CPSN07B SEISMIC SURVEY

2007 SPENCER KIANA MUTEROO 3D

PPL 32, 37, 53, 67, 143 & 144 (Santos)
PEL 107 & PPL 212 (Beach Petroleum)

SOUTH AUSTRALIA

ACQUISITION REPORT

Compiled by: A. White
Santos Ltd.
January 2008

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1 INTRODUCTION

1.1 GENERAL

In the year 2007 Santos Ltd., as operator of Petroleum Production Licence (PPL) 32, 37, 53, 67, 143 & 144 and on behalf of Beach Petroleum, operator of Petroleum Exploration Licence (PEL) 107 & PPL 212, carried out approximately 165 square kilometres of 3D seismic imaging in the Spencer, Kiana & Muteroo areas as the CPSN07B Spencer Kiana Muteroo 3D Seismic Survey.

The following table details the companies involved in the acquisition of the survey.

Activity	Contractor
Line Preparation	Terrex Contracting Pty. Ltd
Surveying	Pioneer Surveys No2 Pty Ltd
Seismic Recording	Terrex Seismic (Crew 402)

Field operations were overseen by Santos Staff Geophysicist Alan Jones and in addition Santos Ltd contracted John Allen to supervise field operations. Sections below, describing field operations, are largely drawn from their observations.

Processing of the seismic data was carried out by Velsies in their centre in Brisbane, and will be the subject of a separate report.

This report describes the data acquisition of CPSN07B Spencer Kiana Muteroo 3D Seismic Survey, located approximately 60km west of the Santos Moomba facility.

1.2 TIMETABLE OF MAIN EVENTS

Date	**Activity**
14/02/2007	Notice of Intention sent to PIRSA by Beach Petroleum.
14/02/2007	Notice of Entry sent to landholders (Mungerannie, Gidgealpa, Mulka, And Strzelecki Regionsal Reserve) by Beach Petroleum
14/02/2007	Notice of Entry sent to the Dieri Native Title Claimants by Beach Petroleum.
27/02/2007	Cultural Heritage Clearance Commenced
04/03/2007	Notice sent to PIRSA of Santos taking over operation of survey from Beach Petroleum
4/03/2007	Cultural Heritage Clearance Completed
7/03/2007	Update sent to PIRSA regarding Santos taking over operation of survey
7/03/2007	Update sent to landholders regarding Santos taking over operation of survey
7/03/2007	Update sent to Dieri regarding Santos taking over operation of survey
04/04/2007	Line preparation commenced.
05/04/2007	Surveying commenced.
19/04/2007	Recording commenced.
29/04/2007	Line preparation & Surveying completed
13/05/2007	Recording completed.

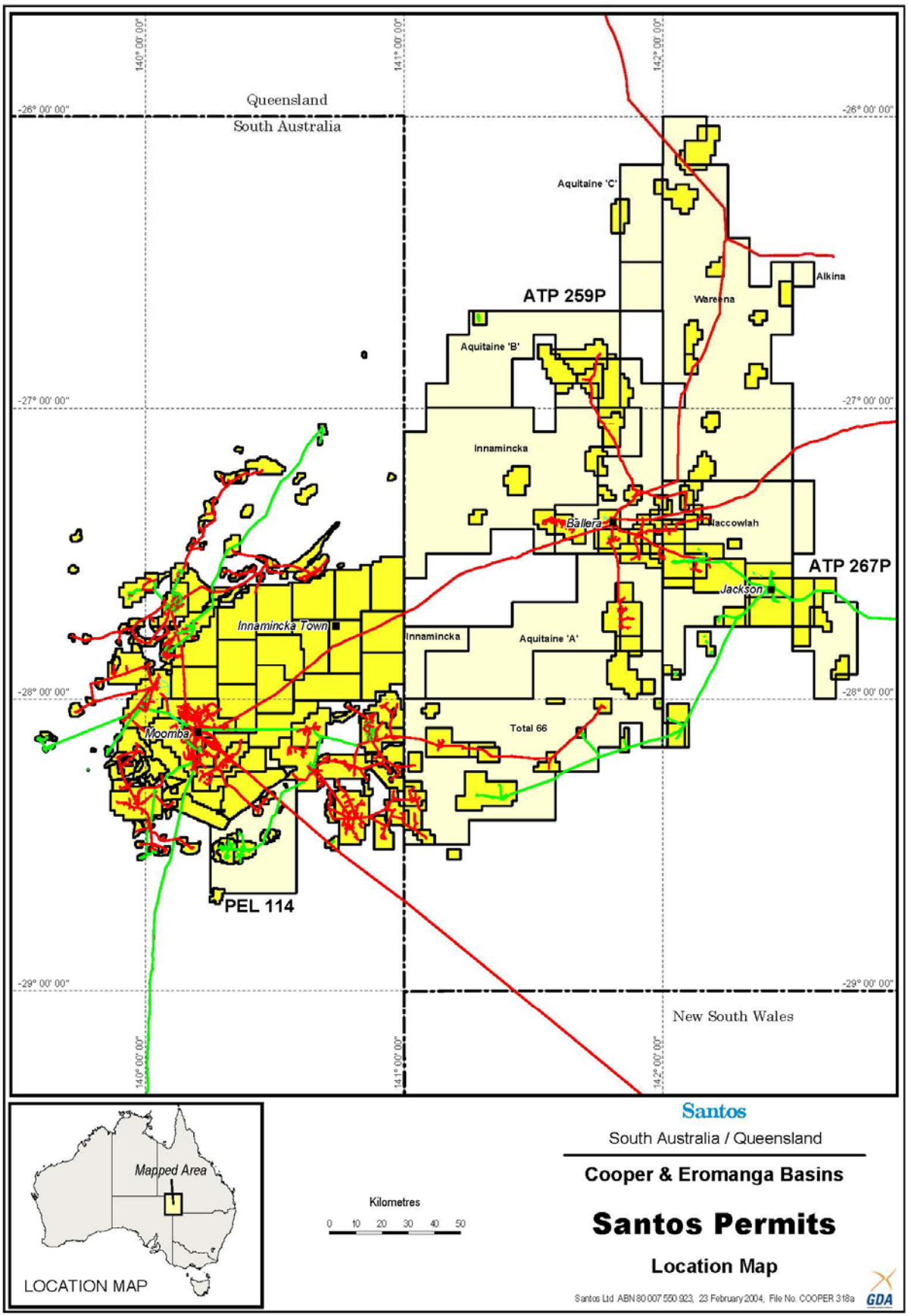
Queensland
South Australia
New South Wales
140° 00' 00"
141° 00' 00"
142° 00' 00"
-26° 00' 00"
-27° 00' 00"
-28° 00' 00"
-29° 00' 00"
Aquitaine 'C'
ATP 259P
Alkina
Wareena
Aquitaine 'B'
Innamincka
Ballera
Naccowlah
ATP 267P
Jackson
Innamincka Town
Innamincka
Aquitaine 'A'
Total 66
Moomba
PEL 114
Mapped Area
LOCATION MAP
Kilometres
0 10 20 30 40 50
Santos
South Australia / Queensland
Cooper & Eromanga Basins
Santos Permits
Location Map
Santos Ltd ABN 80 007 550 923, 23 February 2004, File No. COOPER 318a
GDA

Figure 1

2 SURVEY SCOPE AND OBJECTIVES

This survey was designed to define the absolute crests over the 3 discovered oil fields and accurately image the structures to optimize the fields. In addition it will help to resolve faults, give better resolution and allow quantification of crests and bypassed attic potential. It should also provide high quality data to identify and locate additional wells in the Murta, Namur and Birkhead/Hutton reservoirs.

Receiver Line	Start	End	Km
SKM07-R1024	5025	5248	8.96
SKM07-R1032	5025	5248	8.96
SKM07-R1040	5025	5248	8.96
SKM07-R1048	5025	5248	8.96
SKM07-R1056	5025	5248	8.96
SKM07-R1064	5025	5248	8.96
SKM07-R1072	5025	5336	12.48
SKM07-R1080	5025	5360	13.44
SKM07-R1088	5025	5360	13.44
SKM07-R1096	5025	5368	13.76
SKM07-R1104	5025	5368	13.76
SKM07-R1112	5025	5368	13.76
SKM07-R1120	5025	5368	13.76
SKM07-R1128	5025	5368	13.76
SKM07-R1136	5025	5368	13.76
SKM07-R1144	5025	5368	13.76
SKM07-R1152	5025	5368	13.76
SKM07-R1160	5025	5368	13.76
SKM07-R1168	5025	5368	13.76
SKM07-R1176	5057	5368	12.48
SKM07-R1184	5057	5368	12.48
SKM07-R1192	5057	5368	12.48
SKM07-R1200	5057	5368	12.48
SKM07-R1208	5057	5368	12.48
SKM07-R1216	5113	5368	10.24
SKM07-R1224	5113	5368	10.24
SKM07-R1232	5113	5368	10.24
SKM07-R1240	5113	5368	10.24
SKM07-R1248	5161	5368	8.32
SKM07-R1256	5161	5368	8.32
SKM07-R1264	5161	5368	8.32
SKM07-R1272	5161	5368	8.32
SKM07-R1280	5161	5368	8.32
SKM07-R1288	5161	5368	8.32
SKM07-R1296	5161	5368	8.32
SKM07-R1304	5161	5368	8.32
SKM07-R1312	5161	5368	8.32
SKM07-R1320	5161	5368	8.32
SKM07-R1328	5161	5368	8.32
SKM07-R1336	5161	5368	8.32
SKM07-R1344	5161	5368	8.32
SKM07-R1352	5161	5368	8.32
SKM07-R1360	5161	5368	8.32
SKM07-R1368	5177	5368	7.68
SKM07-R1376	5177	5360	7.36
SKM07-R1384	5177	5360	7.36
SKM07-R1392	5177	5352	7.04
SKM07-R1400	5177	5352	7.04
SKM07-R1408	5177	5344	6.72
SKM07-R1416	5177	5336	6.40
SKM07-R1424	5177	5336	6.40
SKM07-R1432	5193	5328	5.44
SKM07-R1440	5193	5328	5.44
SKM07-R1448	5209	5320	4.48
		Total	530.24

Source Line	Start	End	Km
SKM07-S5024	1025	1168	5.76
SKM07-S5032	1025	1168	5.76
SKM07-S5040	1025	1168	5.76
SKM07-S5048	1025	1168	5.76
SKM07-S5056	1025	1208	7.36
SKM07-S5064	1025	1208	7.36
SKM07-S5072	1025	1208	7.36
SKM07-S5080	1025	1208	7.36
SKM07-S5088	1025	1208	7.36
SKM07-S5096	1025	1208	7.36
SKM07-S5104	1025	1208	7.36
SKM07-S5112	1025	1240	8.64
SKM07-S5120	1025	1240	8.64
SKM07-S5128	1025	1240	8.64
SKM07-S5136	1025	1240	8.64
SKM07-S5144	1025	1240	8.64
SKM07-S5152	1025	1240	8.64
SKM07-S5160	1025	1360	13.44
SKM07-S5168	1025	1360	13.44
SKM07-S5176	1025	1424	16.00
SKM07-S5184	1025	1424	16.00
SKM07-S5192	1025	1440	16.64
SKM07-S5200	1025	1440	16.64
SKM07-S5208	1025	1448	16.96
SKM07-S5216	1025	1448	16.96
SKM07-S5224	1025	1448	16.96
SKM07-S5232	1025	1448	16.96
SKM07-S5240	1025	1448	16.96
SKM07-S5248	1025	1448	16.96
SKM07-S5256	1073	1448	15.04
SKM07-S5264	1073	1448	15.04
SKM07-S5272	1073	1448	15.04
SKM07-S5280	1073	1448	15.04
SKM07-S5288	1073	1448	15.04
SKM07-S5296	1073	1448	15.04
SKM07-S5304	1073	1448	15.04
SKM07-S5312	1073	1448	15.04
SKM07-S5320	1073	1448	15.04
SKM07-S5328	1073	1440	14.72
SKM07-S5336	1073	1424	14.08
SKM07-S5344	1081	1408	13.12
SKM07-S5352	1081	1400	12.80
SKM07-S5360	1081	1384	12.16
SKM07-S5368	1097	1368	10.88
		Total	533.44

3 DATA ACQUISITION

3.1 PERMITTING

3.1.1 GENERAL

The programme was located within the boundaries of Mungerannie, Mulka, Gidgealpa pastoral leases and the Strzelecki Regional Reserve. The managers of the pastoral leases and DEH (Strzelecki Regional Reserve) were initially advised of forthcoming seismic operations by letter, with attached maps etc. Contact was then made with the managers of the pastoral leases by the Santos to discuss and obtain approval for various aspects of operations, including timeframe, procedures, fences, gates, roads, camp site, water supply, etc, was made before field operations commenced.

3.2 LOGISTICS AND COMMUNICATIONS

The prime contractor, Terrex Seismic, provided a self-contained, air-conditioned, mobile camp, as listed in Appendix 2, to house the field management, recording and maintenance personnel. Line-preparation and Surveying provided their own camp facilities. Senior management of Terrex Seismic was located in Perth.

All food and freight was road transported to the crew by Neil Mansells Transport from Adelaide.

Fuel for all vehicles was supplied by IOR Petroleum in Eromanga and delivered to site.

Most other equipment and personnel logistics were supported from Terrex Seismic' Perth office.

3.3 SURVEYING

Horizontal and vertical surveying of seismic lines, using Trimble GPS receivers and ancillary equipment, was carried out by Pioneer Surveys No2 Pty Ltd.

Operations, personnel and equipment are fully detailed in their "Pioneer Surveys, Prospect Report, CPSN07B Seismic Survey", which is appended hereto (Appendix 1).

3.4 CULTURAL HERITAGE CLEARANCE

The Spencer Kiana Muteroo 3D project falls within an area claimed for native title by the Dieri people. Beach Petroleum engaged the services of community members to pre-scout the survey area, ahead of any seismic operations commencing, to locate, mark and direct equipment operators around any cultural heritage sites found that might be disturbed by these and subsequent survey activities.

Four cultural heritage monitors, 2 specialists and a Beach Petroleum field Representative were on site. All were accommodated at Beach Petroleum's Sellicks Production Facility. After the first day of familiarisation, the onsite personnel split into two teams to complete the clearance activities.

There were a number of cultural heritage sites identified during the course of this work area clearance. These are the subject of a separate report prepared for Beach Petroleum by the inspection group.

These identified sites & detours were provided to the line preparation crews thus allowing the areas requiring avoidance to be entered into the machine guidance software.

3.5 LINE PREPARATION

3.5.1 EQUIPMENT

Line preparation was carried out by Terrex Contracting who supplied a total of fifteen personnel. Personnel work on a 6 week on and 2 week off roster. Terrex contracting supplied the following equipment:

4 x	Komatsu D65EX bulldozers
1 x	Caterpillar 12G grader
1 x	John Deere 6 x 6 grader
5 x	Kenworth prime movers
2 x	Nissan 4x4 utilities
1 x	Mitsubishi Pajero 4x4 station wagon
1 x	Mitsubishi 4x4 light truck
1 x	Kitchen/diner converted 60' railway carriage
3 x	Accommodation/store converted 60' railway carriages
1 x	Workshop/spare parts trailer
2 x	240v generators – 160kva, 45kva
1 x	12,000litre water tanker
1 x	Fuel trailer
2 x	Low loaders
2 x	Trailer mounted chemical toilets

3.5.2 OPERATIONS

Garmin 172C GPS receivers and radio modem antenna were pre-installed in the bulldozers. A separate UHF radio for contact between machines, surveyors and camp had also previously been installed.

The Garmin GPS navigational system allowed the dozer operators to prepare the lines otherwise unaided. Start and end coordinates of lines calculated by the surveyors were loaded into the computers as way points. The bulldozers position relative to the straight line joining these points was graphically displayed on the computer screen and its distance right or left of the line also displayed. The operator was required to keep the machine within the allowable cross track tolerance (±7m) unless required to detour cultural heritage sites or other natural or man made obstructions such as trees, pipelines, wellheads etc.

Lines on the sand plain and those crossing sand ridges and open terrain required little preparation. Invariably these lines were walked only by the bulldozers with the blade used to remove hummocks, smooth washouts and push dead or fallen timber off the lines.

The dunefield consisted of north-northwest trending dunes spaced 200m to 1000m apart. These dunes attained heights of 25m or more above the level of the intervening swales. Grid orientation was such that source and receiver lines intersected the dunes at angles of approximately 45 deg each. On source lines, to avoid any long side cuts on the steep eastern dune flanks, VP's were offset onto the swales. Receiver lines were prepared on their design bearing.

3.5.3 PRODUCTION

Line preparation commenced on the 4th April after Environment and Cultural Heritage inductions the day prior. For the first time the crew encountered the requirement for excavation permits to operate in the vicinity of the oil fields. This was a drawn out procedure that was alleviated by permission being granted to operate away from the fields (green fields permit) while excavation permits were being issued. Excavation permits were ultimately issued before the dozers ran out of work in the green fields area so line preparation was completed with minimal delays.

A total of 1063.68 km of source and receiver lines were prepared in 987.00 dozing hrs at an average rate of 1.08 km/hr/machine. Dozer/grader standby time on this project amounted to 90.25/48.75 hrs respectively.

3.6 RECORDING

3.6.1 EQUIPMENT

Terrex Seismic supplied and operated a complete seismic data acquisition system, including, as required.

Recording Equipment

1 x Sercel 428A, 24 bit telemetry recording system and 2000 channel acquisition and processing module
1 x Sun Microsystems Sun Blade 2500 server
1 x Dell Optiplex GX620 processor with Windows XP 32 operating system
2 x NAS 320Gb hard drives plus 2 spares
1 x ULTRIUM dual LT02 tape drive
1 x Pelton VibPro encode sweep generator.
4 x Pelton VibPro VCE's
1 x Pelton VIBSIG real time QC system
4 x Wall mounted, flat LCD colour display screens
1 x Veritas iSys V12 thermal plotter
1 x Optus mobilsat phone
2 x Motorola 50W VHF radios
1 x Uniden 25W UHF radio
1 x Codan HF radio
2400 x strings Sensor SM4, 10Hz geophones, 12/string
600 x cables with 4 combined takeout/A-D converters per cable
Sufficient power units and batteries to match cable numbers
10 x Battery charges

Automotive Equipment

1 x Isuzu 4x4 airconditioned recording truck
4 xI/O AHV-IV articulated, hydrostatic 60,000lb vibrators with VHF radios.
1 x Paystar 6 x6 vibrator service truck
1 x Toyota 4x4 Landcruiser wagon – vib scout
1 x Toyota 4x4 utility – line boss
2 x Toyota 4x4 utilities – troubleshooters
5 x Toyota 4x4 utilities – cable trucks
3 x Toyota 4x4 utilities – geophone trucks
4 x Toyota 4x4 Landcruiser wagons – line crew
1 x Toyota 4x4 utility – depegger
1 x Spread trailer (moved by Terrex Contracting prime mover)
1 x Paystar 6x6 spread truck
2 x Hino 4x4 spread trucks
1 x Kenworth prime mover

A complete list of automotive equipment is included in Terrex Seismic Operations Report for "Santos Ltd– 2007 Spencer Kiana Muteroo 3D Seismic Survey, Operations Report". A copy of this report is attached as Appendix 2.

3.6.2 RECORDING PARAMETERS

Recording parameters are detailed in the Terrex Seismic Operations Report for "Santos Ltd– 2007 Spencer Kiana Muteroo 3D Seismic Survey, Operations Report". A copy of this report is attached as Appendix 2.

3.6.3 OPERATIONS

The recording crew mobilised from the South Australian Spinel Survey (GAOG) on April 17. Camp was established on a clay pan on the east side of the Pintari track about 500m south of the Spencer- Tantanna road . This ultimately proved to be a mistake as the camp site flooded to several inches after heavy rains on 15th. May.

Spread layout commenced on the afternoon of the 17th and data acquisition on 19th. April after all vibrators completed a set of hardwires similarities and point source tests.

Wait on spread time was effectively managed by the line crew. No spread waiting time occurred during the project

The boundaries of this survey formed a reasonably regular polygon . The survey area was divided into three panels as determined by the maximum width of the grid and the amount of spread (cables) available. The western Panel 1 is defined by source lines S5024 and S5152 , Panel 2 by source lines S5160 and S5232 and the eastern Panel 3 by source lines S5240 and S5368 . Panel 2 was an inner panel (96 channel spread overlap) for about 50% of it's length.

The grid comprised 54 parallel receiver lines spaced 320m apart and ranging in length from 4.48.km to 13.76km. Receiver line orientation was northwest/southeast. Geophone stations were spaced at 40m intervals with every fourth station marked by a numbered wooden peg. Pin flags marked the stations in between. At each station, 12 Sensor SM4 geophones were arrayed parallel to the receiver line and spaced 3.3m apart, centred on the station. When fully rolled on, data was recorded by a patch of 960 geophones on ten lines, each with 96 live stations.

Forty Four source lines were arranged at right angles to the receiver lines and also spaced 320m apart. Line lengths ranged from 5.76km to 16.96 km .Vibrator points (VP's) were spaced at 40m intervals. Numbered wooden pegs marked the VP's either side of receiver line intersections and pin flags the stations in between.

In production three Input/Output AHV-IV vibrators were arrayed in line with a pad-pad spacing of 12.5m. Where a linear array was not possible because of obstructions such as fences and pipelines, they were grouped side by side on the peg. Two, three second, 5-90Hz linear upsweeps were executed at each vp.

Data acquisition commenced at 07:44 hrs on 19th April at the north-east corner of panel 1. It was a slow start due to large dunes and boundary fences causing long detours. Road trains caused problems with cable crossings on the Tantanna road. High winds caused shutdown of operations on 22nd April for a couple of hours. Recording of panel 1 was completed on the 25th April.

The move onto panel 2 resulted in 30 mins waiting time. 6 hours standby was incurred on 27th April following overnight and morning rain. Great care was taken not to damage roads after start up. Panel 2 recording was completed on 3rd May.

Panel 3 commenced after a 45min delay. There were detours required around the above ground Spencer- Gidgealpa oil pipeline on panel 3. Panel 3 and the project was completed at 11:26hrs on 13th May.

In total, 13314 Vp's were recorded and 22vp's skipped. 6.4 hours downtime was incurred by the crew- instrument/Vib and transverse cable problems. Only 9.3 hours travel time was logged - testimony to ease of access as a result of good access tracks.

3.7 WEATHERING SURVEY

3.7.1 GENERAL

Due to the existing uphole coverage, no weathering survey was required.

3.8 ENVIRONMENT

3.8.1 GENERAL

As operator, Santos Ltd has, for a number of years, been committed to planning and conducting seismic operations in such a way that environmental disturbance is avoided or minimised, and affected areas can rehabilitate naturally in a reasonable time frame. These objectives have most recently been set out and discussed in the publications "Statement of Environmental Objectives: Geophysical Operations" Santos Ltd, June 2006, and "Environmental Impact Report : Geophysical Operations" Santos Ltd, June 2006.

The commitment has normally included the distribution of copies of the above to all contractors' personnel, and continual pressure by Santos Ltd field representatives on these personnel to conform to the principles and requirements of these documents.

Compliance with the Aboriginal Heritage Act has also been stressed and, during the year, the strategy to ensure meticulous adherence to standard Santos procedures relating to Cultural Heritage Management and Environmental Sensitivity was reinforced by special training of key personnel, and daily meetings to re-iterate key issues and procedures.

3.8.2 OPERATIONAL OBSERVATIONS

This project was located in the semi arid region of South Australia and centered on the Spencer/Kiana oilfields approximately a 60 kilometres drive West of the Moomba installation.

Road access from Moomba was NW to the Gidgealpa satellite then SW via the Gidgealpa oil field – some badly corrugated sections existed south of the satellite. Travel time was about one hour out of Moomba.

This area is dominated by north-south running dunes with undulating sand plain and low sand ridges between. The sand plains were quite broad in the centre and NE section of the area. The eastern slip faces of some of the dunes particularly in the west of the prospect were very steep and caused access problems for some vehicles.

Vegetation was primarily ephemeral grasses and small shrubs.

A small number of clay pans existed in the area – vulnerable to flooding after heavy rain

3.8.3 RESTORATION

Restoration was required on this project primarily due to the rain that fell during the survey. The restoration was carried out some time after the survey was complete due to the prevailing ground conditions not being suitable any earlier.

Restoration activities involved a single Caterpillar G12 Grader and 2 personnel. The restoration activities were based out of Moomba,

Restoration of soft ground in the south east of the survey area, the Pintari track , and recording campsites was completed between 29th Aug - 1st Sept.

APPENDIX 1 – PIONEER SURVEYS FINAL OPERATIONS REPORT

PIONEER SURVEYS

PROSPECT REPORT

CPSN07B SEISMIC SURVEY

SANTOS: PPL 32,37,53,67,143 & 144
BEACH PETROLEUM: PEL 107 & PPL 212

SPENCER KIANA MUTEROO 3D

FOR

SANTOS LTD

April / May 2007

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SKM07-R1024 - 1448
SKM07-S5024 - 5368

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1.0 INTRODUCTION

Pioneer Surveys was contracted by Terrex Seismic to carry out survey operations on the Spencer Kiana Muteroo 3D (hereafter referred to as SKM 3D) operated by Santos Ltd. This report covers the involvement of Pioneer Surveys in the seismic survey. The survey was located around the Spencer, Spencer West, Kiana and Muteroo Oil Fields approximately 50 km west of Moomba in South Australia. The terrain was predominantly sand dunes lightly vegetated with small shrubs and grasses.

The receiver station interval was 40.0m. The source station interval was 40.0m. Receiver and source lines were spaced 320m apart.

Total length of lines was 1059.76 Km.

Section 1.1 contains line listings.

Terex Contracting were contracted to carry out the line preparation. Cultural Heritage Monitors had previously located and marked any sites of significance. These were loaded onto each Dozer's GPS unit so they could be avoided.

All line preparation and survey work was accomplished using Trimble and Garmin GPS (Global Positioning System) equipment. Much of the mapping information was compiled using Garmin handheld GPS units.

There were no significant weather disruptions during the survey. There was a short period of standby (4 hours) on 27th April due to overnight rain.

1.1 LINES

Receiver Lines:

Line	Start	End	Kms
SKM07-R1024	5025	5248	8.92
SKM07-R1032	5025	5248	8.92
SKM07-R1040	5025	5248	8.92
SKM07-R1048	5025	5248	8.92
SKM07-R1056	5025	5248	8.92
SKM07-R1064	5025	5248	8.92
SKM07-R1072	5025	5336	12.44
SKM07-R1080	5025	5360	13.40
SKM07-R1088	5025	5360	13.40
SKM07-R1096	5025	5368	13.72
SKM07-R1104	5025	5368	13.72
SKM07-R1112	5025	5368	13.72
SKM07-R1120	5025	5368	13.72
SKM07-R1128	5025	5368	13.72
SKM07-R1136	5025	5368	13.72
SKM07-R1144	5025	5368	13.72
SKM07-R1152	5025	5368	13.72
SKM07-R1160	5025	5368	13.72
SKM07-R1168	5025	5368	13.72
SKM07-R1176	5057	5368	12.44
SKM07-R1184	5057	5368	12.44
SKM07-R1192	5057	5368	12.44
SKM07-R1200	5057	5368	12.44
SKM07-R1208	5057	5368	12.44
SKM07-R1216	5113	5368	10.20
SKM07-R1224	5113	5368	10.20
SKM07-R1232	5113	5368	10.20
SKM07-R1240	5113	5368	10.20
SKM07-R1248	5161	5368	8.28
SKM07-R1256	5161	5368	8.28
SKM07-R1264	5161	5368	8.28
SKM07-R1272	5161	5368	8.28
SKM07-R1280	5161	5368	8.28
SKM07-R1288	5161	5368	8.28
SKM07-R1296	5161	5368	8.28
SKM07-R1304	5161	5368	8.28
SKM07-R1312	5161	5368	8.28
SKM07-R1320	5161	5368	8.28
SKM07-R1328	5161	5368	8.28
SKM07-R1336	5161	5368	8.28

Line	Start	End	Kms
SKM07-R1344	5161	5368	8.28
SKM07-R1352	5161	5368	8.28
SKM07-R1360	5161	5368	8.28
SKM07-R1368	5177	5368	7.64
SKM07-R1376	5177	5360	7.32
SKM07-R1384	5177	5360	7.32
SKM07-R1392	5177	5352	7.00
SKM07-R1400	5177	5352	7.00
SKM07-R1408	5177	5344	6.68
SKM07-R1416	5177	5336	6.36
SKM07-R1424	5177	5336	6.36
SKM07-R1432	5193	5328	5.40
SKM07-R1440	5193	5328	5.40
SKM07-R1448	5209	5320	4.44
		Total:	**528.08**

Source Lines:

Line	Start	End	Kms
SKM07-S5024	1025	1168	5.72
SKM07-S5032	1025	1168	5.72
SKM07-S5040	1025	1168	5.72
SKM07-S5048	1025	1168	5.72
SKM07-S5056	1025	1208	7.32
SKM07-S5064	1025	1208	7.32
SKM07-S5072	1025	1208	7.32
SKM07-S5080	1025	1208	7.32
SKM07-S5088	1025	1208	7.32
SKM07-S5096	1025	1208	7.32
SKM07-S5104	1025	1208	7.32
SKM07-S5112	1025	1240	8.60
SKM07-S5120	1025	1240	8.60
SKM07-S5128	1025	1240	8.60
SKM07-S5136	1025	1240	8.60
SKM07-S5144	1025	1240	8.60
SKM07-S5152	1025	1240	8.60
SKM07-S5160	1025	1360	13.40
SKM07-S5168	1025	1360	13.40
SKM07-S5176	1025	1424	15.96
SKM07-S5184	1025	1424	15.96
SKM07-S5192	1025	1440	16.60
SKM07-S5200	1025	1440	16.60

Line	Start	End	Kms
SKM07-S5208	1025	1448	16.92
SKM07-S5216	1025	1448	16.92
SKM07-S5224	1025	1448	16.92
SKM07-S5232	1025	1448	16.92
SKM07-S5240	1025	1448	16.92
SKM07-S5248	1025	1448	16.92
SKM07-S5256	1073	1448	15.00
SKM07-S5264	1073	1448	15.00
SKM07-S5272	1073	1448	15.00
SKM07-S5280	1073	1448	15.00
SKM07-S5288	1073	1448	15.00
SKM07-S5296	1073	1448	15.00
SKM07-S5304	1073	1448	15.00
SKM07-S5312	1073	1448	15.00
SKM07-S5320	1073	1448	15.00
SKM07-S5328	1073	1440	14.68
SKM07-S5336	1073	1424	14.04
SKM07-S5344	1081	1408	13.08
SKM07-S5352	1081	1400	12.76
SKM07-S5360	1081	1384	12.12
SKM07-S5368	1097	1368	10.84
		Total:	**531.68**

2.0 TERRAIN AND LOGISTICS

2.1 TERRAIN

The terrain at SKM 3D prospect consisted of sand dunes that were lightly vegetated with small shrubs and grasses. There were some large flats between the dunes mainly in the centre and north east parts of the prospect. To avoid long side cuts on the larger dunes many of the source lines were offset onto the corridors.

2.2 LOGISTICS

Terex Contracting established a camp approximately 35 km west of Moomba and 500m north east of Spencer Oil field. This location was chosen as it was central to the SKM 3D grid and the upcoming Ficus 2D prospect. Pioneer Surveys arrived on site on 1st April after mobilising from Yeppoon in Queensland on 30th March. Upon arrival Pioneer Surveys commenced to set up the GPS equipment on the bulldozers.

Pioneer started the survey of the prospect on the 5th April 2007 and completed it on the 29th April 2007.

Only one RTK base station (SP1) was required during the SKM 3D survey. It was set up on top of a high dune approximately 900m west of the Pintari North turnoff on the south side of the Tantanna road. A mobile repeater was used to survey occasional points where the RTK signal could not be received from the base.

The Tantanna to Gidgealpa Oil pipeline ran just to the north of the prospect. The Spencer to Gidgealpa Oil pipeline ran through the eastern side of the prospect from Spencer Field through Muteroo Field and then onto Gidgealpa Field. This did not cause any difficulties for the line preparation or survey as there were numerous road crossings.

2.2.1 Camp Locations

Site	Easting	Northing	Description
Camp 1	387600	6883650	Approx. 35km west of Moomba

3.0 PERSONNEL AND EQUIPMENT

3.1 SURVEY PERSONNEL

The Pioneer Surveys crew consisted of up to five people, made up of two surveyors and three GPS operators. The following is a list of personnel utilized during the survey:

Duties	Name
Senior Surveyor	Eric Amedee
Surveyor	Chris Wood
Surveyor	Andrew Clayton
GPS Operator	Gary Hutchison
GPS Operator	Mike Clark
GPS Operator	James Linnie
GPS Operator	Bart Kargol

3.2 LINE PREPARATION PERSONNEL

The following is a list of personnel utilized by Terex Contracting during the survey: -

Name	Duties
Camp Boss	Matt Gower
Camp Boss	Matt Thomas
Mechanic	Wi Hanara
Mechanic	Steve Czislowski
Mechanic's offsider	Gene Hicks
Cook	Marion Anderson
Operator	Gene Greenhalgh
Operator	Bill Anderson
Operator	Bill Bebbington
Operator	John Talbot
Operator	Eric Ree
Operator	Reece Greenhalgh
Operator	Cliff Jurd
Operator	Rob Brown
Operator	Jeff Talbot

3.3 SURVEY EQUIPMENT

The following survey equipment was used during the SKM 3D Survey:

Line Pointing	1 Toyota Landcruiser Ute
	4 Garmin 172C GPS receivers
	12 Garmin Data Cards
	4 PacCrest PDL GPS rover radio modems
	1 UHF radio
Survey	3 Toyota Landcruiser utes
	1 Toyota Landcruiser wagon
	1 Trimble R7 Base GPS receiver
	3 Trimble R7 GPS receivers
	1 PacCrest PDL GPS 35W base radio modem
	1 PacCrest PDL GPS 35W repeater radio modem
	4 PacCrest PDL GPS rover radio modems
	6 UHF radios
	2 UHF handheld radios
	1 Toshiba Tecra S1 computer
	1 GPSeismic Processing software package
	1 ArcGIS 9 software package
	1 Canon i9950 A3 colour printer
	1 Lexmark X215 laser printer/copier/fax/scanner
	2 Globalstar Satellite phones
	Survey consumables

3.4 LINE PREPARATION EQUIPMENT

The following line preparation equipment was used by Terrex Contracting during the SKM 3D survey:

Equipment
4 Komatsu D65 dozers
1 Caterpillar 12G grader
1 John Deere 672CH Grader
1 Kitchen / stores train
2 Accommodation trains
1 Workshop / generator trailer
1 Office / sleeper / shower caravan
5 Prime movers
2 Floats
1 Camp generator
2 Water tankers
1 Fuel tanker
3 Support 4x4 vehicles
1 4x4 light truck
1 VSAT Data / telephone system

4.0 SURVEYING METHODS

4.1 SURVEY DATUMS

The survey datum for SKM 3D was the Geocentric Datum of Australia 1994 (GDA94). GPS field survey data was collected using the World Geodetic System 1984 (WGS84) datum. It was then downloaded into GPSeismic software for conversion to Australian datums. WGS84 coordinates were converted to the GDA94 and output in Map Grid of Australia (MGA) Zone 54 coordinates. Ellipsoidal heights were converted to the Australian Height Datum (AHD) using the AusGeoid98 geoid separation model.

The following parameters define the World Geodetic System 1984 datum: -

Datum	World Geodetic System 1984
Spheroid	WGS84
Semi-Major Axis	6 378 137.0
Inverse Flattening	298.257
Unit of Measure	International Metres

The following parameters define the Geocentric Datum of Australia 1994: -

Datum	Geocentric Datum of Australia 1994
Spheroid	Geodetic Reference System 1980
Semi-Major Axis	6 378 137.0
Inverse Flattening	298.257222101
Unit of Measure	International Metres

For the purposes of seismic line placement, GDA94 is identical as WGS84, so no transformations were applied.

The following parameters define the Map Grid of Australian Zone 54: -

Projection :	Universal Transverse Mercator
Latitude of origin :	0°
Central Meridian (CM) :	141° E
Scale Factor at CM :	0.9996
False Easting :	500 000
False Northing :	10 000 000
Unit of Measure :	International Metres

A national distortion grid (National84.gsb) was used to convert benchmark data between AGD66/84 and GDA94 coordinates. The software used to do this was **GDAy**, a free datum transformation programme developed by the Queensland Department of Natural Resources.

4.2 SURVEY CONTROL

The control for the prospect area was established using GPS static techniques. The datum for the survey was from BM HACK1 at HACKETT #1.

The Map Grid of Australia (MGA94) coordinates and AHD height for the GPS Base Station established is as follows:

Stn	Description	Easting	Northing	Elev.
HACK1	BM @ HACKETT#1	398009.115	6914030.547	32.007

A listing of ties to other well benchmarks and old Permanent Markers is included in Appendix B.

4.3 SURVEY METHODS

Survey control was established using the GPS static method. The static method used for control work involves the setting up of a GPS receiver to log data on a known point. A roving GPS receiver then logs data on unknown points for periods of 20 minutes and upwards, depending on the length of the baseline and number of satellites in view at the time. This enabled the change in geometry of the satellite positions to be measured and recorded. After post processing the data to obtain accurate baseline information a position can be determined for the unknown point.

Trimble Geomatics Office software was used to run a network adjustment on the survey control network. This verified the integrity of the network.

Line surveying was carried out using the **'real time' kinematic (RTK)** method. This method also consists of base and rover segments. A GPS receiver is set up on a point of known location. This point has usually been established using the static method mentioned above. Through a 35 watt UHF radio modem the base GPS receiver broadcasts the base position and GPS data measured at the base directly to a radio and modem connected to a roving GPS receiver enabling the rover to initialise (resolve satellite cycle ambiguities). Once initialised the roving receiver can calculate its own position to within a few centimetres.

Pioneer Surveys used the latest Trimble R7 GPS receivers. These units are dual frequency receivers enabling very fast and reliable initialisations. Coupled with Trimble TSCe survey controllers the system is very efficient and user friendly.

4.4 PERMANENT MARKERS

For the SKM 3D the survey crew established an RTK base station on top of a high sand dune next to the main road between Spencer field and Tantanna field. An aluminium tag, with the description and comments stamped on it, was added to the permanent marker. Appendix A contains a list of Permanent Markers.

4.5 DATA PROCESSING AND QUALITY CONTROL

Real Time Kinematic (RTK) stakeout position data was collected in Trimble TSCe Survey Controllers in WGS 84 format and downloaded into Dynamic Survey Solution's GPSeismic software. Datum transformations and geoid separations were then applied to the data. Several QC checks were done and the data was then loaded into a database where further checking was done. The QC checks included the following:

- Base coordinates and elevation were checked on download against the control data.
- Antenna heights were checked.
- Cross line and inline offsets from design were checked for any anomalies.
- GPS quality checks. (DOPs, Horizontal precision, Vertical precision, Number of satellites and RMS.
- Initialization checks.
- Checkshot comparisons
- Old Permanent Marker comparisons
- Missing station checks.

Once checking was complete data could then be queried using SQL and the results exported directly to mapping software (ArcGIS 9) or to reports. The mapping software allowed for quick visual checking of point locations. Points in suspect locations (e.g. too close to pipeline) could be flagged for checking. Line preparation and survey database information was also automatically mapped in ArcGIS 9 which enabled the crew to visually monitor production each day and produce up to date progress maps, recording access maps and swath maps for the vibrators.

On completion the data was converted to a format suitable for Santos Ltd.

4.6 MAPPING

Pioneer Surveys surveyors scouted the prospect to map fences, gates, tracks, pipelines and any other features pertinent to crew operations. Using this information combined with that supplied by Santos it was possible to supply accurate prospect maps to the crew.

5.0 LINE PREPARATION

Terrex Contracting carried out the line preparation on the SKM 3D. Terrex Contracting supplied four bulldozers, two graders and camp facilities. Pioneer Surveys were supplied power, meals and showers.

The line preparation equipment and refuelling vehicles had UHF radios installed to enable communications with the dozer pointer and camp. Pioneer Surveys had a UHF radio set up in the office to enable communications between camp and field vehicles. The dozer pointer or survey had a satellite phone with them to enable communication to camp

5.1 LINE PREPARATION NAVIGATION

Co-ordinates for the start and end of lines for receiver and source lines were loaded into Garmin 172C GPS receivers mounted in the dozers. The machine operators then used the navigation screens to guide them along the lines. Any cultural heritage sites, pipelines, fences, gates, etc. were also loaded into these units to act as visual aids for the operators.

The Differential GPS (DGPS) method was used to supply satellite correction data to the operators' GPS units. A base GPS receiver was set up on a point with known coordinates (usually the same base as survey) and using radio/modem units the base GPS receiver broadcast pseudorange (uncorrected distance to each satellite) corrections to the GPS receivers mounted on the dozers. This enabled the dozing receivers to generate positions to sub-metre accuracy.

5.2 ENVIRONMENTAL MONITORING POINTS

Three environmental monitoring points (EMP) were placed on the SKM 3D prospect. A star picket was placed at the EMP location and surveyed using the RTK method. An aluminium tag, with the name and intersection location stamped on it, was attached to the star picket. Appendix C contains a list of EMPs.

6.0 HEALTH, SAFETY AND ENVIRONMENT

All vehicles belonging to Pioneer Surveys were fitted with rollover protection, a fire extinguisher, first aid kits and UHF radios. Pioneer Surveys had a Globalstar satellite telephone on crew. The phone was either in the office or in the senior surveyor's vehicle; thus, communications could be maintained at all times. The survey office had a UHF radio with a high gain antenna for communications.

All rubbish generated in the field was returned to camp for proper disposal. Terrex Contracting organised the disposal of all camp rubbish.

Line preparation was carried out in a manner which adhered to Santos' environmental guidelines. Minimal blade work was done and lines were weaved to reduce the visual impact of the survey. The line preparation and surveyors had attended a Cat-A Cultural Heritage induction held by Alan Lance on 3rd April.

Pioneer Surveys also conducted daily breath analysis testing of all employees to ensure employees were not under the influence of alcohol. This was ticked off each day on the toolbox meeting form.

During the survey, the survey crew exercised due care in their operations and as a result there were no lost time incidents. Pioneer Surveys and Terrex safety policies were adhered to by all personnel. Daily "toolbox" meetings were held to inform and raise current issues with crew members. Toolbox minutes were documented and passed onto Terrex at the end of each week. The daily topics were added to the daily reports. A Pioneer Surveys representative, usually the Dozer Pointer, attended the evening TC toolbox. Pioneer Surveys and TC held weekly safety meetings. These were normally held on Sunday nights before the barbecue.

The survey was completed in reasonable time and there were a no significant delays.

7.0 SUMMARY

Overall the survey and line preparation of the SKM 3D Seismic Survey was done in an efficient and environmentally sound manner.

Survey and line preparation fieldwork took 42 days to complete at an average of 42.39 Km / day.

Pioneer Surveys supplied high quality maps to the recording crew detailing hand carry sections, offsets, fences, gates, tracks, detours, pipelines and any other pertinent information.

It is Pioneer Surveys policy to have a dozer pointer on crew to assist with any line preparation problems and to supply mapping information to the seismic crew.

Pioneer Surveys has at all times endeavoured to carry out its duties in a professional and efficient manner.

Respectfully submitted,

Eric Amedee

Senior Surveyor
Pioneer Surveys

APPENDIX A

PERMANENT MARKER LISTING

Stn	Description	Easting	Northing	Elev.
SP1	RTK Base Station	384891.593	6883395.434	49.603

APPENDIX B

BENCHMARK AND OLD PERMANENT MARKER TIES

Station	Line/Well	Surveyed Easting	Surveyed Northing	Surveyed Elev.	Supplied Easting	Supplied Northing	Supplied Elev.	DeltaX	DeltaY	DeltaZ
PM353	84-SHM	390776.97	6888916.77	26.59	390773.69	6888924.63	27.44	3.28	-7.86	-0.85
PM332	84-SHM	390103.56	6889324.53	23.41	390099.71	6889331.61	24.34	3.85	-7.08	-0.93
PM344	84-SHS	389900.04	6887552.12	28.40	389898.65	6887560.64	29.35	1.39	-8.52	-0.95
PM480	84-SHS	392670.08	6891824.60	22.24	392669.65	6891832.63	23.81	0.43	-8.03	-1.57
PM233	85-YFE	392262.03	6891196.34	21.33	392261.71	6891198.64	21.86	0.32	-2.30	-0.54
PM209	85-ZPL	390719.45	6888304.96	26.50	390716.61	6888313.61	27.46	2.84	-8.65	-0.96
PM401	88-BNY	376929.97	6883687.28	21.82	376924.70	6883691.57	22.29	5.27	-4.29	-0.47
PM552	88-BPG	391978.55	6892611.54	25.48	391975.67	6892615.59	26.05	2.88	-4.05	-0.57
PM860	88-BPT	379368.97	6884412.12	23.92	379363.66	6884416.57	24.46	5.31	-4.45	-0.54
PM336	88-BPL	391815.15	6890516.23	24.06	391811.68	6890520.59	24.66	3.47	-4.36	-0.61
PM369	88-BLP	392777.68	6889738.28	22.54	392774.67	6889742.62	23.10	3.01	-4.34	-0.56
PM316	90-CHS	381766.07	6883684.86	39.79	381763.68	6883689.71	40.39	2.39	-4.86	-0.60
PM318	90-CHX	381965.94	6881984.24	31.41	381964.65	6881988.67	32.01	1.29	-4.43	-0.60
PM330	90-CHX	382256.90	6881773.52	29.40	382255.67	6881777.59	29.90	1.23	-4.07	-0.50
PM288	90-CHT	381141.77	6883048.72	25.28	381139.25	6883052.59	25.71	2.52	-3.87	-0.43
PM296	90-CRT	378183.99	6885291.66	24.67	378179.63	6885294.61	24.96	4.36	-2.95	-0.29
PM311	90-CTK	391707.25	6886736.58	39.63	391701.66	6886740.62	40.18	5.59	-4.04	-0.55
PM388	90-CTK	394162.95	6888246.85	32.75	394157.63	6888249.56	33.29	5.32	-2.71	-0.54
PM440	95-FQG	383024.54	6879768.60	21.09	383024.70	6879768.57	20.94	-0.16	0.03	0.15
PM328	95-FQJ	380736.66	6884206.99	28.48	380737.69	6884207.57	28.20	-1.03	-0.59	0.28
PM436	95-FQL	386138.23	6884681.99	28.26	386138.63	6884682.66	28.16	-0.40	-0.67	0.10
PM440	95-FQH	385222.29	6881939.63	33.45	385222.64	6881940.63	33.36	-0.35	-1.00	0.09
PM512	95-FQH	387454.09	6880424.69	22.08	387454.65	6880425.58	21.97	-0.56	-0.90	0.11
PM200	96-GKX	385940.93	6880187.44	23.41	385941.70	6880186.58	23.34	-0.77	0.86	0.07

Station	Line/Well	Surveyed Easting	Surveyed Northing	Surveyed Elev.	Supplied Easting	Supplied Northing	Supplied Elev.	DeltaX	DeltaY	DeltaZ
PM268	96-GKX	387130.02	6877930.47	34.21	387130.65	6877929.60	34.05	-0.63	0.87	0.16
BM SG2	SPENCER WEST #2	381905.72	6882606.24	32.10	381905.81	6882606.93	31.86	-0.08	-0.69	0.23
BM SG2	SPENCER WEST #2	381905.70	6882606.24	32.05	381905.81	6882606.93	31.86	-0.11	-0.69	0.19

APPENDIX C

ENVIRONMENTAL MONITORING POINTS

EMP	Location	Easting	Northing	Elev.
EMP1	INT R1096/S5152	381754.18	6882467.62	32.21
EMP2	INT R1184/S5248	386890.44	6883331.22	22.27
EMP3	INT R1336/S5272	391006.23	6887906.26	35.73

APPENDIX 2 – TERREX SEISMIC FINAL OPERATIONS REPORT

SANTOS LTD / BEACH PETROLEUM LTD
2007 SPENCER-KIANA-MUTEROO
PPL's 32 & 37, PEL 107
3D SEISMIC SURVEY

OPERATIONS REPORT

April – May 2007

BY

J.L.TURNER

OF

CREW # 402

TERREX SEISMIC
UNIT # 2 / 37 HOWSON WAY
BIBRA LAKE
WESTERN AUSTRALIA 6163

TABLE OF CONTENTS

1. INTRODUCTION

Terrex Seismic was contracted by Santos Ltd and Beach Petroleum Ltd to conduct the Spencer-Kiana-Muteroo 3D Seismic Survey. Acquisition commenced on the 19th April 2007 and was completed on the 13th May 2007.

1.1 GEOGRAPHICAL AREA

The Spencer-Kiana-Muteroo 3D grid is located approximately 80 kms West of Moomba (S.A). The surrounding area consisted mainly of rolling sand hills and open flat clay pan country.

Camp conditions after rain on the 27th April.

1.2 WEATHER

The weather was predominantly fine throughout the program although six hours of standby time was recorded on the 27th April and 10 hours of standby time was recorded on the 10th May due to overnight rain. Working conditions were mild and pleasant for the line crew.

1.3 LOGISTICS

All equipment and camp mobilised from the GAOG Spinel 3D grid on the 17th April. The move time was approximately 2.5 hours with camp setup by 2:00pm at the new prospect. No camp moves were required throughout the operation.

Access to all the lines was via the main existing roads that ran North / South & East / West in relation to the prospect.

The accommodation facilities were in the form of mobile vans provided by Terrex Seismic which were capable of sleeping up to 56 people.

All meals were provided by the mobile kitchen and diner staffed by two full time cooks and one kitchen hand.

All supplies including food and freight were transported via road from Adelaide and delivered to camp by Neil Mansell's Transport.

Fuel for all vehicles was supplied by I.O.R. Petroleum of Eromanga and delivered to site.

All other logistics were supported out of Terrex Seismic Perth Office.

2.0 SURVEYING

2.1 RANGING / CHAINING / SURVEYING

Line chaining and survey for the entire program were completed by Pioneer Surveys personnel from Mackay in Queensland.

2.2 LINE CLEARING

All line clearing was performed by Terrex Contracting.

2.3 PERMITTING

Permitting was carried out by the client with John Allen acting as the client representative from the 7th May to the completion of the contract.

Line preparation by Terrex Contracting

3.0 RECORDING / PROCESSING

Survey:	CPSN07B –Spencer-Kiana-Muteroo 3D
Project Code:	5305001,5297018
Surface area:	165.2736 sq km
Receiver Lines:	54 lines, 320m interval, 530.24 km.
Source Lines:	44 lines, 320m interval, 533.44 (all orthogonal)

Source Recorded into patch of 10 receiver lines each of 96 channels
Source between channels 48 and 49.

3.1 Recording Parameters

Instrumentation

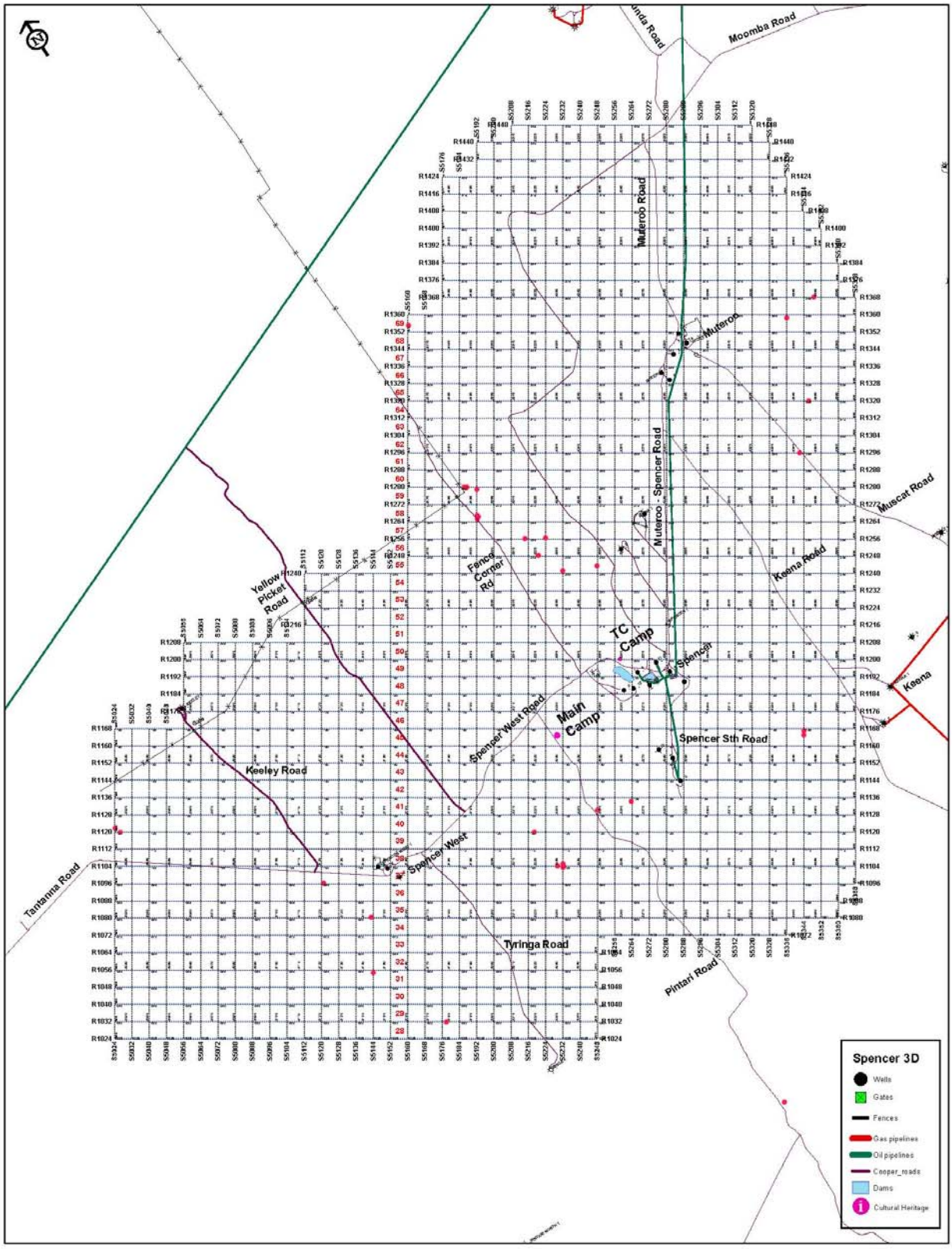
Instruments:	Sercel428XL – 24 bit.
No. Channels:	960(10 lines of 96)
Tape Format:	SEGD, 8058 IEEE Demultiplexed, LTO 2 Quad. Recorded (LTO 2 & HD)
Filters:	Hi-cut 200hz. No Lo Cut available
Sample Rate:	2 ms
Correlated Record Length:	4 seconds
RTC:	Yes
Correlation Type:	Zero Phase, After Sum
Stack:	Diversity Stack

Source

Vibrators:	3 AVH-IV 62,000 lb peak force on 4X4 articulated buggies (1 group)
Electronics:	Pelton VibPro VCE in vibrators, ESG in recorder.
Sweep Frequency:	5-90 Hz
Sweep Length:	3 seconds (plus 4s listen)
Sweep Function:	Linear Upsweep
No. Sweeps:	2 standing
VP Interval:	80m orthogonal
Vibrator Array:	3 in line, 12.5 m. pad to pad standing. No move-up.
End Tapers (Cosine):	0.2s
Phase Locking Type:	Ground Force using M51 HP accelerometers.
Amplitude Control:	Peak to Peak
Sweep amplitude taper:	100% (none)
Drive level:	Maximum varied by amplitude control function

Receivers

Group Interval:	40m
Geophones:	Sensor SM4 10 Hz Hi spec super phones.
Spread:	Split, source between channel 48 and 49
No. per string:	12 phones in line 3.33 m. spacing, centred on station.
Far Trace:	2458m (diagonal) nominal **but longer offset trials may be requested.**



Pioneer Surveys	Spencer Kiana Muteroo 3D Santos 2007	Scale	Not to scale
		Drawn	ERA
		Date	23/04/2007

Spencer-Kiana-Muteroo 3D Grid

3.2 Recording

The Spencer-Kiana-Muteroo 3D grid is located in the Cooper Basin, 80 km West of Moomba in South Australia.

Recording commenced on the 19th April 2007 after 2 days of layout and cultural heritage inductions. The grid was split into 3 panels that covered an area of 165.274 square kms. The first production profile was recorded at station 1240 on source line 5112 on the 19th of April 2007. Panel 1 was completed on the 25th April 2007 at an average daily production rate of 6.6 km^2 / day.

The first production profile on Panel 2 was recorded on the 25th April at station 1033 on source line 5144. Acquisition on Panel 2 was completed on the 3rd May at VP 1425 on line 5248, it was recorded at an average production rate of 7.11 km^2 / day. Production was faster on panel 2 due to better terrain and less detour time. Half a day was lost to weather delays in panel 2 with overnight rain on the 26th April making conditions too wet for normal operations until midday on the 27th April.

The first production profile on Panel 3 was recorded on the 3rd May at VP 1425 on source line 5256. Acquisition on panel 3 was again delayed due to overnight rain 9th May with production recommencing on the morning of the 11th May.

Panel 3 acquisition was completed on the 13th May 2007 at an average daily production rate of 6.20 km^2 / day. The rain delay and the Spencer to Moomba pipeline both contributed to production rates slowing on panel 3 with one day lost to rain and increased detour time for the vibrators and the line crew due to the pipeline. The finish of Panel 3 represented the completion of the Santos / Beach, S-K-M 3D contract. A total of 165.2741 km^2 of production was recorded at an average daily rate of 6.746 km^2 / day for the entire contract. Line crew split following the completion of acquisition on the 3D grid with half continuing with the Beach, Ficus 2D and the remaining personnel retrieving and packing equipment from the S-K-M grid.

All equipment was picked up and packed by the 14th May 2007.

3.3 Processing

All data ‘A’ and ‘B’ tapes were sent to Santos head office in Adelaide for final processing.

APPENDIX A

EQUIPMENT SPECIFICATIONS

RECORDING EQUIPMENT (3D Surveys)

SERCEL 428 Seismic Data Acquisition System

- Three (3) 19inch Flat Screens with Sun Blade Computer
- Veritas V12 Plotter, UPS, LIM, APM
- Two (2) LTO High Density Tape Drives
- One Hundred and Fifty (600) Seismic Cables with 4 x FDUs per cable separated by 55 metres between takeouts (2400 Ch)
- Fifty (50) Power Harness Leads
- Ninety-Seven (97) Line Batteries
- Fifty-Four (54) Transverse Cable
- Twenty-Seven (27) Repeaters
- Fourteen (14) LAUX's
- Forty-Nine (49) LAUL's
- Ten (10) Telwin (Nevaboost 140) Battery Chargers
- **Pelton** Real Time Similarity System
- One (1) 10 metre 6 DB Boost High Gain Antenna on Recording Truck

- **Sensor SM4 10Hz High Specification Superphones**
- Four Thousand Six Hundred (4800) Geophone strings with 6 ph/group (Equivalent of 2400 Channels of 12 phones/group)/

Note: Terrex Seismic warrants that 90% of equipment will be used in field and up to 10% may be undergoing repair and maintenance.

SOURCE EQUIPMENT

- **Four (4) Input-Output AVH IV 4x4 Buggy Vibrators:**
- Peak force is 62000lbs per Vibe and Hold-Down weight is 62400lbs per Vibe
- **Four (4) Pelton VibPro Vibrator Control Electronics**
- One (1) Pelton VibPro Encoder Sweep Generator for Recorder
- Three (3) operating Online and One (1) on Standby
- Electronics are capable of Trade Marked **Varisweep**

APPENDIX B

VEHICLE EQUIPMENT LIST

#	VEHICLE	REGISTRATION
1	100 Series Landcruiser Wagon	1CCX-396
2	100 Series Landcruiser Wagon	093 IIU
3	100 Series Landcruiser Wagon	094 IIU
4	100 Series Landcruiser Wagon	1BOB-567
5	100 Series Landcruiser Wagon	095 IIU
6	100 Series Landcruiser Wagon	096 IIU
7	100 Series Landcruiser Wagon	WZI 799
8	Troop Carrier Ambo	1CGX-030
9	Landcruiser Tray back	013 IZQ
10	Landcruiser Trayback	235-GVQ
11	Landcruiser Trayback	799-JMJ
12	Landcruiser Trayback	1BRD 044
13	Landcruiser Trayback	308-IJX
14	Landcruiser Trayback	798-JMJ
15	Landcruiser Trayback	092-IIU
16	Landcruiser Trayback	1BSR 496
17	Landcruiser Trayback	800-JMJ
18	Landcruiser Trayback	344-IJX
19	Landcruiser Trayback	801-JMJ
20	Landcruiser Trayback	254-JCU
21	Landcruiser Trayback	1BGO-007
22	Nissan Trayback	173-JNA
23	Landcruiser Trayback	311-IJX
	LIGHT VEHICLE LIST	
1	I/O AHV-IV Vibrator	C 32657
2	I/O AHV-IV Vibrator	C 32658
3	I/O AHV-IV Vibrator	C 32659
4	I/O AHV-IV Vibrator	C 32660
5	Isuzu Recorder	1 CDW 327
6	Paystar Water Truck	627-JAH
7	MAN Water Truck	G 12833
8	Kenworth Water Truck Cab/o	1AGB 177
9	Paystar Vibe ServiceTruck	875 HJU
10	Kenworth Spread Truck	874 HJU
11	Hino Spread Truck	7DT 982
12	Hino Spread Truck	BD 610
13	Paystar V8 Spread Truck	1BUI 775
14	Isuzu Spread Truck	IAOR 420
15	Isuzu Generator Truck	1AMI 165
16	Paystar Mechos	628-JAH
17	Isuzu Truck (Crane)	9DL 970
18	Hino Fuel Tanker	RMR 625
	HEAVY VEHICLE LIST	

1	6 x 4 Toilet Trailer (Ladies Single)	1TBF 454
2	7 x 5 Tandem Box Trailer (Sign Trailer)	1TDN 321
3	8 x 5 Tandem Box Trailer (Wash Down)	1TBU 582
4	Cavalier Diner	6UO 309
5	Cavalier Kitchen	6UO 308
6	Cavalier 6 Man Sleeper	8UW 160
7	Cavalier 6 Man Lunch Room	8US 599
8	Coromal Caravan	8WS 627
9	Coromal Caravan	8WS 671
10	Coromal Caravan	9RG 567
11	Dolly	509-QJG
12	Dry Stores/Coolroom on Trailer	508 QJG
13	Elross 1 Room (4 man) sleeper	1TER 545
14	Elross 1 Room (4 man) sleeper	1TER 546
15	Elross HSE Office	1TFB 626
16	Homemade 2 Room HSE Office	502 QJG
17	Homemade 6 Man sleeper	497 QJG
18	Homemade 6 Man sleeper	501-QJG
19	Homemade 6 Man sleeper	499 QJG
20	Homemade Pig Trailer Laundry	496 QJG
21	Homemade Pig Trailer Showers	504 QJG
22	Mechanic's Workshop (C'made)	1TAR 750
23	Modern Caravan (Battery Hen)	6WC 169
24	Pacesetter 8 Man Sleeper	498 QJG
25	Rio Tinto 3 Room Sleeper	505 QJG
26	Rio Tinto 3 Room Sleeper	506 QJG
27	Spread Trailer	507-QJG
28	Tri-axle trailer (Generators)	126-QMP
29	Tandam-axle trailer (Spread)	092-QIR
30	Tamworth Cable Repair	N 69423
31	Two Man Toilet Trailer (Truck Tow)	503-QJG
32	Tandem 3 Toilet Trailer	0TDJ 497
33	Elross New Office/ 2 Man sleeper	1 TGL 813
34	Elross Diner	1 TGZ 789
35	Elross Kitchen	1TGZ 790
36	Bimarco Shower/Laundry (4 shower)	N60196
37	Elross 3 Rooms (6 man) sleeper	1TGL 663
38	Elross 3 Rooms (6 man) sleeper	1TGL 664
39	Elross 3 Rooms (6 man) sleeper	1TGL 666
40	Elross 3 Rooms (6 man) sleeper	1TGL 815
41	Elross 3 Rooms (6 man) sleeper	1TGL 812
42	Elross 3 Rooms (6 man) sleeper	1TGL 811
	VAN & TRAILER LIST	

APPENDIX C

TAPE LISTINGS

Santos Spencer-Kiana-Muteroo 3D							
Tape #	**Swath**	**First FFID**	**Last FFID**	**First VP**	**Last VP**	**Date Recorded**	**Comments**
7001A	-	900000	900051	-	-	-	Test Files
	1 to 27	1	3394	1240 / 5112	1048 / 5160	18th April 07 - 25th April 07	Completed first panel
7002A	-	900052	900117	-	-	-	Test Files
	1 to 27	3395	8042	1040 / 5168	1425 / 5248	25 April 07 to 03 May 07	Completed panel two
7003A	-	900052	900190	-	-	-	Test Files
	81-127	8043	13383	1425 / 5256	1081 / 5360	26 April to 13 May 2007	Contract completed

APPENDIX D

OCCUPATIONAL HEALTH & SAFETY STANDARDS and HSE POLICY

- Site specific inductions / daily toolbox meetings / weekly safety meetings
  - Monthly Section head meetings
    - Personal protective equipment
      - Traffic Management Safety
        - VHF / UHF / HF communications
          - Vehicle emergency equipment
            - Random drug and alcohol tests

TERREX SEISMIC HEALTH, SAFETY AND ENVIRONMENT POLICY

Terrex Seismic is an Exploration Contractor involved in Seismic Acquisition to the Oil, Gas and Mineral Industries.

Our Commitments

- To provide a safe, healthy and injury free workplace for our employees, contractors and the general public.
- Assisting all of our employees and contractors to meet their HSE obligations.
- Establish and implement an HSE Management System and Operational Plans at all levels of the Company.
- Education and training of all of our Employees in HSE Systems, Procedures, Risk Assessment and Risk Minimization.
- Ongoing evaluation and modification of all of our HSE Management Systems, Procedures and Plans in order to ensure a consistent improvement in the establishment of a safe, healthy and environmentally sound workplace.
- Ensure all of our HSE Systems are in accordance with the relevant legislation and requirements of Clients and Government Bodies.

Our Goal

- To achieve a workplace where the targets of zero injuries, equipment damage and environmental incidents are attained.

Our Systems

- Management shall provide a visible, personal involvement in all aspects of HSE, and through their actions create a culture that facilitates employee HSE involvement. Management shall make available the appropriate resources to carry out all manner of HSE.
- Policies and objectives shall be initiated, defined, communicated and revised at all organizational levels.
- Organizational responsibilities shall be defined and the necessary resources provided to achieve HSE objectives
- Management shall continuously evaluate the HSE risks to the employees, clients and environment. Comprehensive risk assessment provides the necessary information in order to take action to reduce the risk to our operations.
- HSE shall be integrated in the design, development and delivery of all services. This includes planning for existing operations, managing change and developing emergency response measures.

Each employee has a personal responsibility to comply with this policy and contribute towards its implementation. Management holds the responsibility to communicate the requirements of this policy to all our employees, contractors and visitors and to involve them in its implementation.
Breach of this policy will be taken very seriously and may involve disciplinary action.

Stephen P. C. Tobin

APPENDIX E

HSE END OF CONTRACT SUMMARY

Health Safety & Environment

End of Contract Summary Spencer - Kiana - Muteroo 3D

17th April 2007 to 13th May 2007

Client	**Santos** (50-50-Beach)	**HSE Advisor**	Geoff Oswell/ Sarah Anderson
Location	Cooper Basin, SA	**Combined Personnel**	54
Camp Site	56 person Accommodation	**BAC Tests Conducted**	144
Camp Location	40kms. WSW of Moomba	**Preliminary Drug Tests Conducted**	0
Sub-Contractors	Terrex Contracting Pioneer Surveys	**Standard Operating Procedure Revisions**	2

Summary

17 April 2007	Camp mobilized and established at Spencer.
	Commenced laying spread.
	Re- induction for 1 employee
18 April 2007	Environmental Induction - Allan Lance
19 April 2007	CommencedShooting
19 April 2007	Re- induction for 5 employees
	Terrex site induction for 2 old hands who returned
22 April 2007	Conducted Man Lost Procedure. Refer minutes Safety Meeting.
24 April 2007	Santos Work Permit Procedure Revision 7 completed by 10 personnel.
25 April 2007	Terrex site induction for one new employee.
26 April 2007	Terrex site induction for one new employee.
	Re-induction for 6 emloyees.
27 April 2007	Re induction for 1 employee
29 April 2007	Conducted training session on Contents & use of first aid kit. Refer Minutes Safety Meeting.
	Meeting with PIRSA Representatives.
30 April 2007	G. Oswell HSE to Innamincka dump.
2 May 2007	Re-induction for 1 employee.
2 May 2007	Conducted Vehicle accident drill. See drills page.
3 May 2007	Re-induction for 8 employees.
4 May 2007	Re-induction for 1 employee.
6 May 2007	Conduct Review of Vehicle accident drill. Refer minutes safety meeting.
7 May 2007	G. Oswell HSE & G. Fox returned to Spinel Camps 2,3 &1 to inspect, collect pegs/pin flags & check for rubbish.
	Re-induction for Client Rep.
10 May 2007	Standby day due to weather (rain).
11 May 2007	Re-induction for 4 employees.
12 May 2007	Terrex site induction for 2 employees.
	Terrex Site induction for one old hand who returned.
13 May 2007	Conducted Fire/ muster drill. See drills page.
	Conducted training session on Driving- defensive Drivers. Refer Minutes Safety Meeting.
13 May 2007	Completed shooting.

Safety Statistics

Terrex Seismic Man-hours	16236.00
Sub-Contractor Man-hours	0.00
Fatalities	0
LTI's	0
MTI's	0
Days since last MTI/LTI	58
First Aid Incidents	0
Incident / Accident Reports	1
Work Days Lost	0
Hazard Identification Reports	5
Training Hours	263.75
Tool Box / Safety Meeting Man-hours	323.30
Audits / Inspections	340
Drills	2
Land Spills (< 5 litres)	0

Medical Statistics

Clinic Attendance	
Diarhoea / Nausea/ Vomiting	2
Colds / Iinfluenza / Sore throat-Cold	15
Ear / Nose / Throat	
Ear	
Muscular / Skeletal / Soft Tissue	2
Eye Irritation	
Headaches	1
Gynaecological	
Wound / Laceration / Dressing	
Skin / Rash / Fungal	
Dental	2
Burn	
Heat Illness	
Bites / Stings	
Abdominal Pains	
TOTAL	**22**

Report compiled by: Geoff Oswell HSE
Sarah Anderson HSE

APPENDIX F

PERSONNEL - CREW LIST

POSITION	NAMES
Crew Manager	Turner Jon
Crew Manager	Kneipp Mark
APM	Warren Campbell
HSE	Oswell Geoff
HSE (Trainee)	Anderson Sarah
Admin Staff	
Mechanic	Matthews Kenneth
Mechanic	Cummins Andrew
Mechanic	Rohrach Michael
Campy	Larwood Samantha
Campy	Gravino Mary
Cook	Viney Dennis
Cook	Gill Mark
Cook	McKiernan Shane
Cook	Kither Alfie
Kitchen Hand	Brown Jeremy
Kitchen Hand	Mitchell Kevin
Kitchen Hand	Halpin Jullian
Supply Driver	Rogers Jason
Supply Driver	Hanush Ronald
Supply Driver	McKenna Mick
Camp Staff	
Observer	Helme Nik
Oberver	O'Donnell Peter
Observer (Junior)	Burton Mitchell
Cable Repair	Humphries Ben
Cable Repair	Grainger Leslie
Cable Repair	Capper Alyx
Cable Repair	Betteridge Charles
Technical	
Vib Op	Bann Abby
Vib Op	Cabot Alan
Vib Op	James David
Vib Op/Scout	Shufflebotham Shane
Vib Op/Scout	Lynch David
Vib Op	Atkins Wade
Vib Op	Ansell Brian
Vib Op	Fox Greg
Vibrator Crew	
Vib Tech	Manning Edward
Vib Tech	Goossens Shane
Vib Tech	
T/Shooter	Manning Lee
T/Shooter	Capper Alyx
T/Shooter	Little Greg
T/Shooter	Miles Keely
T/Shooter	Byrne Nathan
Trouble Shooters	
De-Pegger	Belz Vincent
De-Pegger	Gravino Mary
De-Pegger	Boulter Russell
De-Pegger	Fieldheim Simon
De-Pegger	Rogers Jason
De-Pegger	McKenna Mick
De-Peggers	

POSITION	NAMES
Line Boss	Byrne Gareth
Snr Line	
Line Crew	Allen Tommy
Line Crew	Ansell Brian
Line Crew	Ansell James
Line Crew	Ash Mark
Line Crew	Bartch Syed
Line Crew	Bastien Julien
Line Crew	Bastien Matt
Line Crew	Belz Vincent
Line Crew	Boulter Russell
Line Crew	Brannelly Cody
Line Crew	Byrne Nathan
Line Crew	Crossie Elizabeth
Line Crew	Davidson Anthony
Line Crew	Feildheim Simon
Line Crew	Fox Greg
Line Crew	Fox Ricky
Line Crew	Good Jarrod
Line Crew	Gravino Mary
Line Crew	Heenan Nick
Line Crew	Herrick Samuel
Line Crew	Hill Timothy
Line Crew	Jones Nicola
Line Crew	Koch Greg
Line Crew	Larwood Samantha
Line Crew	Little Greg
Line Crew	Maag Glen
Line Crew	Manning Lee
Line Crew	McKenna Mick
Line Crew	Miles Keely
Line Crew	Miller Tony
Line Crew	Milner Shannon
Line Crew	Mitchell Kevin
Line Crew	Norris Chris
Line Crew	Parkes Robert
Line Crew	Payne Jason
Line Crew	Phillips Chris
Line Crew	Rickett Dylan
Line Crew	Rogers Jason
Line Crew	Ryan Zach
Line Crew	Smith Robyn
Line Crew	Stanley Alan
Line Crew	Williamson Cameron
Line Crew	Wulff Joanne
Line Crew	Wyllie Edward
Line Crew	

PERSONNEL - CREW NUMBERS

POSITION	NUMBERS
Crew Manager	1
APM	1
HSE	1
HSE (Trainee)	1
Mechanic	2
Campy	1
Cook	2
Kitchen Hand	1
Supply Driver	2
Oberver	1
Observer (Junior)	1
Cable Repair	2-3
Vib Op	4
Vib Op/Scout	1
Vib Tech	1-2
T/Shooter	2
De-Pegger	1-2
Line Boss	1
Line Crew	24

APPENDIX G

DAILY REPORTS

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Mark Kneipp
Client Rep: -
Weather: Fine\Cool
DATE: Tuesday, 17 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	

Daily Totals

VP's:	0
Skips:	0
Lin.Kms:	0.0000
Day.Sq.Klms:	0.0000

Cumulative Totals

Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	165.274

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:		Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:		Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:		WOS:			
Traverse Move:		Other:		**Other -**	
Swath Move:		**Non-Charge Time -**		Mobilisation:	7.0
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	3.7
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	0.0
Standby Time:	0.3
Down Time:	0.0
Non-Charge Time:	0.5
Total Day Hrs:	11.5

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Camp mobilised from Spinel 3D to the SKM 3D, a move of approximately 2.5 hrs
* Camp then set up and, after a startup meeting @ 1400, spread layout commenced (neither mobiliastion or layout have been added to chargeable, set fee)
* 3 vibes floated to SKM prospect, with the 4th being delayed due to problems with the float. 4th being picked up 1st thing in morning by another truck
* Cultural heritage inductions are to be held @ 0730 tommorrow morning

Spread Movement

Client: SANTOS Spencer 3D **Date:** Tuesday, 17 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1272	5161	5208	48				
1264	5161	5208	48				
1256	5161	5208	48				
1248	5161	5208	48				
1240	5113	5208	96				
		Total Stations :	288			Total Stations:	0

Total Crew #'s:47 **Line Crew #'s:25** **Vehicle #'s:21**

Equipment Report **Bad Phones:** **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Mark Kneipp
Client Rep: -
Weather: Fine\Cool
DATE: Wednesday, 18 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	

Daily Totals

VP's:	0
Skips:	0
Lin.Kms:	0.0000
Day.Sq.Klms:	0.0000

Cumulative Totals

Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	165.274

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:		Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:		Induction:	1.2
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:		WOS:			
Traverse Move:		Other:		**Other -**	
Swath Move:		**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	9.0
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	0.0
Standby Time:	1.5
Down Time:	0.0
Non-Charge Time:	0.5
Total Day Hrs:	11.0

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Cultural Heritige induction held in morning, then crew re-commenced layout
* 4th Vibe arrived @ 1100
* Problems with recorder in afternoon, not writing to NAS or Tape drives. Solved late at night, incorrect settings after patch installation.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Wednesday, 18 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1232	5113	5208	96				
1224	5113	5208	96				
1216	5113	5208	96				
1208	5057	5208	152				
1200	5057	5208	152				
1192	5057	5208	152				
1184	5057	5208	152				
1176	5057	5208	152				
Total Stations :		744		**Total Stations:**		0	

Total Crew #'s:47 **Line Crew #'s:25** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 1 **Bad Cable:** 3

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Mark Kneipp
Client Rep: -
Weather: Fine\Cool
DATE: Thursday, 19 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
1	5112-5160	1272-1200	2.24	0	56
2	5112-5160	1264-1192	2.24	0	56
3	5160-5112	1256-1184	2.24	0	56
4	5160-5112	1248-1176	2.24	0	56
5	5056-5160	1240-1168	4.48	0	112
6	5160-5096	1232-1160	2.88	0	72
7	5160-5096	1224-1152	2.88	0	72

Daily Totals

VP's:	480
Skips:	0
Lin.Kms:	19.2000
Day.Sq.Klms:	5.9487

Cumulative Totals

Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	165.274

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	5.5	Human Error:		Toolbox/Safety Meeting:	0.2
Requested Experimental:		Troubleshooting:	0.6	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.2	Other:	
Detour:	1.4	WOS:			
Traverse Move:	1.7	Other:		**Other -**	
Swath Move:	0.5	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	1.5	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	9.1
Standby Time:	0.2
Down Time:	0.8
Non-Charge Time:	1.8
Total Day Hrs:	11.9

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Complete startup QC tests & begin production at 0744
* Some large detours due to loose dunes & fence detours
* Crew change,3 out, 7 in via Moomba. Crew numbers will stand at 48 after completion of crew change tommorrow.
*Jon Turner completed Santos Rev 7 permitting in Adelaide before mobing to crew, will commence line prep in greenfields area(Spencer West) tommorrow

Total Crew #'s:51 **Line Crew #'s:27** **Vehicle #'s:21**

Spread Movement

Client: SANTOS Spencer 3D **Date:** Thursday, 19 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1168	5025	5208	184	1272	5161	5208	48
1160	5025	5208	184	1264	5161	5208	48
1152	5025	5208	184	1256	5161	5208	48
1144	5025	5208	184	1248	5161	5208	48
1136	5025	5208	184	1240	5113	5208	96
				1232	5208	5155	54
				1224	5208	5155	54
Total Stations :		920		**Total Stations:**		396	

Equipment Report **Bad Phones:** 21 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Friday, 20 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
6	5088-5056	1232-1160	1.6	0	40
7	5088-5056	1224-1152	1.6	0	40
8	5056-5160	1216-1144	4.48	0	112
9	5056-5160	1208-1136	4.48	0	112
10	5160-5024	1200-1128	5.76	0	144
11	5024-5056	1192-1120	1.6	0	40

Daily Totals

VP's:	488
Skips:	0
Lin.Kms:	19.5200
Day.Sq.Klms:	6.0478

Cumulative Totals

Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	82.637

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	5.6	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	1.1	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	2.2	WOS:			
Traverse Move:	2.1	Other:		**Other -**	
Swath Move:	0.3	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.2
Standby Time:	0.3
Down Time:	1.1
Non-Charge Time:	0.3
Total Day Hrs:	11.9

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Excessive troubleshooting time today, mainly due to road crossing being unstable when driven over at speed.
* Crew change,3 out.Crew numbers at 47 total.
* Work pemits in place first thing this morning for the line clearing, no waiting on dozers or spread recorded.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Friday, 20 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1128	5025	5208	184	1232	5154	5113	42
1120	5025	5208	184	1224	5154	5113	42
1112	5025	5208	184	1216	5113	5208	96
1104	5025	5208	184	1208	5057	5208	152
				1200	5057	5208	152
Total Stations :		736		**Total Stations:**		484	

Total Crew #'s:47 **Line Crew #'s:27** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 15 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Saturday, 21 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
11	5064-5160	1192-1120	4.16	0	104
12	5160-5024	1184-1112	5.76	12	132
13	5160-5024	1176-1104	5.76	1	143
14	5024-5160	1168-1096	5.76	0	144
15	5160	1160-1088	0.32	1	7
16	5160	1152-1080	0.32	0	8

Daily Totals

VP's:	538
Skips:	14
Lin.Kms:	22.0800
Day.Sq.Klms:	6.8410

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	55.091

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	5.8	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.3	Induction:	
Recorder Moveup:	0.8	Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.7	Other:	
Detour:	1.1	WOS:			
Traverse Move:	2.2	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.4	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.1
Standby Time:	0.3
Down Time:	1.0
Non-Charge Time:	0.4
Total Day Hrs:	11.8

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* A good days production today, line crew working well.
* Vibe downtime today was due to two vibes getting bogged before the commencement of production this morning.
* Supply driver to Eromanga today to pickup remaining vibe tyres, will return tomorrow.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Saturday, 21 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1096	5025	5208	184	1192	5057	5208	152
1088	5025	5208	184	1184	5057	5208	152
1080	5025	5208	184	1176	5057	5208	152
1072	5025	5208	184	1168	5025	5208	184
1064	5208	5160	49				
Total Stations :		785		**Total Stations:**		640	

Total Crew #'s:47 **Line Crew #'s:27** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 5 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Sunday, 22 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
15	5152-5024	1160-1088	5.44	0	136
16	5152-5024	1152-1080	5.44	0	136
17	5024-5128	1144-1072	4.48	0	112
18	5024-5128	1136-1064	4.48	0	112

Daily Totals

VP's:	496
Skips:	0
Lin.Kms:	19.8400
Day.Sq.Klms:	6.1470

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	41.319

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	5.4	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.4	Induction:	
Recorder Moveup:		Recorder:	0.9	Weather:	2.2
Vibrator Moveup:		Vibes:	0.1	Other:	
Detour:	0.5	WOS:			
Traverse Move:	1.2	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.4	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	7.2
Standby Time:	2.5
Down Time:	1.4
Non-Charge Time:	0.9
Total Day Hrs:	12.0

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Recorder downtime today was due to a break in the coax lead for the high gain vibe antenna, repairs made and production commenced.
* Weather standby today was caused by high wind early the day, tests with extra sweeps proved unsuccessful with data still lost, standby for 2 hours.
* Supply driver returned from Eromanga today with three new vibe tyres.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Sunday, 22 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1064	5159	5025	135	1160	5025	5208	184
1056	5025	5208	184	1152	5025	5208	184
1048	5025	5208	184	1144	5025	5070	46
				1136	5025	5070	46
Total Stations :		503		**Total Stations:**		460	

Total Crew #'s:47 **Line Crew #'s:27** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 4 **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Monday, 23 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
17	5136-5160	1144-1072	1.28	0	32
18	5136-5160	1136-1064	1.28	0	32
19	5160-5024	1128-1056	5.76	0	144
20	5160-5024	1120-1048	5.76	0	144
21	5024-5160	1112-1040	5.76	0	144
22	5024-5160	1104-1032	5.76	0	144

Daily Totals

VP's:	640
Skips:	0
Lin.Kms:	25.6000
Day.Sq.Klms:	7.9316

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	33.055

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.3	Human Error:	0.2	Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:		Induction:	
Recorder Moveup:		Recorder:	0.3	Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	1.3	WOS:			
Traverse Move:	1.8	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.5
Standby Time:	0.3
Down Time:	0.5
Non-Charge Time:	0.5
Total Day Hrs:	11.8

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Downtime today was due to a reshoot because of a vibe positioning error in the recorder.
* A good days production today, crew working well.
* 10 personnel to go to Moomba tomorrow for Rev 7 training.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Monday, 23 April 2007

Layout Line	Station #		Tot	Pickup Line	Station #		Tot
1040	5025	5208	184	1144	5071	5208	138
1032	5025	5208	184	1136	5071	5208	138
1024	5025	5248	224	1128	5025	5208	184
1032	5209	5248	40	1120	5025	5208	184
1040	5209	5248	40	1112	5025	5120	96
1048	5209	5248	40	1104	5025	5120	96
1056	5209	5248	40				
1064	5209	5248	40				
	Total Stations :	712			**Total Stations:**	836	

Total Crew #'s:47 **Line Crew #'s:27** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 7 **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Tuesday, 24 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
23	5160-5024	1096-1024	5.76	0	144
24	5160-5024	1088-1024	5.76	0	144
25	2024-5136	1080-1024	4.80	0	120
26	2024-5136	1072-1024	4.80	0	120
27	5024-5144	1064-1024	5.12	0	128

Daily Totals

VP's:	656
Skips:	0
Lin.Kms:	26.2400
Day.Sq.Klms:	8.1299

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	27.546

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.7	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.6	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	1.1	WOS:			
Traverse Move:	1.7	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.4	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.7
Standby Time:	0.3
Down Time:	0.6
Non-Charge Time:	0.4
Total Day Hrs:	12.0

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* 10 personnel completed rev 7 training in Moomba today, back on crew by 11:00am.
* One extra line crew into camp today.
* A good days production today with the vibes rolling off the southern end of panel 1, will complete the panel tomorrow morning.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Tuesday, 24 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1072	5209	5296	88	1096	5025	5120	96
1080	5209	5296	88	1088	5025	5120	96
1088	5209	5296	88	1080	5025	5070	46
1096	5209	5296	88	1072	5025	5070	46
1104	5209	5281	73	1064	5025	5070	46
				1056	5025	5070	46
				1048	5025	5070	46
				1040	5025	5070	46
				1032	5025	5070	46
				1024	5025	5070	46
Total Stations :		425		**Total Stations:**		468	

Total Crew #'s:48 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 6 **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Wednesday, 25 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
25	5144-5160	1080-1024	0.96	0	24
26	5144-5160	1072-1024	0.96	0	24
27	5152-5160	1064-1024	0.64	0	16
	Complete Panel 1				
28	5168-5248	1024-1064	3.52	0	88
29	5168-5248	1024-1072	3.52	0	88
30	5248-5200	1024-1080	2.24	0	56
31	5248-5192	1024-1088	2.56	0	64
32	5248-5192	1024-1096	2.56	0	64

Daily Totals

VP's:	424
Skips:	0
Lin.Kms:	16.9600
Day.Sq.Klms:	5.2547

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	23.611

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	4.8	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	3.2	Induction:	
Recorder Moveup:	1.0	Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.6	WOS:			
Traverse Move:	0.8	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:	0.5		
		Other:			

Daily Totals

Working Time:	7.3
Standby Time:	0.3
Down Time:	3.2
Non-Charge Time:	1.0
Total Day Hrs:	11.8

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Completed panel 1 today, efficient panel change with only 0.5 hours down.
* Excessive amount of troubleshooting due to an intermittent break in a transverse cable, wouldn't allow shots to be taken but was difficult to track where the faulty cable was located.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Wednesday, 25 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1104	5282	5296	15	1080	5071	5120	50
1112	5209	5296	88	1072	5071	5120	50
1120	5121	5296	176	1064	5071	5120	50
1128	5121	5296	176	1056	5071	5120	50
1136	5121	5296	162	1048	5071	5120	50
1144	5296	5208	88	1040	5071	5120	50
				1032	5071	5120	50
				1024	5071	5120	50
Total Stations :		705		**Total Stations:**		400	

Total Crew #'s:48 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 6 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine\Cool
DATE: Thursday, 26 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
30	5192-5168	1024-1080	1.28	0	32
31	5184-5168	1024-1088	0.96	0	24
32	5184-5168	1024-1096	0.96	0	24
33	5168-5248	1032-1104	3.52	0	88
34	5168-5248	1040-1112	3.52	0	88
35	5248-5168	1048-1120	3.52	0	88
36	5248-5168	1056-1128	3.52	0	88
37	5168-5248	1064-1136	3.52	0	88
38	5248-5168	1072-1144	3.52	0	88
39	5248-5168	1080-1152	3.52	0	88
40	5168-5176	1088-1160	0.64	0	16

Daily Totals

VP's:	712
Skips:	0
Lin.Kms:	28.4800
Day.Sq.Klms:	8.8239

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	20.659

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.5	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.2	Induction:	
Recorder Moveup:	0.7	Recorder:	0.3	Weather:	
Vibrator Moveup:		Vibes:	0.1	Other:	
Detour:	0.1	WOS:			
Traverse Move:	2.0	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.4	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.5
Standby Time:	0.3
Down Time:	0.6
Non-Charge Time:	0.4
Total Day Hrs:	11.8

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* An excellent days production today with over 700 VP's taken by 4:45pm
* Crew change today, 7 onto crew and 6 out.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Thursday, 26 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1144	5207	5121	87	1024	5121	5248	128
1152	5121	5296	176	1032	5121	5248	128
1160	5121	5296	176	1040	5121	5248	128
1168	5121	5296	176	1048	5121	5248	128
1176	5121	5193	87	1056	5121	5248	128
				1064	5121	5248	128
				1072	5296	5201	96
				1080	5296	5201	96
Total Stations :		702		**Total Stations:**		960	

Total Crew #'s:49 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 3 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client.....	SANTOS	Party Manager:	Jon Turner
Survey Name.	Spencer-Kiana-Muteroo 3D	Client Rep:	-
Area.....	PPL 32,37, PEL 107	Weather:	Overcast / Light Rain
State.....	SA	DATE:	Friday, 27 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
40	5184-5248	1088-1160	2.88	0	72
41	5248-5168	1096-1168	3.52	0	88
42	5168-5200	1104-1176	1.6	0	40

Daily Totals

VP's:	200
Skips:	0
Lin.Kms:	8.0000
Day.Sq.Klms:	2.4786

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	18.364

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	2.0	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.5	Induction:	
Recorder Moveup:		Recorder:		Weather:	6.0
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.7	WOS:			
Traverse Move:	1.0	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.2	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.7	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	3.8
Standby Time:	6.3
Down Time:	0.5
Non-Charge Time:	0.9
Total Day Hrs:	11.5

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Overnight and morning rain meant that conditions were too wet to commence work first thing today, PM and Observer continued to scout conditions until work commenced at midday.
* Roads were still wet and slippery so line crew used grid lines for access and avoided road use.
* Vibes used one crossing point on the main road to avoid damaging the road surface.
* Line crew cldeaned vehicles and layed sand paths around camp until work commenced.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Friday, 27 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1176	5194	5296	103	1072	5200	5121	80
1184	5121	5296	176	1080	5200	5121	80
1192	5121	5296	176	1088	5121	5296	176
1200	5296	5280	17	1096	5296	5200	97
Total Stations :		472		**Total Stations:**		433	

Total Crew #'s:49 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 17 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Saturday, 28 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
42	5208-5248	1104-1176	1.92	0	48
43	5248-5168	1112-1184	3.52	0	88
44	5168-5248	1120-1192	3.52	0	88
45	5248-5168	1128-1200	3.52	0	88
46	5168-5248	1136-1208	3.52	0	88
47	5248-5168	1144-1216	3.52	0	88
48	5168-5216	1152-1224	2.24	0	56

Daily Totals

VP's:	544
Skips:	0
Lin.Kms:	21.7600
Day.Sq.Klms:	6.7418

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	16.527

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	5.5	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.2	Induction:	
Recorder Moveup:		Recorder:	0.4	Weather:	
Vibrator Moveup:		Vibes:	0.1	Other:	
Detour:	1.7	WOS:			
Traverse Move:	2.8	Other:		**Other -**	
Swath Move:	0.3	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.2	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.3
Standby Time:	0.3
Down Time:	0.7
Non-Charge Time:	0.2
Total Day Hrs:	11.5

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Recorder downtime today was due to a generator service done qt the end of the day.
* Line crew workiong well at the moment with over 1000 stations kicked on front crew today.
* Rob Langley and two other personnel from PIRSA arrived late today, will return at 8:00am tomorrow to inspect the grid.
* Back to shooting single swaths at the moment due to the larger amount of spread overlap in this section of the panel, should be able to continue shooting double swaths later tomorrow.

Total Crew #'s:49 **Line Crew #'s:28** **Vehicle #'s:21**

Spread Movement

Client: SANTOS Spencer 3D **Date:** Saturday, 28 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1200	5279	5121	159	1104	5199	5121	79
1208	5113	5296	184	1112	5121	5296	176
1216	5113	5296	184	1120	5121	5296	176
1224	5113	5296	184	1128	5121	5296	176
1232	5113	5296	184	1136	5121	5296	176
1240	5113	5248	136	1144	5296	5180	117
Total Stations :		1031		**Total Stations:**		900	

Equipment Report **Bad Phones:** 15 **Bad Cable:** 2

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Sunday, 29 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
48	5224-5248	1152-1224	1.28	0	32
49	5248-5168	1160-1232	3.52	0	88
50	5168-5248	1168-1240	3.52	0	88
51	5248-5168	1176-1248	3.52	0	88
52	5248-5168	1184-1256	3.52	0	88
53	5168-5248	1192-1264	3.52	0	88
54	5168-5248	1200-1272	3.52	0	88
55	5248-5208	1208-1280	1.92	0	48

Daily Totals

VP's:	608
Skips:	0
Lin.Kms:	24.3200
Day.Sq.Klms:	7.5350

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	15.025

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.7	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.2	Induction:	
Recorder Moveup:	0.7	Recorder:	0.6	Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.6	WOS:			
Traverse Move:	2.0	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.1	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.2
Standby Time:	0.3
Down Time:	0.8
Non-Charge Time:	0.4
Total Day Hrs:	11.7

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Rob Langley and two other personnel from PIRSA inspected the grid today, departed after lunch.
* Line crew workiong well at the moment with over 1000 stations moved at both the front and back today.
* Tape shipment 1A sent to Adelaide today.
* Recorder downtime today was due to a system error on startup, obsderver rectified the problem and production commenced.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Sunday, 29 April 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1240	5249	5296	48	1144	5179	5121	59
1248	5161	5296	136	1152	5121	5296	176
1256	5161	5296	136	1160	5121	5296	176
1264	5161	5296	136	1168	5121	5296	176
1272	5161	5296	136	1176	5121	5296	176
1280	5161	5296	136	1184	5121	5296	176
1288	5161	5296	136	1192	5121	5188	68
1296	5161	5296	136	1200	5121	5188	68
1304	5161	5196	36				
Total Stations :		1036		Total Stations:		1075	

Total Crew #'s:49 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones: 7** **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Monday, 30 April 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
55	5200-5160	1208-1280	1.92	0	48
56	5160-5248	1216-1288	3.84	0	96
57	5160-5248	1224-1296	3.84	0	96
58	5248-5160	1232-1304	3.84	0	96
59	5248-5160	1240-1312	3.84	0	96
60	5160-5248	1248-1320	3.84	0	96
61	5160-5248	1256-1328	3.84	0	96

Daily Totals

VP's:	624
Skips:	0
Lin.Kms:	24.9600
Day.Sq.Klms:	7.7333

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	13.773

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.6	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.3	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.2	Other:	
Detour:	1.4	WOS:			
Traverse Move:	2.0	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.4	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.2
Standby Time:	0.3
Down Time:	0.5
Non-Charge Time:	0.7
Total Day Hrs:	11.7

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Another good day, line crew working well.
* Vibes moving back into the shorter lines and shaking double swaths at the moment.

Total Crew #'s:49 **Line Crew #'s:28** **Vehicle #'s:21**

Spread Movement

Client: SANTOS Spencer 3D **Date:** Monday, 30 April 2007

Layout Line	Layout Station #		Layout Tot	Pickup Line	Pickup Station #		Pickup Tot
1304	5197	5296	100	1192	5189	5296	108
1312	5161	5296	136	1200	5189	5296	108
1320	5161	5296	136	1208	5113	5296	184
1328	5161	5296	136	1216	5113	5296	184
1336	5161	5296	136	1224	5113	5296	184
1344	5161	5296	136	1232	5172	5296	125
1352	5161	5296	136	1240	5172	5296	125
1360	5180	5296	117				
	Total Stations :		1033		**Total Stations:**		1018

Equipment Report **Bad Phones:** 7 **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Tuesday, 1 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
62	5248-5160	1264-1336	3.84	0	96
63	5248-5160	1272-1344	3.84	0	96
64	5160-5248	1280-1352	3.84	0	96
65	5160-5248	1288-1360	3.84	0	96
66	5248-5160	1296-1368	3.84	0	96
67	5248-5160	1304-1376	3.84	0	96
68	5160-5168	1312-1384	0.64	0	16
69	5160-5168	1320-1392	0.64	0	16

Daily Totals

VP's:	608
Skips:	0
Lin.Kms:	24.3200
Day.Sq.Klms:	7.5350

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	12.713

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.5	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.7	Induction:	
Recorder Moveup:	0.8	Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	1.0	WOS:			
Traverse Move:	1.7	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.4	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.1
Standby Time:	0.3
Down Time:	0.7
Non-Charge Time:	0.4
Total Day Hrs:	11.5

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Toolbox moved back to 6:15am due to poor light.
* Should complete spread layout on panel 2 tomorrow, with acquisition to be completed the following day.
* A good days production with an early finish for recorder move.

Spread Movement

Client: SANTOS Spencer 3D **Date:** Tuesday, 1 May 2007

Layout Line	Station #		Tot	Pickup Line	Station #		Tot
1360	5161	5179	19	1232	5113	5171	59
1368	5177	5296	120	1240	5113	5171	59
1376	5177	5296	120	1248	5161	5296	136
1384	5177	5296	120	1256	5161	5296	136
1392	5177	5296	120	1264	5161	5296	136
1400	5177	5296	120	1272	5161	5296	136
1408	5177	5296	120	1280	5161	5296	136
1416	5177	5296	120	1288	5161	5296	136
1424	5177	5296	120				
Total Stations :		979		**Total Stations:**		934	

Total Crew #'s:49 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 11 **Bad Cable:** 3

Crew Manager .....

Client Rep .....

Terrex Seismic

Daily Report

CREW 402

Client..... SANTOS

Survey Name. Spencer-Kiana-Muteroo 3D

Area..... PPL 32,37, PEL 107

State..... SA

Party Manager: Jon Turner

Client Rep: -

Weather: Fine / Pleasant

DATE: Wednesday, 2 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
68	5176-5248	1312-1384	3.2	0	80
69	5176-5248	1320-1392	3.2	0	80
70	5248-5176	1328-1400	3.2	0	80
71	5248-5176	1336-1408	3.2	0	80
72	5176-5248	1344-1416	3.2	0	80
73	5176-5248	1352-1424	3.2	0	80
74	5248-5208	1360-1432	1.92	0	48
75	5248-5208	1368-1440	1.92	0	48
76	5248-5208	1376-1448	1.92	0	48
77	5248-5208	1384-1448	1.92	0	48

Daily Totals

VP's:	672
Skips:	0
Lin.Kms:	26.8800
Day.Sq.Klms:	8.3281

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	11.805

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.5	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.1	Induction:	
Recorder Moveup:		Recorder:	0.2	Weather:	
Vibrator Moveup:		Vibes:	0.2	Other:	
Detour:	0.6	WOS:			
Traverse Move:	1.5	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.2	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	9.8
Standby Time:	0.3
Down Time:	0.5
Non-Charge Time:	0.7
Total Day Hrs:	11.3

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Completed spread layout on panel 2 today, vibes rolling off.
* 1 observer onto crew today.
* Emergency response drill conducted late today, see HSE report for details.

Total Crew #'s:50 **Line Crew #'s:29** **Vehicle #'s:21**

Spread Movement

Client: SANTOS Spencer 3D **Date:** Tuesday, 1 May 2007

Layout Line	Layout Station #		Layout Tot	Pickup Line	Pickup Station #		Pickup Tot
1432	5193	5328	136	1296	5161	5296	136
1440	5193	5328	136	1304	5161	5296	136
1448	5209	5320	112	1312	5161	5296	136
1424	5297	5336	40	1320	5161	5296	136
1416	5297	5336	40	1328	5161	5208	48
1408	5297	5344	48	1336	5161	5208	48
1400	5297	5352	56	1344	5161	5208	48
1392	5297	5352	56	1352	5161	5208	48
1384	5297	5360	64				
1376	5297	5360	64				
1368	5297	5368	72				
1360	5297	5368	72				
1352	5297	5368	72				
Total Stations :		688		**Total Stations:**		736	

Equipment Report **Bad Phones:** 10 **Bad Cable:** 2

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Thursday, 3 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
74	5248-5208	1360-1432	1.28	0	32
75	5248-5208	1368-1440	1.28	0	32
76	5248-5208	1376-1448	1.28	0	32
77	5248-5208	1384-1448	1.28	0	32
78	5192-5248	1392-1448	2.56	0	64
79	5192-5248	1400-1448	2.56	0	64
80	5208-5248	1408-1448	1.92	0	48
81	5256-5320	1408-1448	2.88	0	72
82	5256-5328	1400-1448	3.2	0	80
83	5256-5328	1392-1448	3.2	0	80
84	5336-5328	1384-1448	0.64	0	16
85	5336-5328	1376-1448	0.64	0	16
86	5344-5328	1368-1440	0.96	0	24
87	5352-5328	1360-1432	1.28	0	32

Daily Totals

VP's:	624
Skips:	0
Lin.Kms:	24.9600
Day.Sq.Klms:	7.7333

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	11.018

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.7	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.1	Induction:	
Recorder Moveup:	0.9	Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.1	Other:	
Detour:	0.5	WOS:			
Traverse Move:	1.0	Other:		**Other -**	
Swath Move:	0.6	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.2	Crew Demobe/Remobe:	
		Panel Move:	0.7		
		Other:			

Daily Totals

Working Time:	9.7
Standby Time:	0.3
Down Time:	0.2
Non-Charge Time:	1.4
Total Day Hrs:	11.6

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Panel 2 completed today, commenced panel 3.
* Crew change today, 6 out, 8 into camp.
* Hyraulic problems with one of the vibes today, vibe tech working to repair it.

Total Crew #'s:52 **Line Crew #'s:30** **Vehicle #'s:21**

Spread Movement

Client: SANTOS Spencer 3D **Date:** Tuesday, 1 May 2007

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1344	5209	5368	160	1360	5161	5296	136
1336	5209	5368	160	1368	5177	5296	120
1328	5209	5368	160	1376	5177	5296	120
1320	5209	5352	144	1384	5177	5296	120
				1392	5177	5208	32
				1400	5177	5208	32
				1408	5177	5208	32
				1416	5177	5208	32
				1424	5177	5208	32
				1432	5193	5208	16
				1440	5193	5208	16
Total Stations :		624		**Total Stations:**		624	

Equipment Report **Bad Phones:** 10 **Bad Cable:** 2

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Friday, 4 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
84	5320-5256	1384-1448	2.88	0	72
85	5320-5256	1376-1448	2.88	0	72
86	5320-5256	1368-1440	2.88	0	72
87	5320-5256	1360-1432	2.88	0	72
88	5352-5256	1352-1424	4.16	0	104
89	5360-5272	1344-1416	4.48	0	112
90	5360-5272	1336-1408	3.84	0	96
91	5368-5272	1328-1400	4.16	0	104

Daily Totals

VP's:	704
Skips:	0
Lin.Kms:	28.1600
Day.Sq.Klms:	8.7247

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	10.330

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.4	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.3	Induction:	
Recorder Moveup:	0.7	Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.7	WOS:			
Traverse Move:	1.5	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.4	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.4
Standby Time:	0.3
Down Time:	0.3
Non-Charge Time:	0.4
Total Day Hrs:	11.4

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* An excellent days production production today, line crew working well.
* Vibe tech onto camp today, crew numbers at 53.
* Vibes detouring pipeline at the moment rather than ping ponging around it, detour time is not too great and time saved on doing extra sweeps should counter the detour time.

Spread Movement

Client: SANTOS Spencer 3D

Layout Line	Station #		Tot	Pickup Line	Station #		Tot
1320	5353	5368	16	1448	5209	5320	112
1312	5209	5368	160	1440	5209	5328	120
1304	5209	5368	160	1432	5209	5328	120
1296	5209	5368	160	1424	5209	5336	128
				1416	5209	5336	128
				1408	5316	5344	29
				1400	5316	5352	37
Total Stations :		496		**Total Stations:**		674	

Total Crew #'s:53 **Line Crew #'s:30** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 4 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Saturday, 5 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
90	5264-5256	1336-1408	0.64	0	16
91	5264-5256	1328-1400	0.64	0	16
92	5256-5368	1320-1392	4.8	0	120
93	5256-5368	1312-1384	4.8	0	120
94	5368-5256	1304-1376	4.8	0	120
95	5368-5256	1296-1368	4.8	0	120
96	5256-5296	1288-1360	1.92	0	48
97	5256-5296	1280-1352	1.92	0	48

Daily Totals

VP's:	608
Skips:	0
Lin.Kms:	24.3200
Day.Sq.Klms:	7.5350

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	9.722

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.1	Human Error:	0.3	Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.1	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	1.1	WOS:			
Traverse Move:	1.6	Other:		**Other -**	
Swath Move:	0.3	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.2	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.1
Standby Time:	0.3
Down Time:	0.4
Non-Charge Time:	0.5
Total Day Hrs:	11.3

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Another good day, should complete acquisition on the 10th or 11th May.
* Tape shipment 2A was sent today.
* Back crew depegging panel 3 as they clear lines, depegger working on source.

Spread Movement

Client: SANTOS Spencer 3D

Layout Line	Station #		Tot	Pickup Line	Station #		Tot
1288	5209	5368	160	1408	5209	5315	107
1280	5209	5368	160	1400	5209	5315	107
1272	5209	5368	160	1392	5209	5352	144
1264	5209	5368	160	1384	5209	5360	152
1256	5209	5296	88	1376	5209	5360	152
				1368	5209	5368	160
				1360	5209	5231	23
				1352	5209	5231	23
Total Stations :		728		**Total Stations:**		868	

Total Crew #'s:53 **Line Crew #'s:30** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 3 **Bad Cable:** 0

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Sunday, 6 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
96	5304-5368	1288-1360	2.88	0	72
97	5304-5368	1280-1352	2.88	0	72
98	5368-5256	1272-1344	4.8	0	120
99	5368-5256	1264-1336	4.8	0	120
100	5256-5368	1256-1328	4.8	0	120
101	5256-5368	1248-1320	4.8	0	120

Daily Totals

VP's:	624
Skips:	0
Lin.Kms:	24.9600
Day.Sq.Klms:	7.7333

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	9.182

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.2	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.1	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.1	Other:	
Detour:	1.0	WOS:			
Traverse Move:	1.8	Other:		**Other -**	
Swath Move:	0.2	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.4	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.2
Standby Time:	0.3
Down Time:	0.2
Non-Charge Time:	0.7
Total Day Hrs:	11.4

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* No problems again today, crew working well.
* John Allens van collected from Moomba and setup at camp ready for his arrival on crew tomorrow.

Spread Movement

Client: SANTOS Spencer 3D

Layout Line	Layout Station #		Layout Tot	Pickup Line	Pickup Station #		Pickup Tot
1256	5297	5368	72	1360	5232	5368	137
1248	5209	5368	160	1352	5232	5368	137
1240	5209	5368	160	1344	5209	5368	160
1232	5209	5368	160	1336	5209	5368	160
1224	5209	5368	160	1328	5209	5300	92
1216	5209	5368	160	1320	5209	5300	92
1208	5209	5248	40				
Total Stations :		912		**Total Stations:**		778	

Total Crew #'s:53 **Line Crew #'s:30** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 4 **Bad Cable:** 1

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: -
Weather: Fine / Pleasant
DATE: Monday, 7 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
102	5368-5256	1240-1312	4.8	0	120
103	5368-5356	1232-1304	4.8	0	120
104	5256-5368	1224-1296	4.8	0	120
105	5256-5368	1216-1288	4.8	0	120
106	5368-5320	1208-1280	2.24	0	56
107	5368-5320	1200-1272	2.24	0	56

Daily Totals

VP's:	592
Skips:	0
Lin.Kms:	23.6800
Day.Sq.Klms:	7.3367

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	8.699

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.9	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:		Induction:	
Recorder Moveup:	0.5	Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.2	Other:	
Detour:	1.4	WOS:			
Traverse Move:	1.5	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.4	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.4
Standby Time:	0.3
Down Time:	0.2
Non-Charge Time:	0.4
Total Day Hrs:	11.3

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* No problems again today, crew working well.
* John Allen arrived on crew late today.
* HSE and supply driver to Spinel grid to collect survey pegs and clean camp sites.

Spread Movement

Client: SANTOS Spencer 3D

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1208	5249	5368	120	1328	5301	5368	68
1200	5209	5368	160	1320	5301	5368	68
1192	5209	5368	160	1312	5209	5368	160
1184	5209	5368	160	1304	5209	5368	160
1176	5209	5368	160	1296	5209	5368	160
1168	5285	5368	84	1288	5209	5368	160
Total Stations :		844		**Total Stations:**		776	

Total Crew #'s:53 **Line Crew #'s:30** **Vehicle #'s:21**

Equipment Report **Bad Phones: 3** **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: John Allen
Weather: Fine / Pleasant
DATE: Tuesday, 8 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
106	5312-5256	1208-1280	2.56	0	64
107	5312-5256	1200-1272	2.56	0	64
108	5256-5368	1192-1264	4.8	0	120
109	5256-5368	1184-1256	4.8	0	120
110	5368-5288	1176-1248	3.52	0	88
111	5368-5288	1168-1240	3.52	0	88

Daily Totals

VP's:	544
Skips:	0
Lin.Kms:	21.7600
Day.Sq.Klms:	6.7418

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	8.264

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.5	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	1.6	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.9	WOS:			
Traverse Move:	1.4	Other:		**Other -**	
Swath Move:	0.1	**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.3	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.4	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	8.9
Standby Time:	0.3
Down Time:	1.6
Non-Charge Time:	0.7
Total Day Hrs:	11.5

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Excessive troubleshooting today due to problems with the transverse line again.
* Two depegging vehicles operating today.
* Trunion pins to be replaced on vibe 4 at Cavpower in Moomba early next week.

Spread Movement

Client: SANTOS Spencer 3D

Layout Line	Layout Station #		Layout Tot	Pickup Line	Pickup Station #		Pickup Tot
1168	5209	5284	76	1280	5209	5368	160
1160	5209	5368	160	1272	5209	5368	160
1152	5209	5368	160	1264	5209	5368	160
1144	5209	5368	160	1256	5209	5368	160
1136	5209	5249	41				
Total Stations :		597		**Total Stations:**		640	

Total Crew #'s:53 **Line Crew #'s:30** **Vehicle #'s:21**

Equipment Report **Bad Phones: 4** **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: John Allen
Weather: Overcast / Windy
DATE: Wednesday, 9 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
110	5280-5256	1176-1248	1.28	0	32
111	5280-5256	1168-1240	1.28	0	32
112	5256-5368	1160-1232	4.8	0	120
113	5256-5368	1152-1224	4.8	0	120
114	5368-5256	1144-1216	4.8	0	120
115	5368-5256	1136-1208	4.8	0	120
116	5256-5320	1128-1200	2.88	0	72
117	5256-5320	1120-1192	2.88	0	72

Daily Totals

VP's:	688
Skips:	0
Lin.Kms:	27.5200
Day.Sq.Klms:	8.5264

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	7.870

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	7.7	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.2	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:	0.2	Other:	
Detour:	1.1	WOS:			
Traverse Move:	1.7	Other:		**Other -**	
Swath Move:		**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.2	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	10.5
Standby Time:	0.3
Down Time:	0.4
Non-Charge Time:	0.2
Total Day Hrs:	11.4

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* No problems today, an excellent days production.

Spread Movement

Client: SANTOS Spencer 3D

Layout Line	Layout Station #		Layout Tot	Pickup Line	Pickup Station #		Pickup Tot
1136	5250	5368	119	1248	5209	5368	160
1128	5209	5368	160	1240	5209	5368	160
1120	5209	5368	160	1232	5209	5368	160
1112	5209	5368	160	1224	5209	5368	160
1104	5209	5368	160	1216	5209	5368	160
1096	5209	5300	92	1208	5209	5368	160
				1200	5209	5235	27
				1192	5209	5235	27
Total Stations :		851		**Total Stations:**		1014	

Total Crew #'s:53 **Line Crew #'s:30** **Vehicle #'s:21**

Equipment Report **Bad Phones:** **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client.....	SANTOS	Party Manager:	Jon Turner
Survey Name.	Spencer-Kiana-Muteroo 3D	Client Rep:	John Allen
Area.....	PPL 32,37, PEL 107	Weather:	Overcast / Showers
State.....	SA	DATE:	Thursday, 10 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's

Daily Totals

VP's:	0
Skips:	0
Lin.Kms:	0.0000
Day.Sq.Klms:	0.0000

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	7.512

HOURS

Working Time -	Down Time -	Standby Time -		Daily Totals	
Recording:	Human Error:	Toolbox/Safety Meeting:	0.3	Working Time:	0.0
Requested Experimental:	Troubleshooting:	Induction:		Standby Time:	10.0
Recorder Moveup:	Recorder:	Weather:	9.7	Down Time:	0.0
Vibrator Moveup:	Vibes:	Other:		Non-Charge Time:	0.0
Detour:	WOS:			Total Day Hrs:	10.0
Traverse Move:	Other:	**Other -**		**Cumulative Totals**	
Swath Move:	**Non-Charge Time -**	Mobilisation:		Working Time(Job):	221.2
Prospect Move:	Travel Time:	Spread Layout/Pickup:		Standby Time(Job):	29.1
Other:	Instrument Tests\Morning QC:	Crew Demobe/Remobe:		Down Time(Job):	18.6
	Panel Move:			Non-Charge Time(Job):	15.9
	Other:			Total Hrs (Job):	304.5

COMMENTS:

* Overnight rain today meant that the crew was on standby for the entire day, conditions too wet for work.
* Crew change today, 9 personnel out on leave and 7 in. Inbound crew change had to overnight in Moomba due to road closures.
* Toolbox tomorrow scheduled for 8:00am following field inspection by Client Rep and PM.

Total Crew #'s:51 **Line Crew #'s:28** **Vehicle #'s:21**

Spread Movement

Client: SANTOS Spencer 3D

Layout			Pickup		
Line	Station #	Tot	Line	Station #	Tot
Total Stations :	0		**Total Stations:**	0	

Equipment Report **Bad Phones:** **Bad Cable:**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: John Allen
Weather: Overcast / Showers
DATE: Friday, 11 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
116	5328-5368	1128-1200	1.92	0	48
117	5328-5368	1120-1192	1.92	0	48
118	5368-5256	1112-1184	4.8	0	120
119	5368-5256	1104-1176	4.8	0	120
120	5256-5288	1096-1168	1.6	0	40
121	5256-5288	1088-1160	1.44	0	36

Daily Totals

VP's:	412
Skips:	0
Lin.Kms:	16.4800
Day.Sq.Klms:	5.1059

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	7.186

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	4.8	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.3	Induction:	
Recorder Moveup:	0.6	Recorder:	1.0	Weather:	2.0
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.6	WOS:			
Traverse Move:	1.0	Other:		**Other -**	
Swath Move:		**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:	0.2	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	7.0
Standby Time:	2.3
Down Time:	1.3
Non-Charge Time:	0.7
Total Day Hrs:	11.3

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Late toolbox this morning with conditions still wet, PM and client rep inspected the field conditions at 8:00am and the crew commenced work at 8:30am
* Recorder downtime today was due one of the NAS drives failing during the morning startup, replaced with spare and production commenced.
* Crew change completed today with the road to Moomba opened for light vehicles.
* Tape shipment 2B was sent to Adelaide today.

Spread Movement

Client: SANTOS Spencer 3D

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
1096	5301	5368	68	1200	5236	5368	133
1088	5209	5360	152	1192	5236	5368	133
1080	5209	5360	152	1184	5209	5368	160
1072	5209	5336	128	1176	5209	5368	160
1064	5209	5248	40				
1056	5209	5248	40				
1048	5209	5248	40				
1040	5209	5248	40				
Total Stations :		660		**Total Stations:**		586	

Total Crew #'s:51 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** 5 **Bad Cable:** 4

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: John Allen
Weather: Fine / Pleasant
DATE: Saturday, 12 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
120	5296-5368	1096-1168	3.2	0	80
121	5296-5368	1088-1160	3.36	0	84
122	5368-5256	1080-1152	4.8	0	120
123	5368-5256	1072-1144	4.8	0	120
124	5256-5280	1064-1136	1.28	0	32
125	5256-5280	1056-1128	1.28	0	32
126	5256-5288	1048-1120	1.6	0	40
127	5256-5288	1040-1112	1.6	0	40

Daily Totals

VP's:	548
Skips:	0
Lin.Kms:	21.9200
Day.Sq.Klms:	6.7914

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	6.886

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	6.8	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	1.0	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	1.4	WOS:			
Traverse Move:	1.4	Other:		**Other -**	
Swath Move:		**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.5	Spread Layout/Pickup:	
Other:		Instrument Tests\Morning QC:		Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	9.6
Standby Time:	0.3
Down Time:	1.0
Non-Charge Time:	0.5
Total Day Hrs:	11.4

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Front crew commenced layout on the Ficus 2D prospect today.
* Excessive troubleshooting time again today due the transverse lines instability.
* Roads still closed to heavy vehicles, food and fuel supplies getting quite low, will need resupply by Tuesday or will have to shutdown due to lack of fuel.
* Should complete acquisition on panel 3 tomorrow and move to the Ficus 2D.
* Front crew depegging from midday today.

Spread Movement

Client: SANTOS Spencer 3D

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
				1168	5209	5368	160
				1160	5209	5368	160
				1152	5209	5368	160
				1144	5209	5368	160
				1040	5209	5238	30
				1048	5209	5238	30
				1056	5209	5238	30
				1064	5209	5238	30
	Total Stations :	0			Total Stations:	760	

Total Crew #'s:51 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones: 3** **Bad Cable: 3**

Crew Manager .....

Client Rep .....

Terrex Seismic
Daily Report

CREW 402

Client..... SANTOS
Survey Name. Spencer-Kiana-Muteroo 3D
Area..... PPL 32,37, PEL 107
State..... SA

Party Manager: Jon Turner
Client Rep: John Allen
Weather: Fine / Pleasant
DATE: Sunday, 13 May 2007

PRODUCTION

Swath	Source	Receiver	Kms.	Skips	Vp's
124	5288-5368	1064-1136	3.52	10	78
125	5288-5360	1056-1128	3.2	0	80
126	5296-5360	1048-1120	2.88	0	72
127	5296-5336	1040-1112	1.92	0	48

Daily Totals

VP's:	278
Skips:	10
Lin.Kms:	11.5200
Day.Sq.Klms:	3.5692

Cumulative Totals

Cum. Skip Vp's:	24
Cum. VP's:	13312
Cum.Lin.Kms:	533.440
Cum.Sq.Klm:	165.274
Lin.Kms.Remaining:	0.000
Sq.Kms.Remaining:	0.000
% Completed:	100.00%
Average Daily Production Sq. Kms:	6.746

HOURS

Working Time -		Down Time -		Standby Time -	
Recording:	3.6	Human Error:		Toolbox/Safety Meeting:	0.3
Requested Experimental:		Troubleshooting:	0.1	Induction:	
Recorder Moveup:		Recorder:		Weather:	
Vibrator Moveup:		Vibes:		Other:	
Detour:	0.3	WOS:			
Traverse Move:	0.5	Other:		**Other -**	
Swath Move:		**Non-Charge Time -**		Mobilisation:	
Prospect Move:		Travel Time:	0.2	Spread Layout/Pickup:	6.0
Other:		Instrument Tests\Morning QC:	0.3	Crew Demobe/Remobe:	
		Panel Move:			
		Other:			

Daily Totals

Working Time:	4.4
Standby Time:	0.3
Down Time:	0.1
Non-Charge Time:	0.5
Total Day Hrs:	11.3

Cumulative Totals

Working Time(Job):	221.2
Standby Time(Job):	29.1
Down Time(Job):	18.6
Non-Charge Time(Job):	15.9
Total Hrs (Job):	304.5

COMMENTS:

* Completed acquisition on the SKM 3D today, moved to the Beach, Ficus 2D prospect at midday.
* Back crew still picking up spread, should complete final pickup tomorrow.
* Roads open for heavy vehicles at midday today, food and fuel resupplied.

Spread Movement

Client: SANTOS Spencer 3D

Layout				Pickup			
Line	Station #		Tot	Line	Station #		Tot
				1040	5239	5248	10
				1048	5239	5248	10
				1056	5239	5248	10
				1064	5239	5248	10
				1072	5209	5336	128
				1080	5209	5360	152
				1088	5209	5360	152
				1096	5209	5368	160
				1104	5209	5368	160
				1112	5209	5368	160
	Total Stations :	0			Total Stations:	952	

Total Crew #'s:51 **Line Crew #'s:28** **Vehicle #'s:21**

Equipment Report **Bad Phones:** **Bad Cable:**

Crew Manager .....

Client Rep .....

APPENDIX H

RECORDING STATISTICS

RECORDING STATISTICS

Date	Travel Time	Prospect Move	Layout/Pickup Spread	Down-Time	Recording Time	Other	Recorder Move	Detours & Terrain	Trouble-shooting	Testing	Traverse Move	WOS	Panel Move	Swath Move	Safety Meeting's	Other	Total Stand-by	Total Hours	Total Km's
	Non-Chargeable	Chargeable	Non-Chargeable	Non-Chargeable	Chargeable	Chargeable	Chargeable	Chargeable	Non Chargeable	Non Chargeable	Chargeable	Chargeable	Non Chargeable	Chargeable	Stand-by	Stand-by	Chargeable	Chargeable	
17 April 2007																	-	0.00	
18 April 2007	0.50		9.00												0.30	1.20	1.50	0.00	
19 April 2007	0.30			0.20	5.50			1.40	0.60	1.50	1.70			0.50	0.20		0.20	9.10	19.2000
20 April 2007	0.30				5.60			2.20	1.10		2.10			0.30	0.30		0.30	10.20	19.5200
21 April 2007	0.40			0.70	5.80		0.80	1.10	0.30		2.20			0.20	0.30		0.30	10.10	22.0800
22 April 2007	0.50			1.00	5.40			0.50	0.40	0.40	1.20			0.10	0.30	2.20	2.50	7.20	19.8400
23 April 2007	0.50			0.50	7.30			1.30			1.80			0.10	0.30		0.30	10.50	25.6000
24 April 2007	0.40				7.70			1.10	0.60		1.70			0.20	0.30		0.30	10.70	26.2400
25 April 2007	0.50				4.80		1.00	0.60	3.20		0.80		0.50	0.10	0.30		0.30	7.30	16.9600
26 April 2007	0.40			0.40	7.50		0.70	0.10	0.20		2.00			0.20	0.30		0.30	10.50	28.4800
27 April 2007	0.20				2.00			0.70	0.50	0.70	1.00			0.10	0.30	6.00	6.30	3.80	8.0000
28 April 2007	0.20			0.50	5.50			1.70	0.20		2.80			0.30	0.30		0.30	10.30	21.7600
29 April 2007	0.30			0.60	6.70		0.70	0.60	0.20	0.10	2.00			0.20	0.30		0.30	10.20	24.3200
30 April 2007	0.30			0.20	6.60			1.40	0.30	0.40	2.00			0.20	0.30		0.30	10.20	24.9600
1 May 2007	0.40				6.50		0.80	1.00	0.70		1.70			0.10	0.30		0.30	10.10	24.3200
2 May 2007	0.50			0.40	7.50			0.60	0.10	0.20	1.50			0.20	0.30		0.30	9.80	26.8800
3 May 2007	0.50			0.10	6.70		0.90	0.50	0.10	0.20	1.00		0.70	0.60	0.30		0.30	9.70	24.9600
4 May 2007	0.40				7.40		0.70	0.70	0.30		1.50			0.10	0.30		0.30	10.40	28.1600
5 May 2007	0.30			0.30	7.10			1.10	0.10	0.20	1.60			0.30	0.30		0.30	10.10	24.3200
6 May 2007	0.30			0.10	7.20			1.00	0.10	0.40	1.80			0.20	0.30		0.30	10.20	24.9600
7 May 2007	0.40			0.20	6.90		0.50	1.40			1.50			0.10	0.30		0.30	10.40	23.6800
8 May 2007	0.30				6.50			0.90	1.60	0.40	1.40			0.10	0.30		0.30	8.90	21.7600
9 May 2007	0.20			0.20	7.70			1.10	0.20		1.70				0.30		0.30	10.50	27.5200
10 May 2007															0.30	9.70	10.00	0.00	
11 May 2007	0.50			1.00	4.80		0.60	0.60	0.30	0.20	1.00				0.30	2.00	2.30	7.00	16.4800
12 May 2007	0.50				6.80			1.40	1.00		1.40				0.30		0.30	9.60	21.9200
13 May 2007	0.20		6.00		3.60			0.30	0.10	0.30	0.50				0.30		0.30	4.40	11.5200
Total	9.3000	0.0000	15.0000	6.4000	149.1000	0.0000	6.7000	23.3000	12.2000	5.0000	37.9000	0.0000	1.2000	4.2000	7.7000	21.1000	28.8000	221.2000	533.4400

APPENDIX 3 - RECORDING PRODUCTION STATISTICS

RECORDING STATISTICS

Date	Travel Time	Prospect Move	Layout/Pickup Spread	Down-Time	Recording Time	Other	Recorder Move	Detours & Terrain	Trouble-shooting	Testing	Traverse Move	WOS	Panel Move	Swath Move	Safety Meeting's	Other	Total Stand-by	Total Hours	Total Km's
	Non-Chargeable	Chargeable	Non-Chargeable	Non-Chargeable	Chargeable	Chargeable	Chargeable	Chargeable	Non Chargeable	Non Chargeable	Chargeable	Chargeable	Non Chargeable	Chargeable	Stand-by	Stand-by	Chargeable	Chargeable	
17 April 2007																	-	0.00	
18 April 2007	0.50		9.00												0.30	1.20	1.50	0.00	
19 April 2007	0.30			0.20	5.50			1.40	0.60	1.50	1.70			0.50	0.20		0.20	9.10	19.2000
20 April 2007	0.30				5.60			2.20	1.10		2.10			0.30	0.30		0.30	10.20	19.5200
21 April 2007	0.40			0.70	5.80		0.80	1.10	0.30		2.20			0.20	0.30		0.30	10.10	22.0800
22 April 2007	0.50			1.00	5.40			0.50	0.40	0.40	1.20			0.10	0.30	2.20	2.50	7.20	19.8400
23 April 2007	0.50			0.50	7.30			1.30			1.80			0.10	0.30		0.30	10.50	25.6000
24 April 2007	0.40				7.70			1.10	0.60		1.70			0.20	0.30		0.30	10.70	26.2400
25 April 2007	0.50				4.80		1.00	0.60	3.20		0.80		0.50	0.10	0.30		0.30	7.30	16.9600
26 April 2007	0.40			0.40	7.50		0.70	0.10	0.20		2.00			0.20	0.30		0.30	10.50	28.4800
27 April 2007	0.20				2.00			0.70	0.50	0.70	1.00			0.10	0.30	6.00	6.30	3.80	8.0000
28 April 2007	0.20			0.50	5.50			1.70	0.20		2.80			0.30	0.30		0.30	10.30	21.7600
29 April 2007	0.30			0.60	6.70		0.70	0.60	0.20	0.10	2.00			0.20	0.30		0.30	10.20	24.3200
30 April 2007	0.30			0.20	6.60			1.40	0.30	0.40	2.00			0.20	0.30		0.30	10.20	24.9600
1 May 2007	0.40				6.50		0.80	1.00	0.70		1.70			0.10	0.30		0.30	10.10	24.3200
2 May 2007	0.50			0.40	7.50			0.60	0.10	0.20	1.50			0.20	0.30		0.30	9.80	26.8800
3 May 2007	0.50			0.10	6.70		0.90	0.50	0.10	0.20	1.00		0.70	0.60	0.30		0.30	9.70	24.9600
4 May 2007	0.40				7.40		0.70	0.70	0.30		1.50			0.10	0.30		0.30	10.40	28.1600
5 May 2007	0.30			0.30	7.10			1.10	0.10	0.20	1.60			0.30	0.30		0.30	10.10	24.3200
6 May 2007	0.30			0.10	7.20			1.00	0.10	0.40	1.80			0.20	0.30		0.30	10.20	24.9600
7 May 2007	0.40			0.20	6.90		0.50	1.40			1.50			0.10	0.30		0.30	10.40	23.6800
8 May 2007	0.30				6.50			0.90	1.60	0.40	1.40			0.10	0.30		0.30	8.90	21.7600
9 May 2007	0.20			0.20	7.70			1.10	0.20		1.70				0.30		0.30	10.50	27.5200
10 May 2007															0.30	9.70	10.00	0.00	
11 May 2007	0.50			1.00	4.80		0.60	0.60	0.30	0.20	1.00				0.30	2.00	2.30	7.00	16.4800
12 May 2007	0.50				6.80			1.40	1.00		1.40				0.30		0.30	9.60	21.9200
13 May 2007	0.20		6.00		3.60			0.30	0.10	0.30	0.50				0.30		0.30	4.40	11.5200
Total	9.3000	0.0000	15.0000	6.4000	149.1000	0.0000	6.7000	23.3000	12.2000	5.0000	37.9000	0.0000	1.2000	4.2000	7.7000	21.1000	28.8000	221.2000	533.4400

APPENDIX 4 - PERSONNEL LIST

APPENDIX 4
PERSONNEL LIST

(Total Crew involved in project)

Terrex Seismic

Crew Manager (2)
Assistant Party Manager (1)
QHSE Officer (2)
Cook (4)
Cook's Assistant (3)
Camp Attendants (2)
Mechanics (3)
Supply Drivers (3)
Observers (3)
Cable Repair Technicians (4)
Vibrator Operators (6)
Vibrator Scouts (2)
Vibrator Technician (2)
Line Boss (1)
Trouble Shooter (5)
De-Pegger (6)
Line Crew (43)

Pioneer Surveys

Senior Surveyor / Line Pointer (1)
Surveyors (2)
GPS Operators (4)

Terrex Contracting

Crew Supervisor (2)
Mechanics (2)
Utility Persons (1)
Cooks (1)
Operators (9)

APPENDIX 5 - TAPE LIST

Tape listing for 2007 Spencer Kiana Muteroo 3D Seismic Survey

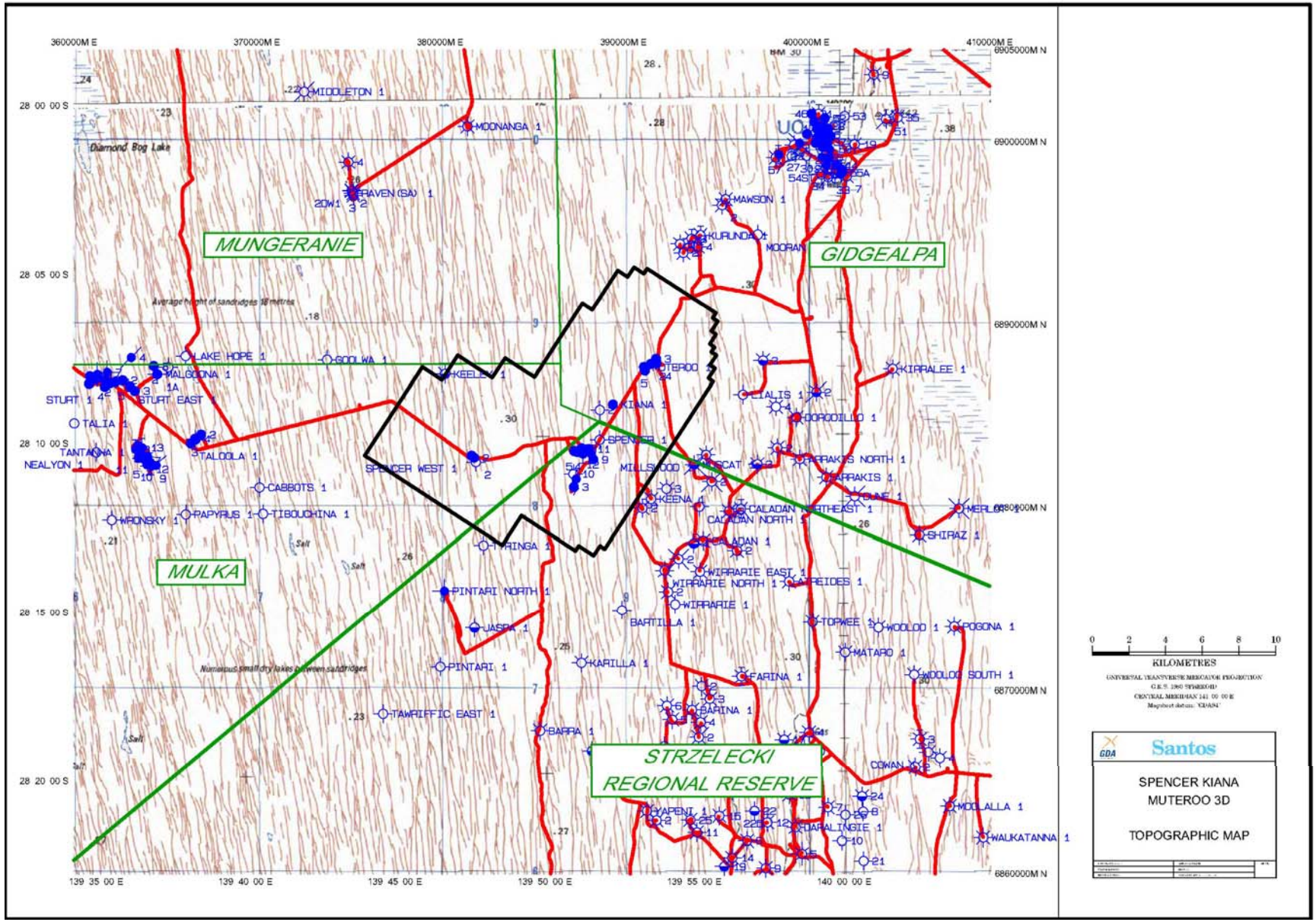
Field Tapes
7001A, 7002A, 7003A
7001B, 7002B, 7003B

IMS Tapes
1x (Observers logs and SPS data)

Archive Tapes
DVD-448 & DVD-449

6 Field tapes
1 Obs/SPS CD
2 Archive DVD's

APPENDIX 6 - MAPS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370000M E
380000M E
390000M E
400000M E
410000M E
6905000M N
6900000M N
6890000M N
6880000M N
6870000M N
6860000M N
28 00 00 S
28 05 00 S
28 10 00 S
28 15 00 S
28 20 00 S
139 35 00 E
139 40 00 E
139 45 00 E
139 50 00 E
139 55 00 E
140 00 00 E
MUNGERANIE
GIDGEALPA
MULKA
STRZELECKI
REGIONAL RESERVE
Diamond Bog Lake
Average height of sandridges 18 metres
Numerous small dry lakes between sandridges
Salt
MIDDLETON 1
MOONANGA 1
RAVEN (SA) 1
MAWSON 1
KURUNDA 1
MOORAN
LAKE HOPE 1
GOOLWA 1
KEELE 1
MALGOONA 1
STURT 1
STURT EAST
TALIA 1
TANTANNA 1
NEALYON 1
TALOOLA 1
SPENCER WEST 1
SPENCER 1
KIANA 1
TEROO
MILLSWOOD
KEENA 1
CABBOTS 1
WRONSKY 1
PAPYRUS 1
TIBOUCHINA 1
PINTARI NORTH 1
JASPA 1
PINTARI 1
TAWRIFFIC EAST 1
KARILLA 1
BARRA 1
BARTILLA 1
WIRRARIE EAST 1
WIRRARIE NORTH 1
WIRRARIE 1
FARINA 1
BARINA 1
CALADAN NORTHEAST 1
CALADAN NORTH 1
CALADAN 1
TYRINGA 1
KIPRALEE 1
LIALIS 1
DORODILLO 1
BARRAKIS NORTH 1
BARRAKIS 1
DUNE 1
MERLOO 1
SHIRAZ 1
TOPWEE 1
WOOLOO 1
POGONA 1
MATARO 1
WOOLOO SOUTH 1
COWAN
YAPENI 1
DARALINGIE 1
MOOLALLA 1
WALKATANNA 1
0 2 4 6 8 10
KILOMETRES
UNIVERSAL TRANSVERSE MERCATOR PROJECTION
CENTRAL MERIDIAN 141 00 00 E
Santos
SPENCER KIANA
MUTEROO 3D
TOPOGRAPHIC MAP

Santos

A.C.N 007 550 923

PROGRAM MAP
CPSN07B SEISMIC SURVEY
SANTOS PPL 32, 37, 53, 67, 143 & 144
BEACH PETROLEUM PEL 107 & PPL 212
2007 SPENCER KIANA MUTEROO 3D

RECEIVER LINES

R1024/R1064	5025-5248	8.96KM	6	53.76KM
R1072	5025-5336	12.48KM	1	12.48KM
R1080/R1088	5025-5360	13.44KM	2	26.88KM
R1096/R1168	5025-5368	13.76KM	10	137.60KM
R1176/R1208	5057-5368	12.48KM	5	62.40KM
R1216/R1240	5113-5368	10.24KM	4	40.96KM
R1248/R1360	5161-5368	8.32KM	15	124.80KM
R1368	5177-5368	7.68KM	1	7.68KM
R1376/R1384	5177-5360	7.36KM	2	14.72KM
R1392/R1400	5177-5352	7.04KM	2	14.08KM
R1408	5177-5344	6.72KM	1	6.72KM
R1416/R1424	5177-5336	6.40KM	2	12.80KM
R1432/R1440	5193-5328	5.44KM	2	10.88KM
R1448	5209-5320	4.48KM	1	4.48KM
		TOTAL		530.24KM

RECEIVER INT = 40M

SOURCE LINES

S5024/S5048	1025-1168	5.76KM	4	23.04KM
S5056/S5104	1025-1208	7.36KM	7	51.52KM
S5112/S5152	1025-1240	8.64KM	6	51.84KM
S5160/S5168	1025-1360	13.44KM	2	26.88KM
S5176/S5184	1025-1424	16.00KM	2	32.00KM
S5192/S5200	1025-1440	16.64KM	2	33.28KM
S5208/S5248	1025-1448	16.96KM	6	101.76KM
S5256/S5320	1073-1448	15.04KM	9	135.36KM
S5328	1073-1440	14.72KM	1	14.72KM
S5336	1073-1424	14.08KM	1	14.08KM
S5344	1081-1408	13.12KM	1	13.12KM
S5352	1081-1400	12.80KM	1	12.80KM
S5360	1081-1384	12.16KM	1	12.16KM
S5368	1097-1368	10.88KM	1	10.88KM
		TOTAL		533.44KM

SOURCE INT = 40M

TOTAL AREA = 165.2736SQKM

SPECIFIC CONDITIONS: STANDARD CODE OF PRACTICE SHOULD BE ADHERED TO AT ALL TIMES. IF ANY ADDITIONAL CONDITIONS. THESE WILL BE PLACED BELOW.

MAP 1 OF 1	
LINE TOLERANCE : REFER TSS FOR DETAILS	
DATE : JANUARY 31, 2008	SCALE : 1: 50, 000
DRAWN BY :	APPROVED BY :

1: 50000

0 1 2 3 4 5

KILOMETRES

UNIVERSAL TRANSVERSE MERCATOR PROJECTION
G.R.S. 1980 SPHEROID
CENTRAL MERIDIAN 141 00 00 E
MAPSHEET DATUM: "GDA94"

DATA PROCESSING REPORT

SANTOS LTD.

SPENCER 3D SEISMIC SURVEY
COOPER BASIN
AUSTRALIA

Date Processed: *May2007 February 2008*
Date Compiled: *11 February 2008*
Report Number: *VP08-307*
Compiled By: *Mario Vecchi*

Velseis Processing Pty Ltd
ABN 30 058 427 204

Integrated Seismic Technologies

Disclaimer

This report has been prepared in good faith and with all due care and diligence. It is based on the seismic and other geophysical data presented and referred to, in combination with the author's experience with the seismic technique, and as tempered by the geological and stratigraphic evidence presented in various forms and through discussions with client representatives.

As such, the report represents a collation of opinions, conclusions and recommendations, the majority of which remain untested at the time of preparation. In the light of these facts it must be clearly understood that Velseis Processing Pty. Ltd., its proprietors and employees cannot take responsibility for any consequences arising from this report.

TABLE OF CONTENTS

INTRODUCTION

Velseis Processing Pty. Ltd. processed 165.2736 km^2 of 3D seismic data from the Spencer 3D Seismic Survey for Santos Ltd. from May 2007 to February 2008.

Acquisition Parameters

Area	Cooper Basin, South Australia
Surface Area (Sq km)	165.2736
No. Source Points	13366

Acquisition contractor:	Terrex
Live patch:	10 lines x 96 channels in each
Number of Channels:	960
Source line spacing:	320m
Source interval:	40 m
Receiver line spacing:	320m
Group interval:	40 m
Fold:	3500%
Bin size:	20m inline, 20m crossline
Record Length:	4 secs
Sample Rate:	2 msecs

TESTING

Amplitude Recovery

A series of spherical divergence and gain recovery tests were produced in order to compensate for amplitude decay due to wavefront spreading and inelastic attenuation.
The following functions were tested:

1. No Gain - raw record
2. Spherical Divergence
3. Spherical Divergence plus 1dB/sec
4. Spherical Divergence plus 2dB/sec
5. Spherical Divergence plus 3dB/sec
6. Time * Power constant 1.5
7. Time * Power constant 2.0
8. Time * Power constant 2.4

Function #7 was chosen to best balance amplitudes down and across the record.

Deconvolution Before Stack

An initial set of velocity analyses were produced. These velocities were picked then used to stack all of the following deconvolution and brute stack methods.

1. No Deconvolution
2. Spiking Deconvolution with 80ms operator
3. Spiking Deconvolution with 160ms operator
4. Spiking Deconvolution with 240ms operator
5. Surface Consistent Spiking Deconvolution
6. Surface Consistent Spiking Deconvolution with Spectral Whitening

It was felt the Surface Consistent Spiking Deconvolution did a good job of shaping and deconvolving the wavelet, while producing a stack with stable phase. Events were more clearly defined and continuous.

Pre-Stack Time Migration
Inline 341 from the Spencer 3D Seismic Survey was used as a test line for the running of Pre-Stack Time Migration (PSTM). Enough data was processed in order that the full migration aperture would be honoured.

After examination of the resultant migration, it was decided to run the complete volume through the PSTM.

The maximum aperture of 1800m was determined by testing several different sized apertures on an inline that had dipping data. A smaller value resulted in the degradation of the dipping data, whilst a bigger value did not result in any improvement. The same was done for the maximum dip limit as well as for the stretch mute.

Velocity analyses, performed on a 500m x 500m grid, were produced using the PSTM gathers as input, and these velocities were then used to produce a stacked volume.

A volume was also produced with spectral whitening applied to enhance the resolution of the data.

Bin Size & Interpolation tests
A small volume of the data were decimated to simulate a shooting configuration resulting in 20mx40m bins and the resultant data were processed through the PSTM processing stream using similar parameters as those used in the production sequence.

This subset of data was also interpolated during the PSTM process to produce a 20mx20m volume. Finally the data were interpolated pre-PSTM to 20mx20m bins and then migrated. All volumes were compared and it was decided that the original 20m x 20m bin gave the best result after PSTM.

PROCESSING PARAMETERS

Reformat
Input is reformatted to ProMAX internal data format.

Trace Edit
Remove bad or noisy traces from shot records interactively.

Geometry
Assign geometry information to trace headers. Information assigned to each trace includes source, receiver and CDP locations along with offsets, elevations and CDP fold. The data were gridded into bins that were 20m wide within inlines and 20m wide within crosslines.

Gain Recovery
True Amplitude Recovery using a time power constant of 2 .

Phase Conversion
The data were converted from zero to minimum phase.

Cross-spread Sorting
The data were sorted into individual cross-spread gathers.

3D Velocity Filtering
Cross-spread gathers were filtered in the FKXKY Domain in order to attenuate linear noise with velocities between 0 & 1500m/s in a true 3D sense.

Deconvolution
Whitening of the spectrum to enhance signal resolution was achieved using Surface Consistent Spiking Deconvolution with a 160 ms operator. The spectrum was calculated from the power spectrum for both shot and receiver components for each shot record within a time variant window.

Datum Statics
Statics were provided by Santos.

Resample
The data were resampled from 2ms to 4ms sample rate.

TFD Noise Removal
Noise is attenuated in the Time-Frequency Space by comparing amplitude levels to adjacent traces and reducing high and spurious values. A relatively high threshold multiplier value was used so that only very high amplitudes were attenuated and good reflection data was passed through the process without attenuation.

Residual Static Calculation and Application
Surface consistent residual statics were calculated and applied using Maximum Power Autostatics.

Pilot or reference traces were formed for a time gate following structure by flattening all traces along the autostatics horizon, chosen using main seismic events over 5x5 CDP bins.

These traces are summed to form a single pilot trace. Each trace from the active CDP is time shifted relative to the pilot trace and summed with it. The power of the stack is measured for each time shift. This shift-power trace is then summed with other traces having the same shot and receiver in their respective domains.

After the shift spectra has been calculated for the entire line and summed in the Receiver/Shot domains, time shifts are picked at the maximum of the power shift spectra and stored as Static Values.

The pilot stack is updated and the process repeated for a number of iterations.

In this case calculations were conducted for 3 iterations or until the RMS of the change in the computed statics was less than .05, using a maximum static shift of +/-20ms.

Velocity Analysis (1st Pass)
Velocities were picked using the ProMAX interactive velocity picking package (IVA). IVA uses velocity spectra, moved out gathers and stacked panels to assist in a careful interpretation of stacking velocities. As the velocity function is altered, revised gathers and stacks are produced until optimized stacking velocities are achieved.

Velocities were picked on a 1000m x 1000m grid. Each panel consisted of 9 CDPs stacked using 11 velocity functions centred around the regional velocity function.

Trim Static Calculation and Application
A pass of CDP consistent residual statics were undertaken to optimize stack response and account for any unresolved residual static.

Shift to Final Datum
The data were shifted from a floating datum to the final datum of 0m ASL.

Kirchhoff Prestack 3D Time Migration
A Kirchhoff Prestack 3D Time Migration was used to move data to their correct subsurface locations. Stacking velocities were smoothed for PSTM and the following parameters were used in the PSTM:

Number of offset bins:	24
Max migration aperture:	1800m
Stretch mute applied:	10%
Max dip limit:	No limit
Anti-alias:	Not applied
Record length:	4 seconds
Sample rate:	4ms

Velocity Analysis (Final)
Velocities were picked using PSTM'd gathers input to the ProMAX interactive velocity picking package (IVA). IVA uses velocity spectra, moved out gathers and stacked panels to assist in a careful interpretation of stacking velocities. As the velocity function is altered, revised gathers and stacks are produced until optimized stacking velocities are achieved.

Velocities were picked on a 500m x 500m grid. Each panel consisted of 9 CDPs stacked using 11 velocity functions centred around the 2nd pass velocities.

Normal Moveout Correction
An NMO correction was applied to the data using PSTM velocities, allowing a PSTM stack volume to be generated.

Dynamic corrections are applied to the data using the following formula.

$$Tx = \sqrt{(T0^2 + X^2 / V^2)}$$

Tx = time at offset X
$T0$ = time at zero offset
X = offset of the trace
V = velocity at time T

Mute
A mute was applied to eliminate refractors and stretch caused by normal moveout corrections. The mute applied was a 30 percent stretch mute.

Time(ms)	Offset(m)
0	450
700	900
1000	1275
1200	1450
1500	1750
1600	1875
1800	2350

Stack
Add traces within a common midpoint gather. The post stack trace was scaled by the square root of the sum of fold for each sample in the trace.

Spectral Whitening
The data were separated into 5 frequency bands divided equally within the range of 6-90Hz. Each band was then balanced and summed back together.

FXY Deconvolution
An FXY deconvolution was applied to remove random noise and increase the signal to noise ratio.

Frequency Filter
The following Butterworth zero phase bandpass filter was applied to the data to remove high and low frequency noise.

Time (ms)	Frequency (Hz)
0	10-70

Amplitude Balance (AGC)
500ms AGC scaling windows were used to calculate and apply scalars to the data.

ARCHIVING

1. DVD-448 containing raw and filtered migrations in SEGY format.

2. DVD-449 containing near and far volumes in SEGY format.

3. LTO/C -034 containing DBS gathers with no NMO applied.

4. LTO/C -035 containing PSTM gathers with NMO applied.

5. LTO/C -036 containing PSTM gathers with NMO and Radon filtering applied.

APPENDIX

These data were processed by Velseis Processing Pty. Ltd., Brisbane, Australia.

Velseis Processing utilizes ProMAX 3D processing software. This is a totally interactive system allowing the user to view data processing at each stage, producing a final result of the highest quality.

The software executes on a quad processor Sparc 20 Sun workstation and a 112 CPU linux cluster. Data is viewed via X terminals networked to the main system, each terminal has a high definition monitor to enable accurate representation of the digital data in pixel form.

The overall efficiency of the system enabled processing to be completed within the allotted time frame.

Plots were generated via a 300 dpi laser plotter. This was used to generate paper plots for QC purposes as well as the ability to provide final filmed copies.

Velseis Processing is committed to offering a premium product, the software development undertaken by ProMAX resulting in processing algorithms which are state of the art.