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## **1 Survey Information and Objectives**

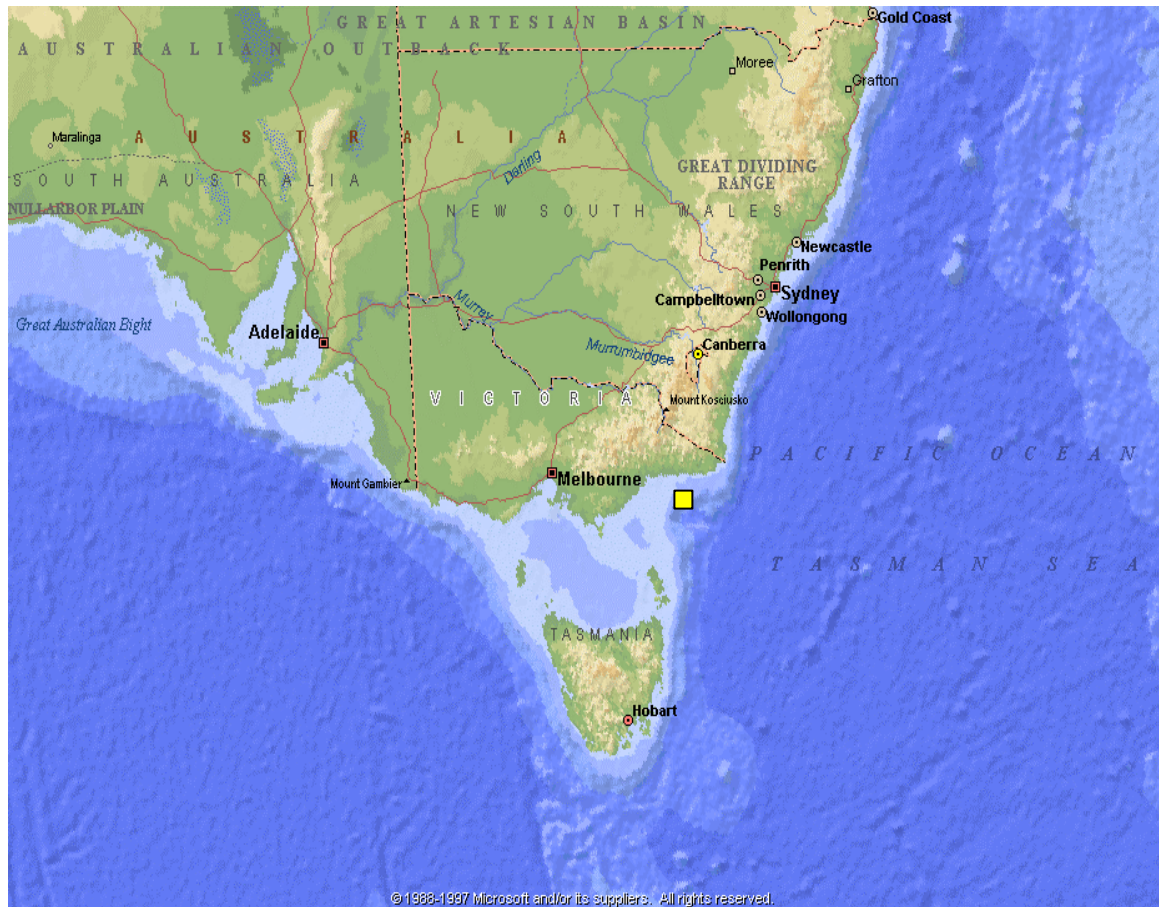
This program for **Santos Limited** (Australia), comprised 202 km of full fold 2D seismic in Victorian waters of Block VIC/RL3. Water depths range from 110 to 130m. The programme consisted of 5 strike lines, 20 dip lines. The dip lines ran North to South with the northern ends of lines running close inshore.

The ***Polar Duke*** carried out the acquisition for **Multiwave Geophysical Company ASA**. Acquisition equipment included a sleeve air gun source array of 3500 cubic inches and a single digital streamer, configured for 168 data traces and a length of 2100m. Positioning was by Differential GPS and onboard Quality Control maintained using a ProMAX QC system.

The vessel initially mobilized for Santos Limited in Cairns, Australia on 5<sup>th</sup> November and carried out several prior surveys off Victoria and Tasmania. She then proceeded directly to the survey area and commenced production on 5th January. The 24 lines of seismic data acquisition were completed in 25 line sequences by 10th January 2003.



## 2 Area Location Map









## 4 Survey Parameters and Original Line Coordinates

### Survey Report

Date Generated: 05/12/2002  
Time Generated: 11:09:27

### PSD Details

Projection Type: Transverse Mercator  
Origin Longitude: 1470000.000E  
Origin Latitude: 0000000.000N  
Scale Factor: 0.9996000000  
False Easting: 500000.00E  
False Northing: 1000000.00N

Spheroid Name: GRS 80  
Semi Major Axis: 6378137.000  
Inverse Flattening: 298.2572221

Datum Name: GDA-94  
Dx (m): 0.0  
Dy (m): 0.0  
Dz (m): 0.0  
Rx (sec): 0.0  
Ry (sec): 0.0  
Rz (sec): 0.0  
Ds (ppm): 0.0

Units: meters

### 2D Survey

Survey Name:

2D Line Name:	GS02-01		
FSP:	1001	LSP:	1317
Segment: 1			
Start Easting:	674139.99	Start Longitude:	0°00'21.827"E
Start Northing:	5777035.04	Start Latitude:	0°3'07.034"S
End Easting:	674293.37	End Longitude:	148°59'12.768"E
End Northing:	5784933.34	End Latitude:	38°3'59.710"S
Azimuth/Bearing:	359.886		
Distance:	7900 m		



## Section 1: General Information

<b>2D Line Name:</b>	GS02-02		
<b>FSP:</b>	1001	<b>LSP:</b>	1366
<b>Segment: 1</b>			
<b>Start Easting:</b>	672982.01	<b>Start Longitude:</b>	148°58'21.230"E
<b>Start Northing:</b>	5782352.0	<b>Start Latitude:</b>	38°5'24.320"S
<b>End Easting:</b>	682104.85	<b>End Longitude:</b>	149°4'35.695"E
<b>End Northing:</b>	5782159.49	<b>End Latitude:</b>	38°5'24.112"S
<b>Azimuth/Bearing:</b>	89.9915		
<b>Distance:</b>	9125 m		

<b>2D Line Name:</b>	GS02-03		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	674420.03	<b>Start Longitude:</b>	148°59'24.914"E
<b>Start Northing:</b>	5777030.04	<b>Start Latitude:</b>	38°8'15.896"S
<b>End Easting:</b>	674577.28	<b>End Longitude:</b>	148°59'24.418"E
<b>End Northing:</b>	5784928.27	<b>End Latitude:</b>	38°3'59.677"S
<b>Azimuth/Bearing:</b>	359.912		
<b>Distance:</b>	7900 m		

<b>2D Line Name:</b>	GS02-04		
<b>FSP:</b>	1001	<b>LSP:</b>	1366
<b>Segment: 1</b>			
<b>Start Easting:</b>	672944.03	<b>Start Longitude:</b>	148°58'20.550"E
<b>Start Northing:</b>	5781344.97	<b>Start Latitude:</b>	38°5'57.001"S
<b>End Easting:</b>	682067.57	<b>End Longitude:</b>	149°4'35.058"E
<b>End Northing:</b>	5781186.84	<b>End Latitude:</b>	38°5'55.676"S
<b>Azimuth/Bearing:</b>	89.7754		
<b>Distance:</b>	9125 m		

<b>2D Line Name:</b>	GS02-05		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	674662.02	<b>Start Longitude:</b>	148°59'34.854"E
<b>Start Northing:</b>	5777024.95	<b>Start Latitude:</b>	38°8'15.893"S
<b>End Easting:</b>	674843.28	<b>End Longitude:</b>	148°59'35.333"E
<b>End Northing:</b>	5784922.67	<b>End Latitude:</b>	38°3'59.674"S
<b>Azimuth/Bearing:</b>	0.0847931		
<b>Distance:</b>	7900 m		

<b>2D Line Name:</b>	GS02-06		
<b>FSP:</b>	1001	<b>LSP:</b>	1365
<b>Segment: 1</b>			
<b>Start Easting:</b>	672950.04	<b>Start Longitude:</b>	148°58'21.684"E
<b>Start Northing:</b>	5780327.0	<b>Start Latitude:</b>	38°6'30.006"S
<b>End Easting:</b>	682048.81	<b>End Longitude:</b>	149°4'35.209"E
<b>End Northing:</b>	5780183.79	<b>End Latitude:</b>	38°6'28.213"S
<b>Azimuth/Bearing:</b>	89.6841		
<b>Distance:</b>	9100 m		



## Section 1: General Information

<b>2D Line Name:</b>	GS02-07		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	675168.96	<b>Start Longitude:</b>	148°59'55.673"E
<b>Start Northing:</b>	5777018.04	<b>Start Latitude:</b>	38°8'15.763"S
<b>End Easting:</b>	675377.3	<b>End Longitude:</b>	148°59'57.242"E
<b>End Northing:</b>	5784915.08	<b>End Latitude:</b>	38°3'59.548"S
<b>Azimuth/Bearing:</b>	0.277243		
<b>Distance:</b>	7900 m		

<b>2D Line Name:</b>	GS02-08		
<b>FSP:</b>	1001	<b>LSP:</b>	1365
<b>Segment: 1</b>			
<b>Start Easting:</b>	672933.01	<b>Start Longitude:</b>	148°58'21.886"E
<b>Start Northing:</b>	5779294.99	<b>Start Latitude:</b>	38°7'03.482"S
<b>End Easting:</b>	682031.84	<b>End Longitude:</b>	149°4'35.458"E
<b>End Northing:</b>	5779154.84	<b>End Latitude:</b>	38°7'01.589"S
<b>Azimuth/Bearing:</b>	89.6642		
<b>Distance:</b>	9100 m		

<b>2D Line Name:</b>	GS02-09		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	675436.98	<b>Start Longitude:</b>	149°00'06.682"E
<b>Start Northing:</b>	5777012.04	<b>Start Latitude:</b>	38°8'15.770"S
<b>End Easting:</b>	675619.26	<b>End Longitude:</b>	149°00'07.171"E
<b>End Northing:</b>	5784909.76	<b>End Latitude:</b>	38°3'59.551"S
<b>Azimuth/Bearing:</b>	0.0866851		
<b>Distance:</b>	7900 m		

<b>2D Line Name:</b>	GS02-10		
<b>FSP:</b>	1001	<b>LSP:</b>	1310
<b>Segment: 1</b>			
<b>Start Easting:</b>	674216.99	<b>Start Longitude:</b>	148°59'12.282"E
<b>Start Northing:</b>	5781917.0	<b>Start Latitude:</b>	38°5'37.572"S
<b>End Easting:</b>	680910.72	<b>End Longitude:</b>	149°3'50.443"E
<b>End Northing:</b>	5778061.04	<b>End Latitude:</b>	38°7'37.866"S
<b>Azimuth/Bearing:</b>	118.718		
<b>Distance:</b>	7725 m		

<b>2D Line Name:</b>	GS02-11		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	675679.96	<b>Start Longitude:</b>	149°00'16.661"E
<b>Start Northing:</b>	5777008.01	<b>Start Latitude:</b>	38°8'15.731"S
<b>End Easting:</b>	675870.29	<b>End Longitude:</b>	149°00'17.471"E
<b>End Northing:</b>	5784905.57	<b>End Latitude:</b>	38°3'59.512"S
<b>Azimuth/Bearing:</b>	0.143463		
<b>Distance:</b>	7900 m		



## Section 1: General Information

<b>2D Line Name:</b>	GS02-13		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	676208.01	<b>Start Longitude:</b>	149°00'38.344"E
<b>Start Northing:</b>	5777004.02	<b>Start Latitude:</b>	38°8'15.490"S
<b>End Easting:</b>	676369.46	<b>End Longitude:</b>	149°00'37.948"E
<b>End Northing:</b>	5784902.21	<b>End Latitude:</b>	38°3'59.270"S
<b>Azimuth/Bearing:</b>	359.93		
<b>Distance:</b>	7900 m		
<b>2D Line Name:</b>	GS02-15		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	676458.97	<b>Start Longitude:</b>	149°00'48.650"E
<b>Start Northing:</b>	5777000.02	<b>Start Latitude:</b>	38°8'15.443"S
<b>End Easting:</b>	676634.44	<b>End Longitude:</b>	149°00'48.820"E
<b>End Northing:</b>	5784897.92	<b>End Latitude:</b>	38°3'59.224"S
<b>Azimuth/Bearing:</b>	0.0299924		
<b>Distance:</b>	7900 m		
<b>2D Line Name:</b>	GS02-17		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	676714.03	<b>Start Longitude:</b>	149°00'59.130"E
<b>Start Northing:</b>	5776991.03	<b>Start Latitude:</b>	38°8'15.554"S
<b>End Easting:</b>	676909.4	<b>End Longitude:</b>	149°1'00.106"E
<b>End Northing:</b>	5784888.51	<b>End Latitude:</b>	38°3'59.335"S
<b>Azimuth/Bearing:</b>	0.172177		
<b>Distance:</b>	7900 m		
<b>2D Line Name:</b>	GS02-19		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	677239.02	<b>Start Longitude:</b>	149°1'20.687"E
<b>Start Northing:</b>	5776987.04	<b>Start Latitude:</b>	38°8'15.313"S
<b>End Easting:</b>	677448.58	<b>End Longitude:</b>	149°1'22.224"E
<b>End Northing:</b>	5784884.11	<b>End Latitude:</b>	38°3'59.098"S
<b>Azimuth/Bearing:</b>	0.271886		
<b>Distance:</b>	7900 m		
<b>2D Line Name:</b>	GS02-21		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	677511.03	<b>Start Longitude:</b>	149°1'31.858"E
<b>Start Northing:</b>	5776982.99	<b>Start Latitude:</b>	38°8'15.252"S
<b>End Easting:</b>	677693.48	<b>End Longitude:</b>	149°1'32.272"E
<b>End Northing:</b>	5784880.78	<b>End Latitude:</b>	38°3'59.033"S
<b>Azimuth/Bearing:</b>	0.0734115		
<b>Distance:</b>	7900 m		



## Section 1: General Information

<b>2D Line Name:</b>	GS02-23		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	677775.96	<b>Start Longitude:</b>	149°1'42.737"E
<b>Start Northing:</b>	5776979.97	<b>Start Latitude:</b>	38°8'15.162"S
<b>End Easting:</b>	677948.58	<b>End Longitude:</b>	149°1'42.737"E
<b>End Northing:</b>	5784877.99	<b>End Latitude:</b>	38°3'58.943"S
<b>Azimuth/Bearing:</b>	0		
<b>Distance:</b>	7900 m		
<b>2D Line Name:</b>	GS02-25		
<b>FSP:</b>	1001	<b>LSP:</b>	1317
<b>Segment: 1</b>			
<b>Start Easting:</b>	678311.95	<b>Start Longitude:</b>	149°2'04.751"E
<b>Start Northing:</b>	5776970.01	<b>Start Latitude:</b>	38°8'15.104"S
<b>End Easting:</b>	678480.53	<b>End Longitude:</b>	149°2'04.564"E
<b>End Northing:</b>	5784868.13	<b>End Latitude:</b>	38°3'58.885"S
<b>Azimuth/Bearing:</b>	359.967		
<b>Distance:</b>	7900 m		
<b>2D Line Name:</b>	GS02-27		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	678574.01	<b>Start Longitude:</b>	149°2'15.511"E
<b>Start Northing:</b>	5776968.03	<b>Start Latitude:</b>	38°8'14.982"S
<b>End Easting:</b>	678741.07	<b>End Longitude:</b>	149°2'15.274"E
<b>End Northing:</b>	5784841.21	<b>End Latitude:</b>	38°3'59.573"S
<b>Azimuth/Bearing:</b>	359.958		
<b>Distance:</b>	7875 m		
<b>2D Line Name:</b>	GS02-29		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	678838.0	<b>Start Longitude:</b>	149°2'26.354"E
<b>Start Northing:</b>	5776962.01	<b>Start Latitude:</b>	38°8'14.989"S
<b>End Easting:</b>	679000.05	<b>End Longitude:</b>	149°2'25.901"E
<b>End Northing:</b>	5784835.3	<b>End Latitude:</b>	38°3'59.580"S
<b>Azimuth/Bearing:</b>	359.92		
<b>Distance:</b>	7875 m		
<b>2D Line Name:</b>	GS02-31		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	679322.04	<b>Start Longitude:</b>	149°2'46.234"E
<b>Start Northing:</b>	5776954.0	<b>Start Latitude:</b>	38°8'14.903"S
<b>End Easting:</b>	679476.05	<b>End Longitude:</b>	149°2'45.431"E
<b>End Northing:</b>	5784827.5	<b>End Latitude:</b>	38°3'59.494"S
<b>Azimuth/Bearing:</b>	359.858		
<b>Distance:</b>	7875 m		



## Section 1: General Information

<b>2D Line Name:</b>	GS02-33		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	679566.96	<b>Start Longitude:</b>	149°2'56.288"E
<b>Start Northing:</b>	5776954.04	<b>Start Latitude:</b>	38°8'14.726"S
<b>End Easting:</b>	679713.13	<b>End Longitude:</b>	149°2'55.154"E
<b>End Northing:</b>	5784827.72	<b>End Latitude:</b>	38°3'59.317"S
<b>Azimuth/Bearing:</b>	359.799		
<b>Distance:</b>	7875 m		

<b>2D Line Name:</b>	GS02-35		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	679782.98	<b>Start Longitude:</b>	149°3'05.162"E
<b>Start Northing:</b>	5776948.04	<b>Start Latitude:</b>	38°8'14.766"S
<b>End Easting:</b>	679937.08	<b>End Longitude:</b>	149°3'04.345"E
<b>End Northing:</b>	5784821.55	<b>End Latitude:</b>	38°3'59.357"S
<b>Azimuth/Bearing:</b>	359.855		
<b>Distance:</b>	7875 m		

<b>2D Line Name:</b>	GS02-37		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	680338.03	<b>Start Longitude:</b>	149°3'27.958"E
<b>Start Northing:</b>	5776938.96	<b>Start Latitude:</b>	38°8'14.662"S
<b>End Easting:</b>	680491.18	<b>End Longitude:</b>	149°3'27.079"E
<b>End Northing:</b>	5784812.51	<b>End Latitude:</b>	38°3'59.252"S
<b>Azimuth/Bearing:</b>	359.844		
<b>Distance:</b>	7875 m		


<b>2D Line Name:</b>	GS02-39		
<b>FSP:</b>	1001	<b>LSP:</b>	1316
<b>Segment: 1</b>			
<b>Start Easting:</b>	680669.96	<b>Start Longitude:</b>	149°3'41.587"E
<b>Start Northing:</b>	5776936.03	<b>Start Latitude:</b>	38°8'14.518"S
<b>End Easting:</b>	680791.14	<b>End Longitude:</b>	149°3'39.384"E
<b>End Northing:</b>	5784810.08	<b>End Latitude:</b>	38°3'59.116"S
<b>Azimuth/Bearing:</b>	359.609		
<b>Distance:</b>	7875 m		

**Total 2D Line Length:** 202.0 km




## Section 1: General Information

### 5 Contract Work Order

		<b>CONTRACT WORK ORDER</b>	
<b>GENERAL</b>			
<b>CONTRACT</b>			
Client:	Santos / OMV		
Vessel(s):	Polar Duke		
Job number:	6151		
Bid number			
Client contract number/ref:			
Location:	Gippsland Basin Block VIC/RL3		
Area:	Victoria, Australia		
Type of survey:	2D		
Area, or total kms:	202 Full-fold km		
Line heading:	Various		
Number of lines:	25 lines		
Line length:	Various		
Acquisition method:	Single streamer / single source		
Estimated start date:	5th January 2003		
Estimated duration:	3-4 days		
QHSE checklists completed			
<b>STREAMER</b>			
Type of streamer	SYNTRAK RDA Streamer		
Number of streamers	1		
Separation	n/a		
Streamer length	2100 m		
No. of channels	168		
Group interval	12.5 m		
Streamer depth	6m +/- 1 m Allowed deeper in poor swell conditions.		
Water Depth	100-2200m		
<b>RECORDING</b>			
Instrument type	SYNTRAK 960-24		
Record length	4s records		
Sample rate	2ms		
Recording filter: Hi-cut	206 Hz @ 276 dB/ Octave		
Recording filter: Lo-cut	Out: 3 Hz @ 6 dB/ Octave , IN 3 Hz @ 12 dB/ Octave		
Filter type	Linear		
Pre-Amplifier Gain	12 dB		
Tape format	Seg D Ver.1.00 8058 - 32 Bit IEEE		
Recording media	IBM 3590		
Tape Copy	Via ProMAX QC		
TOC (Diskos/Petrobank) files reqd?	No		
<b>SOURCE</b>			
Source type	Airgun		
Source controller	GCS-90		
Number of sources	1		
Source separation	n/a		
Volume per source	3500 cu.in.		
Source depth	5 m +/- 0.5 m		
Source pressure	2000 psi		
Source length	11.78 m		
Number of subarrays per source	4		
Subarray separation	6, 13, 6 m		
Flip/Flop	No		
Shot point interval per shot	18.75 m		
Shot point location	Common Midpoint		
Near fields to be recorded?	Yes		
Total SCFM required at 5.0 knots	1540		
Source firing specifications	+/- 1.25 ms		
Signed:		Operation Manager	




## Section 1: General Information

		<b>CONTRACT WORK ORDER</b>	
<b>NAVIGATION</b>		<b>Side 1</b>	
<b>Geodetic Parameters</b>			
Spheroid	GRS 80		
Semi-Major Axis	6378137		
Inverse Flattening	298.2572221		
Work Datum	GDA 94		
Datum Transformation:	0		
dX (m)	0		
dY (m)	0		
dZ (m)	0		
rX (arc secs)	0		
rY (arc secs)	0		
rZ (arc secs)	0		
Scale (ppm)	0		
Projection	Transverse Mercator		
Zone if UTM			
Central Meridian	147°E		
Scale Factor	0.9996		
False Easting (m)	500000		
False Northing (m)	10,000,000		
Latitude of Origin	0°		
<b>Datum Transformation Test-Coordinate</b>			
Transformation from Datum.	-N/A		
Transformation to Datum.	-		
Latitude in WGS 84.	-		
Longitude in WGS 84.	-		
Latitude in Local Datum.	-		
Longitude in Local Datum.	-		
Northing in Local Projection.	-		
Easting in Local Projection.	-		
<b>Geoidal Height</b>			
Location of Prospect Centre: Lat	38° 5' S		
Location of Prospect Centre: Lon.	149° E		
Source of Geoidal Height Data			
<b>Navigation System</b>			
Navigation/QC System	SPECTRA		
<b>Vessel Positioning Systems</b>			
First Navigation System	Fugro Starfix MRDGPS		
First RTCM Delivery System	Spot Optus		
DGPS Reference Stations	Melbourne, Bathurst, Adelaide, Brisbane and Dunedin		
Sub-Contractor	Fugro Survey A/S		
Contact Person	Øyvind Røegh, Tel: +47 22 13 46 43		
Second Navigation System	Fugro Starfix MRDGPS		
Second RTCM Delivery System	StarfixMN-8 via Inmarsat and Spot AP-Sat		
DGPS Reference Stations	Melbourne, Bathurst, Auckland, Kalgoorlie and Dunedin		
Sub-contractor	Fugro Survey A/S		
Contact person	Øyvind Røegh, Tel: +47 22 13 46 43		




## Section 1: General Information

	<b>CONTRACT WORK ORDER</b>	<b>Side 2</b>
<b>Streamer / Source Positioning Systems</b>		
Tailbuoy positioning	rGPS	
Streamer positioning	compasses recorded	
Source Positioning	rGPS	
<b>Line and Shot Point Numbering</b>		
Line Name Format:	Prefixes GS02-	
	followed by NN-SSS where NN is line no and SSS in sequence.	
First SP for prime lines	1001	
First SP for reshoot lines	1001	
First SP for infill lines	N/A	
Incrementing/Decrementing	Yes	
Incrementing/Decrementing factor	1	
Source firing on even numbers	-	
<b>Line and Shot Point Geometry</b>		
Shot Fire Interval	18.75 m	
Receiver Group Interval	12.5 m	
Run out	64 shots	
Number of Streamers	1	
Acquisition Geometry Type	single/single	
Offset CS - CFG	80 m	
<b>Water Depth Processing</b>		
Echosounder standard settings	VP=1500ms <sup>-1</sup> , draft=0	
Vertical datum	MSL	
Tidal corrections		
Tidal correction source		
Echosounder frequency	12 kHz	
Power output	More than 1kW	
Sea depth	More than 6000m	
<b>Gravity and Magnetics</b>		
Gravity Meter Type	n/a	
Gravity Recording Interval	n/a	
Interface to Navigation systems	n/a	
Interface to Echosounder	n/a	
Gravity Sub-Contractor	n/a	
Magnetometer Type	n/a	
Magnetometer Recording Interval	n/a	
Magnetometer Sub-Contractor	n/a	
Tape Media	n/a	
UKOOA P1/90 required	n/a	
Delivery Address		
<b>Sub Bottom Profiler</b>		
SBP Type	n/a	
SBP Sub-Contractor	n/a	
Frequency	n/a	
Transmitter Power	n/a	
Sea depth	n/a	
Notes:		
Signed: _____ Navigation Manager		




## Section 1: General Information

		<b>CONTRACT WORK ORDER</b>	
<b>I</b>		<b>NAVIGATION</b>	
		<b>Side 3</b>	
Data from	Vessel	Office	
Turnaround-	weeks		
<b>Final Processed Data</b>			
Final Deliv	Media	Copies	Notes
P1/90	CD-ROM	1	At end of survey
<b>Raw Data</b>			
P2/94	CD-ROM	1	Including GPS observations
<b>Mapping</b>			
	Media	Copies	Scale
			Notes
Post Plot	electronic	1	Best Fit
			GIF files
<b>Miscellaneous</b>			
	Media	Copies	Notes
Final Nav	CD ROM	original	
<b>Other Deliverables</b>			
Format for Naming of Final Tapes:			
<b>Client Contact and Delivery Address</b>			
Client contact and address:		Navigation deliverables address:	
		TBA	
		TBA	
<b>Special Comments</b>			
Signed:		Navigation Manager	



## Section 1: General Information

		<b>CONTRACT WORK ORDER</b>			
<b>SEISMIC QC</b>		<b>Side 4</b>			
<b>PROCESSING PRODUCTS</b>					
<b>Processing Product</b>	<b>Comment (incr)</b>	<b>Processing Product</b>	<b>Comment (incr)</b>		
Noise Record RMS	per seq. - at SOL	Brute Stack (raw)	per seq.		
Near Trace Display	per seq. - all shots	Brute Stack (filtered)	per seq.		
Shot-Trace RMS (last 500ms)	per seq. - all shots	FK & FT Analysis	as appropriate		
Ambient RMS	per seq. - all shots	Seismic Attributes	as appropriate		
Direct Arrival RMS	per seq. - all shots	Spreadsheets, logs	yes		
Raw Shot Display	per seq. - every 4th km				
Velocity Picking	per seq. - every 4th km				
CDP Gather Display	per seq. - every 4th km				
<b>DELIVERABLES</b>					
	<b>Client</b>	<b>Office</b>		<b>Client</b>	<b>Office</b>
RMS Plots	yes	n/a	QC Logs	yes	yes
Near Trace Plots	yes	n/a	Processing Report	yes	yes
Brute Stack Plots	yes	n/a			
SEG Y Brute Stacks	yes	n/a			
Velocities (ascii format)	yes	n/a			
<b>CLIENT CONTACTS AND DELIVERY ADDRESS</b>					
Client contacts and address:					
Seismic deliverables address:					
<b>COMMENTS</b>					
Signed:					



## 6 Seismic & Vessel Particulars

### 6.1 Streamer and Sensors Details

Item	description	type	amount	remark
Streamer	24 bit, digital distributed electronic	SYNTRAK RDA	Up to 4050m active	
Depth Control	Digicourse	5011	16	Located every 300m along the streamer
Buoyancy	Kerosene	Isopar		
Retrievers				1 per km
Streamer skin	Polyurethane			
Section Length	75 m			
Lead-in	300 m			
Group Length	12.5 m			
Max number of channels			324	6.25m @ 2ms

### 6.2 Recording System Details

Item	Description	Type	Amount	Remark
Acquisition	SYNTRAK	960-24		
Format	SED D	Demultiplexed		
Recording	3590 cartridge	IBM comp.	4	
Bird Controller	Digicourse	293B		
Sampling				2ms
Plotter	22"	OYO Geospace	1	
Printer	A4	Epson	3	Label
Printer	A4	HP	2	Logs, tests etc.

### 6.3 Seismic QC Details

Item	Description	Type	Amount	Remark
QC	ProMAX	2D		
Plotter	24"	OYO Geospace	1	

### 6.4 Navigation Details

Item	Description	Type	Amount	Remark
Integrated Navigation	Concept	Spectra		
Compasses	Digicourse	5011		Every 300m along the streamer.
Streamer positioning	RGPS	Various	1	Geotrack.
Source Positioning	RGPS	Various	2	Geotrack, on outer sub-arrays.
Data logging	UKOOA	P2/94 P1/90		3590, Exabyte, CD Rom.
Echo Sounder	Simrad	EA500	1	Deepwater transducer.
Gyro				As vessel description.
Helmsman Steering display	Robertson	Robtrack Helmsman		



## 7 Vessel Specifications

### M/V Polar Duke

#### Main Particulars

Loa	66,65m
L.p.p.	61,44m
B.mld.	13,00m
Draft	5,80m
Draft mld sh.deck	9,50m
Deadweight	1119mt
Fuel Oil	1000cbm
Aviation fuel	50cbm
Fresh water	85cbm
IMO No	8200838
P & I Club	Skuld
Call sign	LACS4
Built	1983
Gross/net tonnage	1646.49/493.95
Flag	Norwegian



#### Class

DnV no: 13520

DnV + 1Aa-E0-HELDK-Sealer

Classed for Worldwide trade and registered in Norwegian International Ship Register

#### Offshore survey

Designed for offshore survey, core drilling and hydrographical survey.

Separate joystick manoeuvring.

Can be arranged for ROV handling, towed vehicle, bottom sampling, site survey.

Moonpool. Ø 36 inch.

#### Research facilities

Research facilities are designed for scientific and/or logistic expeditions in Antarctic and Arctic areas.

Lab. survey area - Dry Lab. and Wet. Lab. with uncontaminated sea water system.

Separate climate control and power supply.

Separate store. High-pressure hydraulic system for additional scientific winches. TV-monitoring aft deck.

Heavy duty Mob boat for assistance.

Spare Ø16 inch bottom valve for sonar etc.

Electric and mechanical workshop facilities.

1 PC CTD Winch with 3500m wire ø 10mm speed 50m/min @ 120l/min

#### Cargo Logistics

Under deck bale capacity of about 1385cbm

Arctic fuel in ships ordinary fuel tanks.

Jet A1 fuel in separate ships tank (56cbm)

12t - 15m / 22t - 8m crane with 100m/50m wire

Provision crane 1,5t - 7,5m



## Section 1: General Information

### Electronics

Navigation and communication equipment to highest international standards, conventional as well as satellite equipment.

### Environment

Equipped with oily water separator and incinerator for garbage. Waste water treatment arrangement. Fuel oil storage arrangement to minimize risk of accidental oil spill. Separate tank for storing bilge water when in Antarctic and Arctic waters

### Accommodation

Crew: 11 cabins, 15 berths

Charterer: 15 cabins, 27 berths

Common: Hospital, 3 berths

### Icegoing

DnV- "Sealer class", hull strength as icebreaker.

Proven ice-going capability and manoeuvrability during numerous expeditions to Antarctic.

De-icing in foreship and superstructure.

All equipment well suited to harsh conditions.

Machinery cooling standby arrangement.

Impact resistant low friction paint on underwater hull

Proven rudder and propeller protection.

### Seismic Exploration Facilities

2 pc MPD Dual Umbilical winches

1 PC MPD Streamer Winch cap. 7200m + 72mm streamers

2 pc Hamworthy compressors each 800 scfm

2 pc Hamworthy compressors each 400 scfm

### Electrical power

1 x E.C.C. 1640kVA shaft generator

1 x Stamford MC 334C - 112,5kVA aux generator

1 x Stamford MC 534C - 305 kVA aux. generator

440/220V 60Hz

### Machinery

Main engine:

2 off MAK 6M 453aK 1650 kW / 2250 bhp each at 600RPM

Side thrusters:

Bow 1 x 425 kW / 570 bhp

Stern 1 x 425 kW / 570 bhp

### Helicopter Deck

Bell 212, Max 5,08 T. Not currently certified for use in the Philippines.

### Safety

Built according to DnV, Solas and Norwegian Ship Control rules. Enclosed lifeboats. Inflatable life rafts. Survival suits for all personnel. Fire detection and monitoring to highest available standard. Special helicopter deck protection arrangement. Internal communication and p.a. system. Q.A. according to highest standard (DnV-SEP). Safety and contingency manuals onboard and in use. Hospital facilities.