Dynamic
Satellite
Surveys

02001a

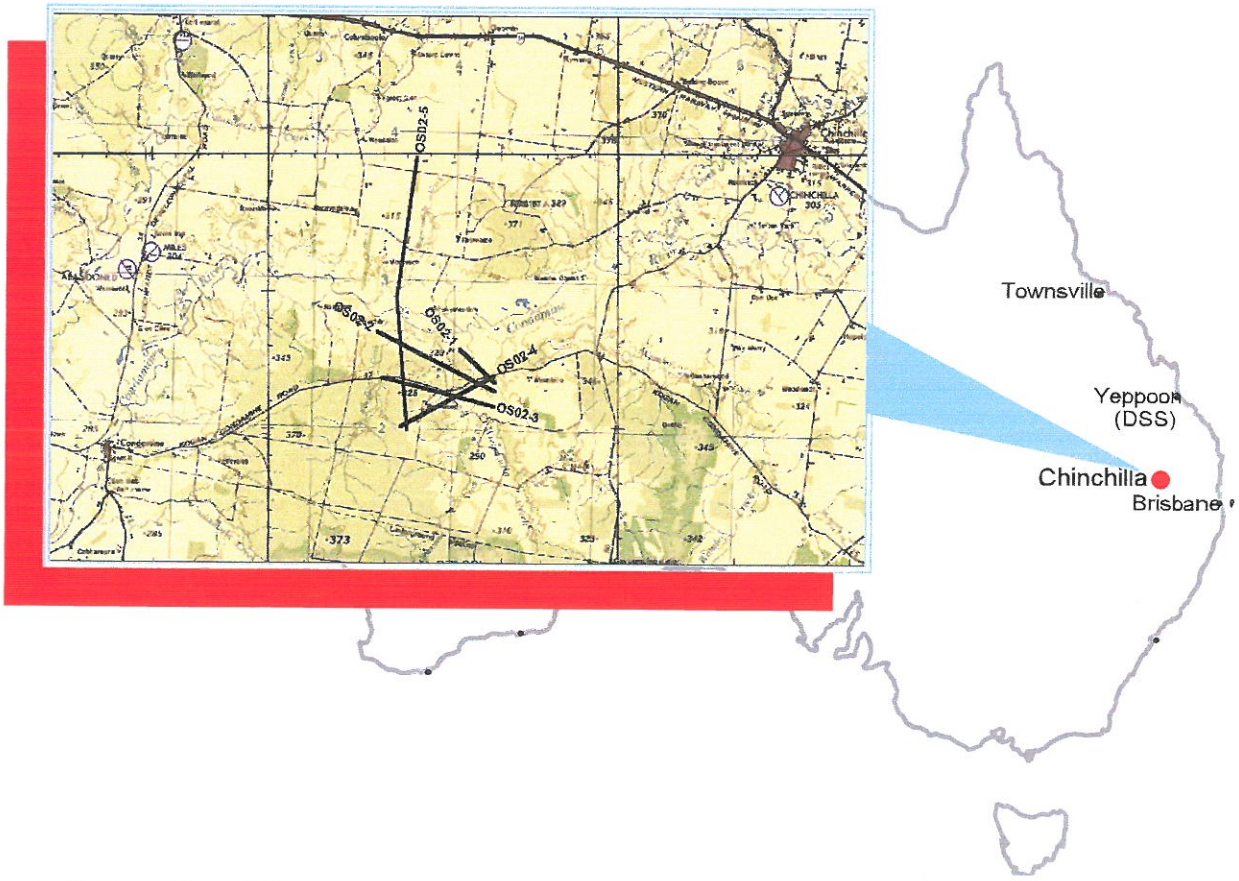
*Final Operations Report*
*on the*

# *OS02 Talinga 2D Seismic Survey*

*for*

# *OIL COMPANY OF AUSTRALIA LIMITED*

*January / February 2002*



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# 1

# *INTRODUCTION*

The following report covers the **Talinga 2D Seismic Survey** operations, performed by **Dynamic Satellite Surveys Pty Ltd (DSS)** for **Oil Company of Australia Limited (OCA).**

The survey operation consisted of 46.9125 kilometres of 2D seismic lines in the OS02 (Talinga) area near Chinchilla, Queensland.

The survey commenced on January 8th and was completed on February 21st , 2002. There were five (5) seismic lines in total.

This survey was conducted in conjunction with the Harcourt ( OB02 ) survey. See DSS report 02001b(Harcourt).

The lines are summarised below:

| Line Name | From | To | Distance | Station Interval |
|---|---|---|---|---|
| OS02-1 | 96 | 350 | 3.1750 | 12.50m ( 50m shot point) |
| OS02-2 | 116 | 864 | 9.3500 | 12.50m |
| OS02-3 | 101 | 761 | 8.2500 | 12.50m |
| OS02-4 | 94 | 694 | 7.5000 | 12.50m |
| OS02-5 | 101 | 1592 | 18.6375 | 12.50m |
| | **Total Distance** | | **46.9125 km** | |

# 2

# *INSTRUMENTATION AND PERSONNEL*

## *2.1 Personnel*

DSS personnel involved in the survey were:

**Surveyor:**

Mike Borthwick - Royal New Zealand Navy Certificate of Hydrographic Surveying

**Chainperson:**

Bronwyn Borthwick

**Job Descriptions:**

Mike completed all line pointing, surveying, processing and report writing. Bronwyn was chainperson for all lines.

## 2.2 Equipment

Equipment provided by DSS and used on this project:

| | Description | Quantity |
|---|---|---|
| ***Vehicles*** | Toyota Hilux Trayback | 1 |
| | Kawasaki 4x4 motor bike | 1 |
| | | |
| ***GPS receivers*** | NovAtel 2151R/RT20 c/w VHF telemetry | 4 |
| | | |
| ***Computers*** | Dell Pentium PC | 1 |
| | GRiD 386 Field PC | 5 |
| | | |
| ***Software*** | Waypoint GPS post-processing | 1 |
| | DSS MIB for Windows QC Version 3.2 | 1 |
| | | |
| ***Printer*** | Sharp AL800 printer / copier | 1 |
| | | |
| ***Instruments*** | Suunto Clinometer | 1 |
| | Suunto Compass | 1 |
| | | |
| ***Miscellaneous*** | Sundry office and support equipment | |
| | Field and Office Consumables | |

## 2.3 Logistics

Personnel and equipment logistics were supported by the DSS Yeppoon office.

Survey operations and messing were based from the Great Western Motor Inn, Chinchilla.

# 3

# SURVEY REFERENCE SYSTEMS

## 3.1 Geodetic Datum

Raw GPS data is acquired on the World Geodetic System 1984 (WGS84) datum, described by the following parameters:

| | |
|---|---|
| *Datum:* | WGS84 (World Geodetic System 1984) |
| *Spheroid:* | WGS84 |
| *Semi-Major Axis Length:* | 6 378 137.0 |
| *Inverse Flattening:* | 298.257223563 |
| *The Unit of Measure:* | International Metre |

Coordinate sets are transformed directly to the Australian Map Grid (AMG) based on the Australian Geodetic Datum 1984 (AGD84):

| | |
|---|---|
| *Datum:* | AGD84 (Australian Geodetic Datum 1984) |
| *Spheroid:* | ANS (Australian National Spheroid) |
| *Semi-Major Axis Length:* | 6 378 160.0 |
| *Inverse Flattening:* | 298.25 |
| *The Unit of Measure:* | International Metre |

Coordinate conversions from WGS84 to AGD84 are performed using the following seven transformation parameters:

| | | | | | | |
|---|---|---|---|---|---|---|
| *Translations:* | ΔX: | 116.00 m | ΔY: | 50.47 m | ΔZ: | -141.69 m |
| *Rotations:* | RΩ: | 0.230" | Rϕ: | 0.390" | Δκ: | 0.344" |
| *Scale:* | bs : | -0.0983 ppm | | | | |

## *3.2 Map Projection*

Rectangular coordinates provided were based on the Australian Map Grid (AMG).

Parameters for this projection are:

| | |
|---|---|
| *Projection:* | AMG Zone 55 |
| *Latitude of Origin:* | 0° |
| *Central Meridian (CM):* | 147° E |
| *Scale Factor at CM:* | 0.9996 |
| *False Easting:* | 500 000 |
| *False Northing:* | 10 000 000 |
| *The Unit of Measure:* | International Metre |

Final data was presented as AMG84 and AHD coordinates as requested by the client.

## *3.3 Height Datum*

Observations were made on the WGS84 datum. The height associated with this datum is an ellipsoidal height (h). The Australian Height Datum (AHD) uses a height datum associated with the Australian Map Grid (AMG), as an orthometric height, which is measured as the height above mean sea level or the geoid (H).

The function that defines the relationship between the ellipsoid and orthometric heights is:

**H = h - N**

Or

**AHD = WGS84 - Geoid-Ellipsoid Separation**

A digital model (**AUSGEOID98**) was used for automatic determination of N at each point, so that orthometric heights within the survey area could be readily derived.

For the area a model was calculated and the model's residuals indicated a good fit, reflecting the gradual change in geoid slope within the extents of the model.

# 4

# *SURVEY CONTROL*

The survey datum for this prospect was based on existing well survey data. **Talinga 4 BM 1** is located at the eastern edge of the prospect.

The station has the following coordinates:

| Station | Easting | Northing | AHD |
|---|---|---|---|
| Talinga 4 BM1 | 838882.68 | 7021931.86 | 296.55 |

Three new base stations were installed to cover the prospect area. The coordinates for the bases are:

| Station | Easting | Northing | AHD |
|---|---|---|---|
| Tbas | 836462.16 | 7022696.59 | 309.51 |
| Tbas2 | 833183.61 | 7030378.65 | 306.86 |
| Tbas3 | 833469.29 | 7032000.86 | 314.21 |

A listing of all marks and survey ties can be found in **Appendix A - Control Survey, Miscloses and Ties**.

# 5

# *MONUMENTATION*

Permanent Markers were placed on fence lines as close as possible to the start and ends of each line. All permanent makers were tagged with the station and line numbers, and consisted of a 6" star picket driven to a level under the top wire of each fence. A total of ten (10) new permanent markers were place throughout the job area.

Every station along each seismic line consisted of a wooden peg. Initially every fourth peg was numbered but this was changed to every second peg during the survey to assist Trace Energy Services when encountering pegs that were knocked out by cattle.

The fifteen (15) upholes located on the new lines were marked with numbered wooden pegs painted pink and blue. A listing is contained in **Appendix D - Uphole Locations and Coordinates**.

# 6

# METHOD OF SURVEY

DSS completed all dozer pointing, line chaining and surveying. Uphole locations were also set out by the surveyor.

## 6.1 Line Pointing

Aztek Earthmoving provided a D7 dozer and grader for all line clearing.

The dozer was fitted with the DSS Sat-Fix system. This system allows the dozer to receive corrected GPS data via a long range navigational beacon. This then allows freedom for both surveyor and dozer as the dozer can operate without the need for the surveyor to set up a GPS base station on the prospect to control line clearing operations.

Lines were gently bent in order to minimise environmental impact. Any creeks which were encountered were minimally dozed to allow access for all vehicles, whilst not disturbing the natural bank structure.

After the dozer had cleared the line segments, the grader followed the lines and tidied up all rills, logs, overhanging branches and cleared a turn around area for the line crew where required.

## 6.2 RT20 Survey-chaining

Chaining and surveying were carried out using DSS' RT20 Real-Time Kinematic survey technique, which is especially suited to open areas. RT20 enables both position and elevation coordinates to be acquired in real-time and on the appropriate datum.

The survey method utilised phase data received from US Navy NAVSTAR Satellites to provide three dimensional positioning. One receiver was set up as a base station at a known location (Tbas, Tbas2 or Tbas3) while another receiver was used as a remote rover. The base station was set up to transmit "corrections" via VHF telemetry to the roving GPS unit in order to eliminate any errors present in the GPS positional data.

NovAtel Real-Time Kinematic can achieve accuracies of better than +/- 0.3m in position and elevation depending on base line length, satellite geometry and satellite availability. The expected precision for locating pegged positions is better than 0.3 metres in both elevation and height relative to the base station used and is generally better than 0.2 metres.

Initialisation of the RT20 rover GPS usually takes as little as 2-3 minutes, although this is greatly dependent on satellite geometry, availability, and baseline length.

The programmed line positions were used as waypoints and the GPS software was set up to guide the Surveyor along the line at 12.5m intervals.

RT20 could not be used in some areas, due to the abundance of tree coverage. Therefore, the GPS was used as a check by surveying the position of every fourth peg along the line. A conventional chain was dragged behind the survey vehicle, with four increments of 12.5m, making 50 metres.

Survey control was recorded along the line for the REM operation ( See 6.3).

Checks and ties were examined in both real time operation and at the post-processing stage to assess coordinate integrity.

## *6.3 REM (Rapid Elevation Meter)*

This unit contains a digi-quartz barometer and can be utilised to determine elevations of points on the seismic lines where RT20 GPS is not possible.

The survey method involves establishing elevation reference points by either GPS or conventional methods at the ends of the section to be surveyed. With these new points as a reference, the REM software routine, developed by DSS, enables the elevation of

any number of intermediate points to be determined.

The REM software includes quality control elements and the surveyors finalise elevations in the field before moving onto the next section.

The elevation results are automatically combined with coordinate data in the office using DSS's MIBWIN[1] software.

## 6.4 GPS Processing and Quality Control

When using RT20, all data is recorded internally in GRiD palmtop data loggers and then downloaded to the office computer each evening. Quality of the satellite data was monitored by careful examination of the various on-screen quality control statistics produced by DSS' software. These checks on data integrity are in the form of standard deviation (or sigma) values for latitude, longitude and height, and are generally better than 0.3 metres.

The coordinates were then checked using a chaining check routine developed by DSS that calculates line bearing and compares calculated peg distance with actual peg distance.

Profile plots were examined to identify any height anomalies. Coordinates were then finalised by interpolating intermediate stations using software developed by DSS.

All final survey data is provided to the client and retained in the Yeppoon office for future reference.

[1] MIBWIN Version 4.0.3 by Phil Kaufman

# 7

# *DATA PRESENTATION*

On completion of the survey, a set of digital data was provided to OCA. Files supplied were:

| File | Description |
|---|---|
| OS02-??.INT | Interpolated coordinates and elevations of all stations. |
| OS02-??.UKA | A list of all stations in UKOOA format. |
| OS02-??.SEG | A list of all stations in SP1 format. |
| TIES.CRD | A listing of all ties to existing survey marks. |
| UPHOLES.CRD | A listing of all new and reprocessing upholes. |

These files are all backed up on digital disks in the Yeppoon office for future reference.

# 8

# *SAFETY*

DSS personnel completed an OCA induction prior to commencing survey operations.

DSS personnel are aware of safety conditions governing mining and exploration leases. DSS safety guidelines were followed at all times.

Each DSS vehicle was fitted with two fire extinguishers (dry-chemical and water), first-aid kit, vehicle recovery equipment, and weekly vehicle maintenance check lists.

Vehicles were equipped with UHF radios and were switched to Channel 27.

No LTIs (Lost Time Injuries), or accidents were reported for the survey.

# 9

# *OPERATIONAL ASPECTS*

An initial trip was made to the prospect with Justyn Hedges and Benita Benson of OCA in order to identify line positions for land holders. This process was restricted by land holder restrictions.

Line pointing proceeded very smoothly, with the dozer very rarely requiring assistance from the surveyor. OCA staff assisted the line clearing operations guiding the dozer through protected or difficult areas.

DSS utilised their 4WD Quad bike for most survey operations. This bike is equipped with a full GPS system, UHF radio, spare parts, tools, water bottle, fire extinguisher and first aid kit. The quad allowed the survey crew to access and survey 12 kilometres of lines prior to line clearing in areas where land holders had requested that no dozing be conducted.

The RT20 survey-chaining method was used to chain the lines and survey a station every kilometre (or closer if needed) for REM surveying control. At least every fourth peg was accurately located using the RT20 system and provided a check on the conventional chaining.

The REM was used to record elevations at intermediate stations and this method proved to be the most efficient in the wooded country.

All vehicles were washed down prior to commencement of the job and inspected by OCA as part of the Parthenium Weed Control Program. These inspections occurred in Moura at the completion of the OB02 survey.

There were a number of days or part days that the survey crew were placed on standby due to overnight rain creating access issues to the lines. The majority of standby was caused by land holders not having signed off on permitting. This also resulted in a complete shut down.

Due to the large number of days where little or no production was gained, there was the need to set out and survey upholes prior to surveying the lines.

Submitted by,

*Mike Borthwick*

# 10

# *APPENDICES*

# *Control Survey, Miscloses and Ties*

**Coordinates are AMG84 Zone 55 Central Meridian 147°**

**Heights are AHD, using AUSGEOID98 N value model**

**Revision 0 - March 19 2002**

## Control Survey, Miscloses and Ties

| Station | Easting | Northing | AHD | Comments |
|---|---|---|---|---|
| Tbas | 836462.16 | 7022696.59 | 309.51 | |
| Tbas2 | 833183.61 | 7030378.65 | 306.86 | Greenswamp Rd |
| Tbas3 | 833469.29 | 7032000.86 | 314.21 | |

| | | | | |
|---|---|---|---|---|
| **Talinga #1** | 839130.02 | 7021726.55 | 302.75 | OCA Coords |
| | 839130.01 | 7021726.60 | 302.15 | DSS observed |
| Misclose | -0.01 | 0.05 | -0.60 | |
| **Talinga #2** | 838166.51 | 7022676.03 | 292.79 | OCA Coords |
| | 838166.66 | 7022675.29 | 292.79 | DSS observed |
| Misclose | 0.15 | -0.74 | 0.00 | |
| **Talinga #4** | 838928.51 | 7021967.22 | 296.32 | OCA Coords |
| | 838928.51 | 7021966.94 | 296.11 | DSS observed |
| Misclose | 0.00 | -0.28 | -0.21 | |

# *Daily Reports*

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 9th January 2002

**Client:** OCA **Prospect / Area:** OB02 Harcourt **Job #:** 02-001

| | Line | From | To | Distance | | Line | From | To | Distance |
|---|---|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**2D Line Cumulative Total:**

**Comments:** Complete survey of lines 1 and 3.
Wash down vehicle and mobilise to chinchilla.
Create data files for Talinga prospect.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | |
|---|---|---|---|---|---|---|---|
| Mike Borthwick | 4 | 0.25 | **7** | | 3 | 1 | |
| | | | | | | **Total** | 15.25 |

**Line Pointing:**

**Personnel:** Mike Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO

DSS Senior Surveyor: _____ PM / Client: _____

Dynamic
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Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 10th January 2002

**Client:** OCA **Prospect / Area:** OS02 Talinga **Job #:** 02-001

| Line | From | To | Distance | Line | From | To | Distance |
|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**2D Line Cumulative Total:**

**Comments:** Commence survey of Talinga lines. Surveyed line 5 and 4km's of line 4.
Line 5 needs to be moved for access reasons. Extend southern section by 170m to 236352E, 7029214N then to 236520E, 7030570N. and back on line at UOS02-14.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other |
|---|---|---|---|---|---|---|
| Mike Borthwick | | 1 | **11.5** | | 1 | 0.5 |

**Total** 14

**Line Pointing:**

**Personnel:** Mike Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO

DSS Senior Surveyor: _____ PM / Client: _____

Dynamic Satellite Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 11th January 2002

**Client:** OCA **Prospect / Area:** OS02 Talinga **Job #:** 02-001

| Line | From | To | Distance | Line | From | To | Distance |
|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**2D Line Cumulative Total:**

**Comments:** Complete markout of Talinga lines, with the exception of the Apel property. Mike demoblize to Yeppoon.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other |
|---|---|---|---|---|---|---|
| Mike Borthwick | 6 | 1 | **8** | | | 0.5 |

**Total** 15.5

**Line Pointing:**

**Personnel:** Mike Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO

DSS Senior Surveyor: _____ PM / Client: _____

Dynamic
Satellite
Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 23rd January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**2D Line Cumulative Total:** 24.735
**Talinga Line Daily Total:** 26.688

**Comments:** Mike and Bronnie mobilise from Moura to Chinchilla.
Realigined lines 1 and 4 through Lloyd property.
Marked all road crossings along with new crossing for line 2.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | 4.5 | 1.00 | **5.00** | | 3.00 | 1.00 | | 14.50 |
| Bronwyn Borthwick | 4.5 | 1.00 | | | | 4.00 | | 9.50 |
| | | | | | | | **Total** | 24.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO

DSS Senior Surveyor: _____ PM / Client: _____

Dynamic
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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 24th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **2D Line Cumulative Total:** | 24.735 |
| **Talinga Line Daily Total:** | 26.688 |

**Comments:** Meet with Steve Fraser from Main Roads to review road crossings.
Steve had no problems with proposed crossings and clearing on road reserve.
Completed control survey.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | | **2.50** | | 1.00 | | **7.50** | 11.00 |
| Bronwyn Borthwick | | | | | | | **8.00** | 8.00 |
| | | | | | | | **Total** | 19.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO

DSS Senior Surveyor: _____ PM / Client: _____

Dynamic
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Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 25th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-3 | 101 | 375 | 3.425 | | | | |
| | OS02-4 | 504 | 694 | 2.375 | | | | |

**2D Line Daily Total:** 5.800
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 26.688

**Comments:** Fitted GPS to dozer.
Commenced surveying on lines 3 and 4 in areas that did not require dozing.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | **1.00** | 8.25 | 2.00 | 0.75 | **1.00** | 14.00 |
| Bronwyn Borthwick | | 1.00 | | 8.25 | | 1.75 | **1.00** | 12.00 |
| | | | | | | | **Total** | 26.00 |

**GPS Dozing:** 2.5 hrs dozing on line 2

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike

DSS Senior Surveyor: _____ PM / Client: _____

Dynamic
Satellite
Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 26th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **Harcourt Line Cumulative Total:** | 24.735 |
| **Talinga Line Cumulative Total:** | 26.688 |

**Comments:** 1.5 hrs of uphole survey at hourly rate.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | 1.50 | | | **8.00** | 10.50 |
| Bronwyn Borthwick | | 1.00 | | 1.50 | | | **8.00** | 10.50 |
| | | | | | | | **Total** | 21.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 27th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **Harcourt Line Cumulative Total:** | 24.735 |
| **Talinga Line Cumulative Total:** | 26.688 |

**Comments:** Standby due to wet weather.
Survey of upholes at hourly rate.
All upholes south of river have been setout and surveyed.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | **Survey** | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | **7.00** | | | **2.75** | 10.75 |
| Bronwyn Borthwick | | 1.00 | | **7.00** | | | **2.75** | 10.75 |
| | | | | | | | **Total** | 21.50 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 28th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-1 | 244 | 350 | 1.325 | | | | |
| | OS02-2 | 604 | 864 | 3.250 | | | | |

**2D Line Daily Total:** 4.575
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 26.688

**Comments:** Contuine pegging uncleared lines using 4x4 motor bike.
Large areas of skips on lines 1 and 2 at road crossings.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | 10.00 | 2.00 | 1.00 | | 14.00 |
| Bronwyn Borthwick | | 1.00 | | 10.00 | | 1.00 | | 12.00 |
| | | | | | | | **Total** | 26.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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Surveys

# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 29th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-1 | 96 | 244 | 1.850 | | | | |
| | OS02-3 | 375 | 505 | 1.625 | | | | |
| | OS02-4 | 387 | 504 | 1.463 | | | | |

**2D Line Daily Total:** 4.938
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 26.688

**Comments:** Contuine pegging uncleared lines using 4x4 motor bike.
Line 1 now completed including shot points.
Line pointing on lines 1,3 and 4.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | **2.50** | 8.50 | 2.00 | | | 14.00 |
| Bronwyn Borthwick | | 1.00 | | 9.50 | | 1.50 | | 12.00 |
| | | | | | | | **Total** | 26.00 |

**GPS Dozing:** 10 hrs on lines 1,2,3 and 4.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 30th January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-3 | 505 | 761 | 3.200 | | | | |
| | OS02-4 | 94 | 387 | 3.663 | | | | |

**2D Line Daily Total:** 6.863
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 26.688

**Comments:** Contuine pegging lines using 4x4 motor bike.
Lines 3 and 4 completed.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | 10.00 | 3.00 | 0.50 | | 14.50 |
| Bronwyn Borthwick | | 1.00 | | 10.00 | | 1.00 | | 12.00 |
| | | | | | | | **Total** | 26.50 |

**GPS Dozing:** 9.5 hrs on lines 4 and 5.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 31st January 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-2 | 502 | 604 | 1.275 | | | | |
| | OS02-5 | 101 | 360 | 3.238 | | | | |

**2D Line Daily Total:** 4.513
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 26.688

**Comments:** Contuine pegging lines using 4x4 motor bike.
Standby and line pointing on line 2.

| **Crew Hours:** | Mobilize | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | **1.00** | 9.00 | 3.00 | | **1.00** | 15.00 |
| Bronwyn Borthwick | | 1.00 | | 9.00 | | 1.00 | **1.00** | 12.00 |
| | | | | | | | **Total** | 27.00 |

**GPS Dozing:** Dozing on line 2 without GPS.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 1st February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-2 | 448 | 502 | 0.675 | | | | |

**2D Line Daily Total:** 0.675
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 27.363

**Comments:** Completed pegging on line 2.
Line scouting new location of lines 2 and 5.
0.5 hrs re survey on line 3

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | **Survey (hourly rate)** | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | **1.50** | 1.00 | **0.50** | | **7.00** | 11.00 |
| Bronwyn Borthwick | | 1.00 | | 1.00 | | 1.00 | **7.00** | 10.00 |
| | | | | | | | **Total** | 21.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 2nd February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 27.363

**Comments:** Standby all day due to land access.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | | | | | | **8.00** | 8.00 |
| Bronwyn Borthwick | | | | | | | **8.00** | 8.00 |
| | | | | | | | **Total** | 16.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 3rd February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **Harcourt Line Cumulative Total:** | 24.735 |
| **Talinga Line Cumulative Total:** | 27.363 |

**Comments:** Standby all day due to land access.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | | | | | | **8.00** | 8.00 |
| Bronwyn Borthwick | | | | | | | **8.00** | 8.00 |
| | | | | | | | **Total** | 16.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 4th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **Harcourt Line Cumulative Total:** | 24.735 |
| **Talinga Line Cumulative Total:** | 27.363 |

**Comments:** Standby all day due to land access.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | | | | | | **8.00** | 8.00 |
| Bronwyn Borthwick | | | | | | | **8.00** | 8.00 |
| | | | | | | | **Total** | 16.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 5th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **Harcourt Line Cumulative Total:** | 24.735 |
| **Talinga Line Cumulative Total:** | 27.363 |

**Comments:** Derigged GPS from dozer.
Set out of remainder of upholes was abandoned, because of wet ground.
Mike and Bronnie Demob to Yeppoon as a result of the job being shut down.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | **Survey (hourly rate)** | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | 7 | 0.50 | **0.50** | **1.00** | | 2.00 | | 11.00 |
| Bronwyn Borthwick | 7 | 0.50 | | 1.00 | | 2.50 | | 11.00 |
| | | | | | | | **Total** | 22.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 13th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 27.363

---

**Comments:** Mike and Bronnie mobilize from Yeppoon to Theodore.

| **Crew Hours:** | Mobilise | Travel | **Survey Line Point (hourly rate)** | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|
| Mike Borthwick | 6 | | | | | | 6.00 |
| Bronwyn Borthwick | 6 | | | | | | 6.00 |
| | | | | | | **Total** | 12.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

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DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 14th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

| | |
|---|---|
| **2D Line Daily Total:** | 0.000 |
| **Harcourt Line Cumulative Total:** | 24.735 |
| **Talinga Line Cumulative Total:** | 27.363 |

**Comments:** Mike and Bronnie mobilise from Theodore to Chinchilla.
Fit GPS to dozer.
Standby for remainder of day.

| **Crew Hours:** | Mobilise | Travel | **Survey Line Point (hourly rate)** | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|
| Mike Borthwick | 3 | | **0.50** | | | **6.50** | 10.00 |
| Bronwyn Borthwick | 3 | | **0.50** | | | **6.50** | 10.00 |
| | | | | | | **Total** | 20.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 15th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|

**2D LINES**

**2D Line Daily Total:** 0.000
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 27.363

**Comments:** No chargeable hours. DSS worked on another prospect instead of charging standby.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | **Survey (hourly rate)** | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | | | | | | | 0.00 |
| Bronwyn Borthwick | | | | | | | | 0.00 |
| | | | | | | | **Total** | 0.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 16th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-2 | 292 | 448 | 1.950 | | | | |

**2D Line Daily Total:** 1.950
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 35.588

**Comments:** Complete control survey for northern end of prospect.
Line pointing on line 2.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 2.50 | **1.00** | 8.00 | | | | 11.50 |
| Bronwyn Borthwick | | 2.50 | **1.00** | 8.00 | | | | 11.50 |
| | | | | | | | **Total** | 23.00 |

**GPS Dozing:** 12hrs on lines 2 and 5.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 17th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-2 | 116 | 292 | 2.200 | | | | |
| | OS02-5 | 360 | 578 | 2.725 | | | | |

**2D Line Daily Total:** 4.925
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 1036.263

**Comments:** Completed pegging on line 2.
Line pointing on lines 2 and 5.
Standby waiting for line to be cleared.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | **1.00** | 7.50 | | | **1.50** | 11.00 |
| Bronwyn Borthwick | | 1.00 | **1.00** | 7.50 | | | **1.50** | 11.00 |
| | | | | | | | **Total** | 22.00 |

**GPS Dozing:** 11hrs on lines 2 and 5.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 18th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-5 | 578 | 686 | 1.350 | | | | |

**2D Line Daily Total:** 1.350
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 37.688

**Comments:** Completed pegging of line 5 south of the river.
Conducted quality control checks on data.
Standby due to permiting issues.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | 5.00 | | | **5.00** | 11.00 |
| Bronwyn Borthwick | | 1.00 | | 5.00 | | | **5.00** | 11.00 |
| | | | | | | | **Total** | 22.00 |

**GPS Dozing:** 2hrs on line 5.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 19th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-5 | 686 | 854 | 2.100 | | | | |

**2D Line Daily Total:** 2.100
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 37.688

**Comments:** Surveying line 5 north of river.
Standby waiting for line to be cleared.
Removed GPS from dozer.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | **0.50** | 4.50 | 1.50 | | **5.50** | 13.00 |
| Bronwyn Borthwick | | 1.00 | | 5.00 | | | **5.50** | 11.50 |
| | | | | | | | **Total** | 24.50 |

**GPS Dozing:** 3hrs on line 5.

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 20th February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-5 | 854 | 1419 | 7.063 | | | | |

**2D Line Daily Total:** 7.063
**Harcourt Line Cumulative Total:** 24.735
**Talinga Line Cumulative Total:** 44.751

**Comments:** Surveying line 5 north of river.
Installed new control point.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | Office | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | 10.00 | 1.00 | 0.50 | | 12.50 |
| Bronwyn Borthwick | | 1.00 | | 10.00 | | 0.50 | | 11.50 |
| | | | | | | | **Total** | 24.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

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# DAILY REPORT

DSS-OF-11
Rev 1.0
July 2001

**Date:** 21st February 2002

**Client:** OCA **Prospect / Area :** OS02 Talinga **Job #:** 02-001

| | Line | From | To | km | Line | From | To | km |
|---|---|---|---|---|---|---|---|---|
| **2D LINES** | | | | | | | | |
| | OS02-5 | 1419 | 1592 | 2.163 | | | | |

**Line summary**

| | | | | | | |
|---|---|---|---|---|---|---|
| | OS02-1 | 96 | 350 | 3.175 | | |
| | OS02-2 | 116 | 864 | 9.350 | **2D Line Daily Total:** | 2.163 |
| | OS02-3 | 101 | 761 | 8.250 | **Harcourt Line Cumulative Total:** | 24.735 |
| | OS02-4 | 94 | 694 | 7.500 | **Talinga Line Cumulative Total:** | 46.913 |
| | OS02-5 | 101 | 1592 | 18.638 | | |

**Comments:** All lines now completed, including upholes and PSM's.
Resurvey on line 2 where slasher had been through.
Complete data checks and supply data to birddog.
A total of 1050 litres of diesel was used for this job.

| **Crew Hours:** | Mobilise | Travel | **Line Point** | Survey | **Re Survey** | Other | **Standby** | Total |
|---|---|---|---|---|---|---|---|---|
| Mike Borthwick | | 1.00 | | 4.00 | 1.50 | 3.50 | | 10.00 |
| Bronwyn Borthwick | | 1.00 | | 4.00 | 1.50 | 3.50 | | 10.00 |
| | | | | | | | **Total** | 20.00 |

**GPS Dozing:**

**Personnel:** Mike Borthwick
Bronwyn Borthwick

**Vehicles:** DSS Toyota Hilux - 311 FRO
DSS 4x4 Motor bike.

DSS Senior Surveyor: _____ PM / Client: _____

# *Permanent Markers*

**Coordinates are AMG84 Zone 55 Central Meridian 147°**
**Heights are AHD, using AUSGEOID98 N value model**
**Revision 0, March 19 2002**

**Permanent Markers**

| Line | Easting | Northing | Elev. | Comments |
|---|---|---|---|---|
| OS02-1 | 837176.08 | 7023599.90 | 291.17 | SOL21SE |
| OS02-1 | 839256.63 | 7021664.80 | 304.57 | SP328+4 |
| OS02-2 | 832561.90 | 7025082.69 | 306.47 | SP211+2 |
| OS02-2 | 839148.90 | 7021014.22 | 304.74 | SP859+2 |
| OS02-3 | 831553.80 | 7021939.57 | 310.41 | SOL |
| OS02-3 | 838962.19 | 7019889.31 | 300.44 | SP729+2 |
| OS02-4 | 833046.13 | 7018760.80 | 316.07 | SP121+4 |
| OS02-4 | 839272.31 | 7021758.93 | 301.38 | SP679.6 |
| OS02-5 | 833163.27 | 7018741.43 | 317.26 | SP129.2 |
| OS02-5 | 834279.31 | 7036516.27 | 318.65 | SP1571+7 |

# *Uphole Listing and Coordinates*

**Coordinates are AMG84 Zone 55 Central Meridian 147°**
**Heights are AHD, using AUSGEOID98 N value model**
**Revision 0, March 19 2002**

## Upholes

| Uphole | Easting | Northing | Height | Station |
|---|---|---|---|---|
| UOS02-1 | 837592.34 | 7023252.34 | 290.93 | Line 1 SP 138 |
| UOS02-2 | 839116.49 | 7021743.78 | 302.17 | INT lines 1 & 4 |
| UOS02-3 | 838320.20 | 7021466.33 | 304.18 | INT lines 2 & 4 |
| UOS02-4 | 836551.52 | 7022376.22 | 306.06 | Line 2 SP 604+4 |
| UOS02-5 | 834423.64 | 7023718.22 | 286.60 | Line 2 SP398 |
| UOS02-6 | 832543.74 | 7025096.05 | 305.02 | Line 2 SP 209+5 |
| UOS02-7 | 838933.80 | 7019905.79 | 298.26 | Line 3 SP 726+7 |
| UOS02-8 | 836603.13 | 7020578.24 | 301.28 | INT lines 3 & 4 |
| UOS02-9 | 834962.98 | 7020941.64 | 295.10 | Line 3 SP 386+1 |
| UOS02-10 | 833009.50 | 7021565.80 | 303.84 | INT lines 3 & 5 |
| UOS02-11 | 835021.26 | 7019774.58 | 299.76 | Line 4 SP 300 |
| UOS02-12 | 833156.09 | 7018830.76 | 316.75 | INT lines 4 & 5 |
| UOS02-13 | 833181.16 | 7030358.18 | 304.82 | Line 5 SP 1070+9 |
| UOS02-14 | 833680.64 | 7033334.62 | 309.40 | Line 5 SP 1312+3 |
| UOS02-15 | 834056.34 | 7035552.25 | 314.88 | Line 5 SP 1492+5 |

# *Photographs*

Line OS04 after Surveying around Creek Area

DSS Quad Bike used for Chaining and Surveying