: Investigator 3D (3D MSS)

List Order: Sequence Number

Seq	Line Name	Line Type	Line Status	Tape		Sys. 1		Tape		Sys. 2		Shot		Points		Files		Rec. #	
				First	Last	First	Last	First	Last	First	Last	First	Last	First	Last	First	Last		
001	W00INV1840P1	Prime	Scratched	30301	30304							1825	930	0	0				
002	W00INV2048P1	Prime	Incomplete	30305	30313							1001	3500	240	2631				
003	W00INV1936P1	Prime	Incomplete	30314	30327							3617	817	185	2958				
004	W00INV1952P1	Prime	Completed	30329	30338							1001	3784	147	2930				
005	W00INV2032P1	Prime	Completed	30339	30348							3515	817	176	2874				
006	W00INV2016P1	Prime	Completed	30349	30357							1001	3716	215	2930				
007	W00INV1968P1	Prime	Completed	30358	30366							3583	818	186	2949				
008	W00INV1888P1	Prime	Completed	30367	30375							1001	3852	186	3037				
009	W00INV2026P1	Prime	Scratched	30376	30382							1168	2925	107	1858				
010	W00INV1954P1	Reshoot	Completed	30383	30389							3599	817	180	2962				
011	W00INV2026P2	Reshoot	Completed	30390	30396							1001	3706	166	2869				
012	W00INV1918P1	Prime	Completed	30397	30403							1001	3822	171	2991				
013	W00INV1906P1	Prime	Completed	30404	30410							3651	817	168	3002				
014	W00INV1894P1	Reshoot	Completed	30411	30417							1001	3848	159	3004				
015	W00INV2014P1	Prime	Completed	30418	30424							3536	817	138	2857				
016	W00INV1966P1	Prime	Completed	30425	30431							1001	3770	119	2885				
017	W00INV1894I1	Infill	Completed	30432	30438							3663	817	179	3025				
018	W00INV2002P1	Prime	Completed	30429	30445							1001	3732	161	2889				
019	W00INV1882P1	Prime	Completed	30446	30452							3675	818	162	3019				
020	W00INV1870P1	Prime	Completed	30453	30459							1001	3872	199	3069				
021	W00INV1990P1	Prime	Incomplete	30460	30463							3561	2040	148	1669				
022	W00INV2048R1	Prime	Completed	30464	30464							3396	3683	160	3683				
023	W00INV1870I1	Infill	Completed	30465	30471							3688	817	165	3036				
024	W00INV1942I1	Infill	Completed	30472	30475							1125	2540	172	1587				
024	W00INV1942I1	Infill	Completed	30475	30478							3120	3796	2167	2793				
025	W00INV1858P1	Prime	Completed	30479	30485							3701	817	167	3051				
026	W00INV1978P1	Prime	Completed	30486	30492							1001	3757	164	2920				
027	W00INV1978I1	Prime	Completed	30497	30498							2039	1177	1701	2564				
027	W00INV1978I1	Prime	Completed	30498	30499							1176	817	2565	2923				
027	W00INV1978I1	Infill	Completed	30493	30497							3573	2040	167	1700				
028	W00INV1846P1	Prime	Completed	30500	30506							1001	3898	113	3010				
029	W00INV1906R1	Reshoot	Scratched	30507	30507							3650	3637	173	181				
030	W00INV2002I1	Infill	Completed	30508	30510							1001	2179	143	1321				
031	W00INV1918R1	Reshoot	Scratched	30511	30511							1001	1113						
032	W00INV1918R2	Reshoot	Scratched	30512	30513							1001	1282						
033	W00INV2026I2	Infill	Completed	30514	30515							1350	817	140	673				
034	W00INV1918R3	Reshoot	Completed	30516	30522							1001	3821	119	2934				
035	W00INV2038I1	Infill	Completed	30523	30524							3420	2952	148	523				
036	W00INV1930R1	Reshoot	Completed	30525	30525							1913	1877	127	173				
037	W00INV1846I1	Infill	Scratched	30526	30527							0	0						
038	W00INV1906R2	Reshoot	Scratched	30528	30530							0	0	117	917				
039	W00INV1906R3	Reshoot	Scratched	30531	30531							0	0	113	314				
040	W00INV1906R4	Reshoot	Completed	30532	30538							3650	817	131	2961				
041	W00INV1918I1	Infill	Completed	30539	30545							1001	3821	119	2398				
042	W00INV1894I2	Infill	Incomplete	30546	30550							3663	1839	118	1942				
043	W00INV1894I3	Infill	Completed	30551	30553							1838	817	132	1163				
044	W00INV1666P1	Prime	Completed	30554	30563							1001	4988	119	4106				
045	W00INV1834P1	Prime	Completed	39564	30572							4637	817	121	3941				
046	W00INV1654P1	Prime	Completed	30573	30581							1001	5000	131	4121				
047	W00INV1834I1	Infill	Completed	30582	30590							4637	817	117	3937				
048	W00INV1642P1	Prime	Completed	30591	30599							1001	5012	132	4142				
049	W00INV1822P1	Prime	Incomplete	30600	30604							4649	2665	137	2121				
050	W00INV1822P2	Prime	Completed	3605	30609							2664	817	115	346				
051	W00INV1630P1	Prime	Completed	30610	30619							1001	5024	202	4225				
052	W00INV1810P1	Prime	Completed	30620	30629							4661	817	140	3984				
053	W00INV1618P1	Prime	Completed	30630	30639							1001	5036	139	4174				
054	W00INV1798P1	Prime	Incomplete	30640	30647							4673	1650	122	3145				
055	W00INV1606P1	Prime	Scratched	30648	30652							1388	3902	131	1619				
056	W00INV1630I1	Infill	Scratched	30653	30653							3350	3375						
057	W00INV1846I2	Infill	Completed	30654	30658							2700	817	215	2098				
058	W00INV1606P2	Prime	Scratched	30659	30661							1001	1763	140	902				
059	W00INV1786P1	Prime	Incomplete	30665	30687							4685	1874	399	3210				
060	W00INV1798P2	Prime	Completed	30687	30698							1649	817	115	947				
061	W00INV1606P3	Prime	Completed	30699	30709							1001	5048	604	4651				
062	W00INV1774P1	Prime	Completed	30710	30718							4697	817	120	4000				
063	W00INV1594P1	Prime	Completed	30719	3728							1001	5060						
064	W00INV1762P1	Prime	Completed	30729	30738							4709	818						

065	W00INV1594I1	Infill	Completed	30739	30748	1001	5060	139	4198
066	W00INV1750P1	Prime	Completed	30749	30757	4721	817	134	4038
067	W00INV1582P1	Prime	Incomplete	30758	30761	1001	2557	108	1607
068	W00INV1786P2	Prime	Incomplete	30762	30763	1873	1128	174	919
069	W00INV1582P2	Prime	Completed	30764	30769	2501	5072	151	2721
070	W00INV1750I1	Infill	Incomplete	30770	30773	4721	3250	109	1580
071	W00INV1570P1	Prime	Incomplete	30774	30781	1850	5073	111	3334
072	W00INV1750I2	Infill	Completed	30782	30787	3249	817	148	2580
073	W00INV1570P2	Prime	Completed	30788	30789	1001	1849	124	971
074	W00INV1786P3	Infill	Completed	30790	30791	1900	1200	131	847
074	W00INV1786P3	Prime	Completed	30791	30792	1199	817	848	1214
075	W00INV1570I1	Infill	Completed	30793	30802	1001	5073	129	4201
076	W00INV1738P1	Prime	Completed	30803	30810	4733	817	146	4062
077	W00INV1558P1	Prime	Incomplete	30811	30816	1001	2782		
078	W00INV1558P2	Prime	Completed	30817	30822	2783	5073	125	2425
079	W00INV1726P1	Prime	Completed	30823	30831	4745	817	134	665
080	W00INV1546P1	Prime	Completed	30832	30841	1001	5073	128	4200
081	W00INV1714P1	Prime	Completed	30842	30850	4757	817	112	4052
082	W00INV1534P1	Prime	Completed	30851	30860	1001	5073	135	4206
083	W00INV1714I1	Infill	Scratched	30861	30861	4757	4564	135	386
084	W00INV1534I1	Infill	Scratched	30862	30871	1001	5073	136	4206
085	W00INV1522P1	Prime	Completed	30872	30881	1001	5073	172	4244
086	W00INV1714I2	Infill	Completed	30882	30890	4757	817	149	4089
087	W00INV1510P1	Prime	Completed	30891	30900	1001	5073	178	4250
088	W00INV1702P1	Prime	Completed	30901	30909	4768	817	137	4088
089	W00INV1678P1	Prime	Completed	30910	30918	1001	4976	164	4139
090	W00INV1498P1	Prime	Completed	30919	30928	4889	817	160	4232
091	W00INV1690P1	Prime	Completed	30929	30937	1001	4964	139	4102
092	W00INV1606I1	Infill	Completed	30938	30944	3830	817	157	3170
093	W00INV1702I1	Infill	Scratched	30945	30945	4768	4387	159	539
094	W00INV1702I2	Infill	Completed	30946	30954	4768	817	153	4103
095	W00INV1798I1	Infill	Completed	30955	30963	1001	4530	163	3691
096	W00INV1846I3	Infill	Scratched	30964	309689	3670	1830	155	1993
096	W00INV1846I3	Prime	Scratched	30968	30969	1344	1161	2479	2662
097	W00INV1534I2	Infill	Scratched	30970	30978	1001	5073	135	4050
098	W00INV1534I3	Infill	Incomplete	30979	30983	1001	2931	151	2081
099	W00INV1534I4	Infill	Scratched	30984	30988	2932	5073	134	2276
100	W00INV1690I1	Infill	Completed	30989	30994	4780	2520	137	2397
100	W00INV1690I1	Infill	Completed	30996	30997	1660	817	3257	4100
101	W00INV1522I1	Infill	Scratched	30998	30998	1480	1700		
102	W00INV1534I5	Infill	Scratched	30999	31003	2932	5073	149	2290
103	W00INV1846I4	Reshoot	Completed	31009	31009	1344	1161	2471	2654
103	W00INV1846I4	Reshoot	Completed	31004	31008	3714	1730	135	2085
104	W00INV1738I1	Infill	Completed	31016	31018	4050	4917	3180	4047
104	W00INV1738I1	Infill	Completed	31010	31012	1001	1975	136	1105
104	W00INV1738I1	Infill	Completed	31012	31015	2660	3570	1790	2700
105	W00INV1822I1	Infill	Completed	31019	31022	4600	3235	130	1495
105	W00INV1822I1	Infill	Completed	31022	31023	2620	2360	2084	2344
105	W00INV1822I1	Infill	Completed	31023	31027	1700	768	3004	3936
106	W00INV1522I2	Infill	Completed	31028	31036	1500	5073	138	5073
107	W00INV1534I6	Reshoot	Completed	31037	31037	4889	817	140	4212
107	W00INV1534I6	Infill	Completed	31037	31046	2931	817	140	4212
108	W00INV1642I1	Infill	Completed	31047	31051	1140	3175	136	2171
108	W00INV1642I1	Infill	Completed	31051	31053	3496	4130	2492	3126
109	W00INV1570I2	Infill	Completed	31054	31057	3030	1566	139	1603
109	W00INV1570I2	Infill	Completed	31058	31060	1190	817	1979	2352
110	W00INV1690I2	Infill	Scratched	31061	31065	3180	4964	139	1923
111	W00INV1690I3	Infill	Completed	31066	31070	3180	4964	139	1923
112	W00INV1846I5	Infill	Completed	31071	31074	3714	2300	140	1554
113	W00INV1330P1	Prime	Completed	31075	31084	1001	5073	138	4208
114	W00INV1486P1	Prime	Scratched	31085	31085	4889	4692	138	335
115	W00INV1318P1	Prime	Completed	31086	31095	1001	5073	137	4209
116	W00INV1486P2	Prime	Completed	31096	31105	4889	817	138	4210
117	W00INV1306P1	Prime	Completed	31106	31116	1001	5073	141	4213
118	W00INV1486I1	Infill	Completed	31117	31125	4889	817	141	4212
119	W00INV1294P1	Prime	Completed	31127	31136	1001	5073	140	4212
120	W00INV1474P1	Prime	Completed	31137	31146	4889	817	163	4235
121	W00INV1282P1	Prime	Completed	31147	31156	1001	5073	171	4243
122	W00INV1462P1	Prime	Completed	31157	31166	4889	817	140	4212

123	W00INV1270P1	Prime	Completed	31167	31176	1001	5073	138	4210
124	W00INV1462I1	Infill	Completed	31177	31192	4889	817	139	4211
125	W00INV1270I1	Infill	Completed	31193	31202	1001	5073	151	4223
126	W00INV1450P1	Prime	Completed	31203	31212	4889	817	137	4209
127	W00INV1258P1	Prime	Completed	31213	31222	1001	5073	139	4209
128	W00INV1438P1	Prime	Scratched	31223	31225	4889	3656	135	1368
129	W00INV1246P1	Prime	Completed	31226	31235	1001	5073	140	4208
130	W00INV1438P2	Prime	Completed	31236	31245	4889	817	137	4209
131	W00INV1234P1	Prime	Completed	31246	31255	1001	5073	140	4194
132	W00INV1426P1	Prime	Completed	31256	31265	4889	817	161	4233
133	W00INV1222P1	Prime	Completed	31266	31275	1001	5073	140	4211
134	W00INV1414P1	Prime	Completed	31276	31285	4889	817	138	4210
135	W00INV1210P1	Prime	Completed	31286	31295	1001	5073	140	4212
136	W00INV1414I1	Infill	Completed	31296	31305	4889	817	103	4174
137	W00INV1198P1	Prime	Completed	31306	31315	1001	5073	139	4211
138	W00INV1402P1	Prime	Completed	31316	31325	4889	817	140	4211
139	W00INV1198I1	Infill	Completed	31326	31335	1001	5073	140	4212
140	W00INV1390P1	Prime	Completed	31336	31345	4889	817	140	4212
141	W00INV1186P1	Prime	Completed	31346	31355	1001	5073	135	4207
142	W00INV1342P1	Prime	Completed	31357	31366	1001	5073	125	4196
143	W00INV1378P1	Prime	Completed	31367	31379	4889	817	138	1208
144	W00INV1354P1	Prime	Completed	31380	31391	1002	5073	133	4203
145	W00INV1366P1	Prime	Completed	31392	31401	4889	817	149	4219
146	W00INV1366I1	Infill	Completed	31402	31412	1001	5073	180	4201
147	W00INV1342I1	Infill	Incomplete	31413	31420	4889	1770	131	3259

Survey: Investigator 3D (3D MSS)

List Order: Line Number

Seq	Line Name	Line Type	Line Status	Tape		Sys. 1		Tape		Sys. 2		Shot		Points		Files		Rec. #	
				First	Last	First	Last	First	Last	First	Last	First	Last	First	Last	First	Last		
141	W00INV1186P1	Prime	Completed	31346	31355					1001	5073	135	4207						
137	W00INV1198P1	Prime	Completed	31306	31315					1001	5073	139	4211						
139	W00INV1198I1	Infill	Completed	31326	31335					1001	5073	140	4212						
135	W00INV1210P1	Prime	Completed	31286	31295					1001	5073	140	4212						
133	W00INV1222P1	Prime	Completed	31266	31275					1001	5073	140	4211						
131	W00INV1234P1	Prime	Completed	31246	31255					1001	5073	140	4194						
129	W00INV1246P1	Prime	Completed	31226	31235					1001	5073	140	4208						
127	W00INV1258P1	Prime	Completed	31213	31222					1001	5073	139	4209						
123	W00INV1270P1	Prime	Completed	31167	31176					1001	5073	138	4210						
125	W00INV1270I1	Infill	Completed	31193	31202					1001	5073	151	4223						
121	W00INV1282P1	Prime	Completed	31147	31156					1001	5073	171	4243						
119	W00INV1294P1	Prime	Completed	31127	31136					1001	5073	140	4212						
117	W00INV1306P1	Prime	Completed	31106	31116					1001	5073	141	4213						
115	W00INV1318P1	Prime	Completed	31086	31095					1001	5073	137	4209						
113	W00INV1330P1	Prime	Completed	31075	31084					1001	5073	138	4208						
142	W00INV1342P1	Prime	Completed	31357	31366					1001	5073	125	4196						
147	W00INV1342I1	Infill	Incomplete	31413	31420					4889	1770	131	3259						
144	W00INV1354P1	Prime	Completed	31380	31391					1002	5073	133	4203						
145	W00INV1366P1	Prime	Completed	31392	31401					4889	817	149	4219						
146	W00INV1366I1	Infill	Completed	31402	31412					1001	5073	180	4201						
143	W00INV1378P1	Prime	Completed	31367	31379					4889	817	138	1208						
140	W00INV1390P1	Prime	Completed	31336	31345					4889	817	140	4212						
138	W00INV1402P1	Prime	Completed	31316	31325					4889	817	140	4211						
134	W00INV1414P1	Prime	Completed	31276	31285					4889	817	138	4210						
136	W00INV1414I1	Infill	Completed	31296	31305					4889	817	103	4174						
132	W00INV1426P1	Prime	Completed	31256	31265					4889	817	161	4233						
128	W00INV1438P1	Prime	Scratched	31223	31225					4889	3656	135	1368						
130	W00INV1438P2	Prime	Completed	31236	31245					4889	817	137	4209						
126	W00INV1450P1	Prime	Completed	31203	31212					4889	817	137	4209						
122	W00INV1462P1	Prime	Completed	31157	31166					4889	817	140	4212						
124	W00INV1462I1	Infill	Completed	31177	31192					4889	817	139	4211						
120	W00INV1474P1	Prime	Completed	31137	31146					4889	817	163	4235						
114	W00INV1486P1	Prime	Scratched	31085	31085					4889	4692	138	335						
116	W00INV1486P2	Prime	Completed	31096	31105					4889	817	138	4210						
118	W00INV1486I1	Infill	Completed	31117	31125					4889	817	141	4212						
090	W00INV1498P1	Prime	Completed	30919	30928					4889	817	160	4232						
087	W00INV1510P1	Prime	Completed	30891	30900					1001	5073	178	4250						
085	W00INV1522P1	Prime	Completed	30872	30881					1001	5073	172	4244						
101	W00INV1522I1	Infill	Scratched	30998	30998					1480	1700								
106	W00INV1522I2	Infill	Completed	31028	31036					1500	5073	138	5073						
082	W00INV1534P1	Prime	Completed	30851	30860					1001	5073	135	4206						
084	W00INV1534I1	Infill	Scratched	30862	30871					1001	5073	136	4206						
097	W00INV1534I2	Infill	Scratched	30970	30978					1001	5073	135	4050						
098	W00INV1534I3	Infill	Incomplete	30979	30983					1001	2931	151	2081						
099	W00INV1534I4	Infill	Scratched	30984	30988					2932	5073	134	2276						
102	W00INV1534I5	Infill	Scratched	30999	31003					2932	5073	149	2290						
107	W00INV1534I6	Infill	Completed	31037	31046					2931	817	140	4212						
107	W00INV1534I6	Reshoot	Completed	31037	31037					4889	817	140	4212						
080	W00INV1546P1	Prime	Completed	30832	30841					1001	5073	128	4200						
077	W00INV1558P1	Prime	Incomplete	30811	30816					1001	2782								
078	W00INV1558P2	Prime	Completed	30817	30822					2783	5073	125	2425						
071	W00INV1570P1	Prime	Incomplete	30774	30781					1850	5073	111	3334						
073	W00INV1570P2	Prime	Completed	30788	30789					1001	1849	124	971						
075	W00INV1570I1	Infill	Completed	30793	30802					1001	5073	129	4201						
109	W00INV1570I2	Infill	Completed	31058	31060					1190	817	1979	2352						
109	W00INV1570I2	Infill	Completed	31054	31057					3030	1566	139	1603						
067	W00INV1582P1	Prime	Incomplete	30758	30761					1001	2557	108	1607						
069	W00INV1582P2	Prime	Completed	30764	30769					2501	5072	151	2721						
063	W00INV1594P1	Prime	Completed	30719	3728					1001	5060								
065	W00INV1594I1	Infill	Completed	30739	30748					1001	5060	139	4198						
055	W00INV1606P1	Prime	Scratched	30648	30652					1388	3902	131	1619						
058	W00INV1606P2	Prime	Scratched	30659	30661					1001	1763	140	902						
061	W00INV1606P3	Prime	Completed	30699	30709					1001	5048	604	4651						
092	W00INV1606I1	Infill	Completed	30938	30944					3830	817	157	3170						
053	W00INV1618P1	Prime	Completed	30630	30639					1001	5036	139	4174						
051	W00INV1630P1	Prime	Completed	30610	30619					1001	5024	202	4225						
056	W00INV1630I1	Infill	Scratched	30653	30653					3350	3375								

048	W00INV1642P1	Prime	Completed	30591	30599	1001	5012	132	4142
108	W00INV1642I1	Infill	Completed	31047	31051	1140	3175	136	2171
108	W00INV1642I1	Infill	Completed	31051	31053	3496	4130	2492	3126
046	W00INV1654P1	Prime	Completed	30573	30581	1001	5000	131	4121
044	W00INV1666P1	Prime	Completed	30554	30563	1001	4988	119	4106
089	W00INV1678P1	Prime	Completed	30910	30918	1001	4976	164	4139
091	W00INV1690P1	Prime	Completed	30929	30937	1001	4964	139	4102
100	W00INV1690I1	Infill	Completed	30989	30994	4780	2520	137	2397
100	W00INV1690I1	Infill	Completed	30996	30997	1660	817	3257	4100
110	W00INV1690I2	Infill	Scratched	31061	31065	3180	4964	139	1923
111	W00INV1690I3	Infill	Completed	31066	31070	3180	4964	139	1923
088	W00INV1702P1	Prime	Completed	30901	30909	4768	817	137	4088
093	W00INV1702I1	Infill	Scratched	30945	30945	4768	4387	159	539
094	W00INV1702I2	Infill	Completed	30946	30954	4768	817	153	4103
081	W00INV1714P1	Prime	Completed	30842	30850	4757	817	112	4052
083	W00INV1714I1	Infill	Scratched	30861	30861	4757	4564	135	386
086	W00INV1714I2	Infill	Completed	30882	30890	4757	817	149	4089
079	W00INV1726P1	Prime	Completed	30823	30831	4745	817	134	665
076	W00INV1738P1	Prime	Completed	30803	30810	4733	817	146	4062
104	W00INV1738I1	Infill	Completed	31016	31018	4050	4917	3180	4047
104	W00INV1738I1	Infill	Completed	31010	31012	1001	1975	136	1105
104	W00INV1738I1	Infill	Completed	31012	31015	2660	3570	1790	2700
066	W00INV1750P1	Prime	Completed	30749	30757	4721	817	134	4038
070	W00INV1750I1	Infill	Incomplete	30770	30773	4721	3250	109	1580
072	W00INV1750I2	Infill	Completed	30782	30787	3249	817	148	2580
064	W00INV1762P1	Prime	Completed	30729	30738	4709	818		
062	W00INV1774P1	Prime	Completed	30710	30718	4697	817	120	4000
059	W00INV1786P1	Prime	Incomplete	30665	30687	4685	1874	399	3210
068	W00INV1786P2	Prime	Incomplete	30762	30763	1873	1128	174	919
074	W00INV1786P3	Infill	Completed	30790	30791	1900	1200	131	847
074	W00INV1786P3	Prime	Completed	30791	30792	1199	817	848	1214
054	W00INV1798P1	Prime	Incomplete	30640	30647	4673	1650	122	3145
060	W00INV1798P2	Prime	Completed	30687	30698	1649	817	115	947
095	W00INV1798I1	Infill	Completed	30955	30963	1001	4530	163	3691
052	W00INV1810P1	Prime	Completed	30620	30629	4661	817	140	3984
049	W00INV1822P1	Prime	Incomplete	30600	30604	4649	2665	137	2121
050	W00INV1822P2	Prime	Completed	3605	30609	2664	817	115	346
105	W00INV1822I1	Infill	Completed	31023	31027	1700	768	3004	3936
105	W00INV1822I1	Infill	Completed	31022	31023	2620	2360	2084	2344
105	W00INV1822I1	Infill	Completed	31019	31022	4600	3235	130	1495
045	W00INV1834P1	Prime	Completed	39564	30572	4637	817	121	3941
047	W00INV1834I1	Infill	Completed	30582	30590	4637	817	117	3937
001	W00INV1840P1	Prime	Scratched	30301	30304	1825	930	0	0
028	W00INV1846P1	Prime	Completed	30500	30506	1001	3898	113	3010
037	W00INV1846I1	Infill	Scratched	30526	30527	0	0		
057	W00INV1846I2	Infill	Completed	30654	30658	2700	817	215	2098
096	W00INV1846I3	Infill	Scratched	30964	309689	3670	1830	155	1993
096	W00INV1846I3	Prime	Scratched	30968	30969	1344	1161	2479	2662
103	W00INV1846I4	Reshoot	Completed	31004	31008	3714	1730	135	2085
103	W00INV1846I4	Reshoot	Completed	31009	31009	1344	1161	2471	2654
112	W00INV1846I5	Infill	Completed	31071	31074	3714	2300	140	1554
025	W00INV1858P1	Prime	Completed	30479	30485	3701	817	167	3051
020	W00INV1870P1	Prime	Completed	30453	30459	1001	3872	199	3069
023	W00INV1870I1	Infill	Completed	30465	30471	3688	817	165	3036
019	W00INV1882P1	Prime	Completed	30446	30452	3675	818	162	3019
008	W00INV1888P1	Prime	Completed	30367	30375	1001	3852	186	3037
014	W00INV1894P1	Reshoot	Completed	30411	30417	1001	3848	159	3004
017	W00INV1894I1	Infill	Completed	30432	30438	3663	817	179	3025
042	W00INV1894I2	Infill	Incomplete	30546	30550	3663	1839	118	1942
043	W00INV1894I3	Infill	Completed	30551	30553	1838	817	132	1163
013	W00INV1906P1	Prime	Completed	30404	30410	3651	817	168	3002
029	W00INV1906R1	Reshoot	Scratched	30507	30507	3650	3637	173	181
038	W00INV1906R2	Reshoot	Scratched	30528	30530	0	0	117	917
039	W00INV1906R3	Reshoot	Scratched	30531	30531	0	0	113	314
040	W00INV1906R4	Reshoot	Completed	30532	30538	3650	817	131	2961
012	W00INV1918P1	Prime	Completed	30397	30403	1001	3822	171	2991
031	W00INV1918R1	Reshoot	Scratched	30511	30511	1001	1113		
032	W00INV1918R2	Reshoot	Scratched	30512	30513	1001	1282		
034	W00INV1918R3	Reshoot	Completed	30516	30522	1001	3821	119	2934

041	W00INV1918I1	Infill	Completed	30539	30545	1001	3821	119	2398
036	W00INV1930R1	Reshoot	Completed	30525	30525	1913	1877	127	173
003	W00INV1936P1	Prime	Incomplete	30314	30327	3617	817	185	2958
024	W00INV1942I1	Infill	Completed	30472	30475	1125	2540	172	1587
024	W00INV1942I1	Infill	Completed	30475	30478	3120	3796	2167	2793
004	W00INV1952P1	Prime	Completed	30329	30338	1001	3784	147	2930
010	W00INV1954P1	Reshoot	Completed	30383	30389	3599	817	180	2962
016	W00INV1966P1	Prime	Completed	30425	30431	1001	3770	119	2885
007	W00INV1968P1	Prime	Completed	30358	30366	3583	818	186	2949
026	W00INV1978P1	Prime	Completed	30486	30492	1001	3757	164	2920
027	W00INV1978I1	Prime	Completed	30498	30499	1176	817	2565	2923
027	W00INV1978I1	Prime	Completed	30497	30498	2039	1177	1701	2564
027	W00INV1978I1	Infill	Completed	30493	30497	3573	2040	167	1700
021	W00INV1990P1	Prime	Incomplete	30460	30463	3561	2040	148	1669
018	W00INV2002P1	Prime	Completed	30429	30445	1001	3732	161	2889
030	W00INV2002I1	Infill	Completed	30508	30510	1001	2179	143	1321
015	W00INV2014P1	Prime	Completed	30418	30424	3536	817	138	2857
006	W00INV2016P1	Prime	Completed	30349	30357	1001	3716	215	2930
009	W00INV2026P1	Prime	Scratched	30376	30382	1168	2925	107	1858
011	W00INV2026P2	Reshoot	Completed	30390	30396	1001	3706	166	2869
033	W00INV2026I2	Infill	Completed	30514	30515	1350	817	140	673
005	W00INV2032P1	Prime	Completed	30339	30348	3515	817	176	2874
035	W00INV2038I1	Infill	Completed	30523	30524	3420	2952	148	523
002	W00INV2048P1	Prime	Incomplete	30305	30313	1001	3500	240	2631
022	W00INV2048R1	Prime	Completed	30464	30464	3396	3683	160	3683

Survey: Investigator 2D (2D)

List Order: Sequence Number

Seq	Line Name	Line Type	Line Status	Tape		Sys. 1		Tape		Sys. 2		Shot		Points		Files		Rec. #	
				First	Last	First	Last	First	Last	First	Last	First	Last	First	Last	First	Last		
148	W00INV0006	2D	Scratched	31421	31425							1070	2478						
149	W00INV0004P1	2D	Completed	31426	31429							1001	2508	186	2508				
150	W00INV0007P1	2D	Completed	31430	31431							1801	909	797	1046				
151	W00INV0006P2	2D	Incomplete	31432	31432							3286	1114	107	1379				
152	W00INV0005P1	2D	Incomplete	31433	31433							2415	1820	130	725				

List Order: Line Number

Seq	Line Name	Line Type	Line Status	First		Last		First		Last		First		Last	
				First	Last	First	Last	First	Last	First	Last				
149	W00INV0004P1	2D	Completed	31426	31429			1001	2508	186	2508				
152	W00INV0005P1	2D	Incomplete	31433	31433			2415	1820	130	725				
148	W00INV0006	2D	Scratched	31421	31425			1070	2478						
151	W00INV0006P2	2D	Incomplete	31432	31432			3286	1114	107	1379				
150	W00INV0007P1	2D	Completed	31430	31431			1801	909	797	1046				

APPENDIX L: SEISMIC PROCESSING SEQUENCE

APPENDIX M: LINE ANALYSIS LOGS