2005 Discus Seismic Survey

BEACH PETROLEUM LIMITED

Final Operations Report
PEL 95 & PEL 107 – South Australia
Cooper Basin

February 2006

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BEACH PETROLEUM

TABLE OF CONTENTS

Page No.

TABLE OF ATTACHMENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

Note these Appendices are not included in printed form but are included as PDF files on the attached CD version of the full Final Report.

LIST OF ENCLOSURES (Pocket)

2005 Discus SEISMIC SURVEY – CD CONTENTS

Discus Seismic Survey Final Report (PDF)

- Appendix 1 Field Supervision Report (Bruce Beer)
- Appendix 2 Acquisition Operations Report (Terrex Seismic)
- Appendix 3a & 3b Survey Report (DSS) (PEL 95 & PEL 107)
- Appendix 4 Processing Report (Fugro)
- Appendix 5 Environmental Report (B Beer)

Discus Seismic Survey Support Data

- Final Velocities
- Final Statics
- Navigation data
- Observer Logs
- Tape Listing
- Upholes

1.0 INTRODUCTION

The 2005 Discus Seismic Survey in the Cooper Basin in South Australia recorded 14 lines totalling 138 kilometres of new seismic data in PEL 95 & PEL 107 commencing on 12th October 2005 and ending on 21st October 2005. 260 kilometres of earlier vintage seismic data (29 lines) were reprocessed with the new data. 102 new upholes were drilled for the purpose of low velocity layer (LVL) measurement and refraction static calibration of the new lines.

The primary objectives of the survey and reprocessing were to mature to prospect status leads in each of the permit areas and to enhance the regional seismic framework in order to locate additional leads for future refinement.

Work Area Clearance (WAC) processes preceded the survey, conducted by representatives of the Yandruwandha-Yawarrawarrka Native Title Claimant Group for PEL 95 and Dieri Aboriginal Corporation Native Title Claimant Group for PEL 107. The groups were accompanied by their appointed technical experts who prepared reports on the clearance results. This led to several sensitive sites being avoided by shifting the line positions locally.

The participants in the Joint Ventures at the time of the survey were as follows:

PEL 95	**%**
Beach Petroleum Limited	50
Magellan Petroleum (NT) Pty. Ltd	50

PEL 107	**%**
Beach Petroleum Limited	40
Great Artesian Oil & Gas Limited	60

Table 1 ***Survey Statistics***

	PEL 95	**PEL 107**	**Total**
No of lines	5	9	14
Line No Range	BC05-48 to 52	BC05-53 to 61	BC05-48 to 61
Line length	66.3 km	72 km	138.3 km
No upholes	39	63	102
Average hole depth	75.4 m	40.5	53.8 m
Holes per day	3.5	7	4.25
Reprocessing Lines	14	15	29
Reprocessing km	136 km	124 km	260 km
Start Date	12th Oct 2005	18th Oct 2005	12th Oct 2005
End Date	15th Oct 2005	21st Oct 2005	21st Oct 2005
Average km/day	16.6	18	17.25
Average km/rec hr	3.19	3.46	3.34

Bruce Beer provided the field supervision for the full project. The Field Supervision Report (Appendix 1) provides a detailed history and database with photographs for all aspects of the field operations. The data acquisition contract was awarded to Terrex Seismic of Perth, Western Australia. The Contractor's Seismic Data Acquisition report is in Appendix 2. Dynamic Satellite Surveys were the surveying contractor for this project and the full Contractor's Survey Report is in Appendix 3 (2 Parts). The data processing and reprocessing was awarded to Fugro Seismic Imaging in Perth, Western Australia and the Data Processing Report is in Appendix 4. Velocity Data (Queensland) recorded the upholes for the survey.

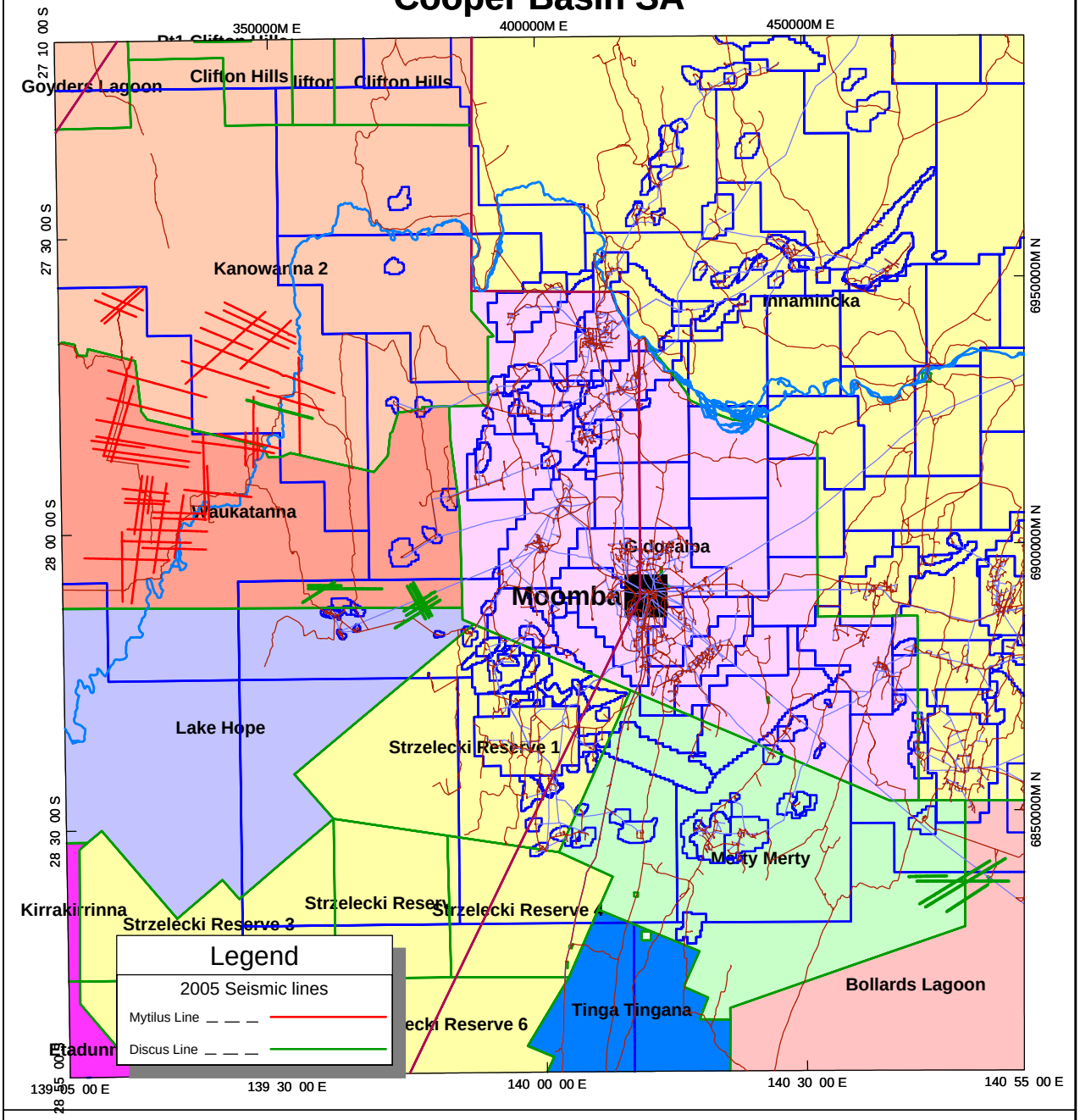
The contracting groups involved in the survey are summarised in Table 2

Table 2 ***Contractors***

Operation	**Contractor**	**Report**
Field supervision	Bruce Beer	Appendix 1
Data acquisition	Terrex Seismic	Appendix 2
Line preparation	Terrex Contracting	
Survey	Dynamic Satellite Surveys	Appendix 3a & 3b
Uphole drilling	Daly Drilling Co	
Uphole recording	Velocity Data	
Data processing	Fugro Seismic Imaging	Appendix 4

The following sections provide a summary of the acquisition and processing of the survey.

Cooper Basin SA



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Beach Petroleum Ltd

2005
Discus Seismic Survey
PEL 95 & PEL 107

Figure 1

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Map File:		

PEL 95 Discus 2005 Seismic

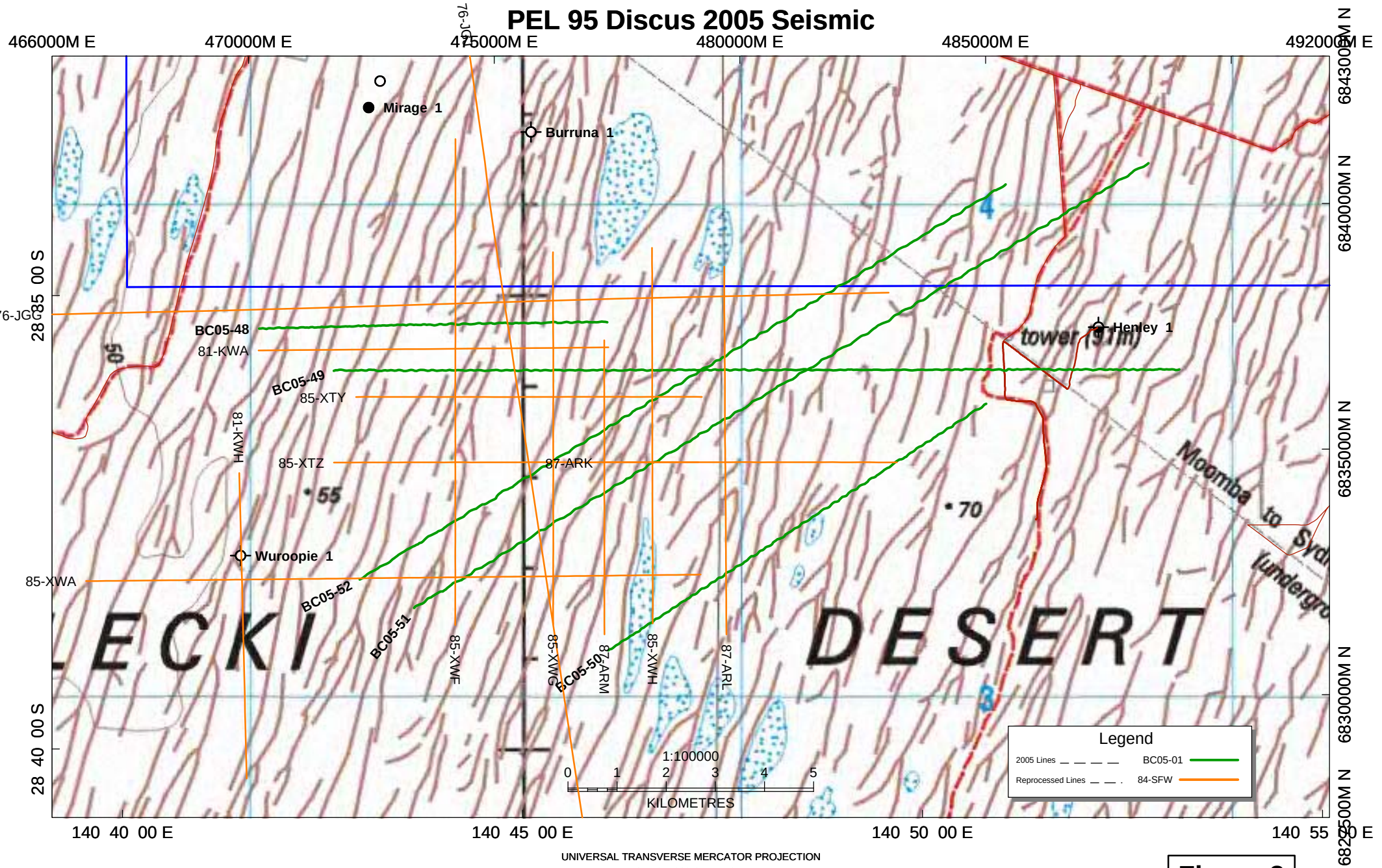

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Figure 2

2005 PEL 107 Discus SS

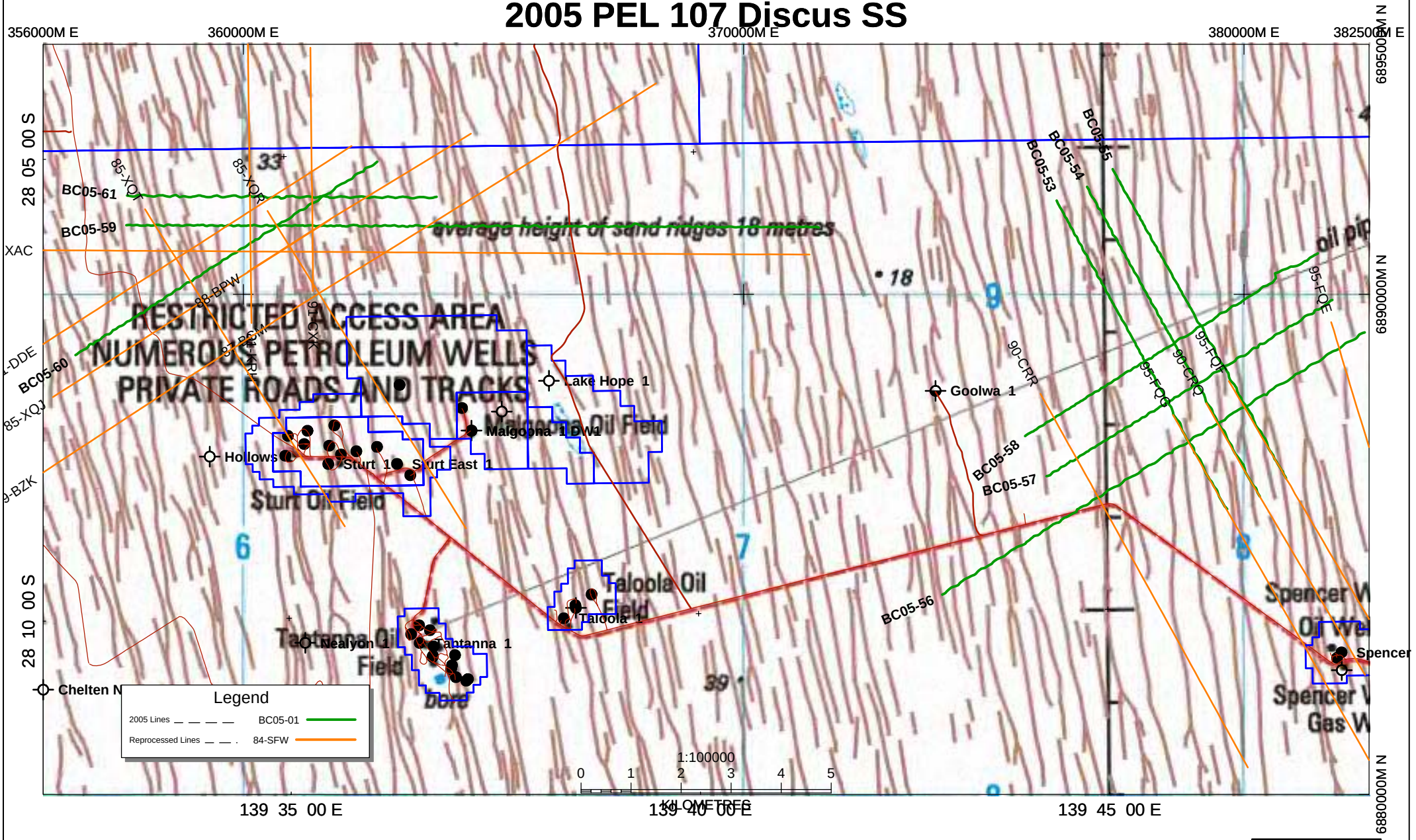

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Figure 3

2.0 FIELD OPERATIONS

2.1 Location

The PEL 95 program was located in sand dune terrain approximately 80 km south east of Moomba. The PEL 107 program was located in sand dune terrain approximately 40 km west of Moomba within the Cooper Basin South Australia. Figure 1 shows the regional location of the Discus Seismic Survey and Figures 2 & 3 shows the line location maps. Tables 3 & 4 list the new lines and the lines selected for reprocessing.

Table 3 ***New and Reprocessed Lines PEL 95***

New Lines			Reprocessed Lines		
Line	**Range**	**Length**	**Line**	**Range**	**Length**
BC05-48	200-389	7.1	76-JGG	100-233	20.1
BC05-49	200-659	17.3	76-JGJ	100-232	20.0
BC05-50	200-445	9.2	81-KWA	100-195	7.2
BC05-51	200-666	17.5	81-KWH	100-183	6.3
BC05-52	200-611	15.5	85-XTY	200-388	7.1
			85-XTZ	200-398	7.5
			85-XWA	200-538	12.7
			85-XWF	299-464	9.9
			85-XWG	200-402	7.6
			85-XWH	200-404	7.7
			87-ARK	200-360	6.0
			87-ARL	200-400	7.5
			87-ARM	200-360	6.0
			88-BKA	200-516	11.9
	Total	**66.6**		**Total**	**137.6**

Table 4 ***New and Reprocessed Lines PEL 107***

New Lines			Reprocessed Lines		
Line	**Range**	**Length**	**Line**	**Range**	**Length**
BC05-53	200-388	7.1	81-KRH	100-250	7.5
BC05-54	200-389	7.1	84-XAC	1400-1956	22.8
BC05-55	200-389	7.1	85-XQJ	950-1126	8.5
BC05-56	200-465	10.0	85-XQR	200-400	9.4
BC05-57	200-379	6.8	87-BCM	200-440	9.0
BC05-58	200-384	6.9	88-BPW	200-340	7.2
BC05-59	200-569	13.9	89-BZK	540-708	8.2
BC05-60	200-391	7.2	90-CRQ	200-368	6.3
BC05-61	200-366	6.3	90-CRR	200-428	8.6
			91-CXK	200-330	7.2
			91-DDE	200-496	11.1
			95-FQE	200-468	10.1
			95-FQF	200-415	10.4
			95-FQG	200-415	10.4
	Total	**72.4**		**Total**	**136.8**

2.2 Permitting

PIRSA was notified about the survey 5th August for PEL 95 and 31st August for PEL 107. PEL 95 lines were located within the Bollards Lagoon and Merty Merty pastoral leases and both of these properties were provided with Notices of Entry for the survey work. Santos as operator of adjacent PPLs and as provider of the local road access network was also provided with a Notice of Entry. The Yandruwandha-Yawarrawarrka Native Title Claimant Group (YY) for PEL 95 and The Dieri Aboriginal Corporation (Dieri) for PEL 107 and Aboriginal Legal rights Movement were advised of the survey with a Notice of Entry. The Dieri and YY groups were also consulted for the Cultural Heritage Clearance (next section).

2.3 Cultural Heritage Clearance

The PEL 95 and PEL 107 Joint Ventures have ancillary agreements with the Dieri and YY groups who are the Native Title claimants over various portions of the survey area (Figure 1) and under that agreement consultation and field inspection of proposed line locations are required prior to conducting any fieldwork.

Yandruwandha-Yawarrawarrka Work Area Clearance 1 in PEL 95

A Clearance Request for PEL 95 was sent to the YY legal representative and a field inspection was conducted 15-16 August 2005. The Work Area Clearance (WAC) was coordinated by the archaeologist from Australian Heritage Services.

Yandruwandha-Yawarrawarrka Representatives –

Male: I Bulsey, C Kerwin
Female: F Nicholls, A Patterson, B Sinclair

- Technical specialist – Sean Freeman
- Beach Representative –Bill Hedditch

Dieri Work Area Clearance in PEL 107

A Clearance Request for PEL 107 was sent to the Dieri legal representative and field site visit was conducted from 19th September 2005.

The work area clearance party consisted of the following 7 persons

- Dieri Representatives –
  - Male: David Mungeranie, Kenneth Dawson
  - Female: Sylvie Landers, Irene Kemp
- Technical specialists –J Scott, T Cuthbertson
- Beach Representative – B Hedditch

Inspection and survey of seismic lines was carried out in two or three 4WD vehicles equipped with UHF radios for communications. The lead vehicle was equipped with onboard navigational equipment consisting of a GPS unit coupled with a laptop computer. This equipment traced and recorded the team's position in relation to the terrain and the proposed seismic lines. The specialists documented the clearance process with field notes, photographs and handheld GPS units.

Because of safety considerations, difficult terrain and time constraints it was not always possible to inspect the entire length of each proposed seismic line. Rather the inspection process involved driving as much of the line as seemed safe and sensible with particular priority given to inspecting areas identified by the clearance team as likely to be significant. The field inspection was followed by a report from the technical specialists detailing the clearances and specific exclusions. The lines were cleared with a limited number of specified deviations.

2.4 Line Preparation & Survey

Line preparation was subcontracted through Terrex Seismic to Terrex Contracting (TC) of Toowoomba, Queensland. TC provided a camp, two Komatsu D65 dozers and a Cat 12G grader. Surveying was sub-contracted to Dynamic Satellite Surveys (DSS) of Yeppoon in Queensland using Novatel GPS equipment. Line preparation work began on 28th September and was completed on 4th October 2005. A total of 138 km of 2D seismic line was prepared.

Table 5 lists the Control Station locations established.

Table 5 ***Permanent Marker locations***

Line	Station	Easting	Northing	Height	Comments
PEL 95					
BC05-50	436	484723.96	6835749.68	75.38	EMP1/PM1
PEL 107					
BC05-56	433	381386.33	6888615.88	25.14	EMP02/PM2
BC05-59	429+24	366272.84	6891363.61	22.51	EMP03/PM3

Each dozer was equipped by DSS with a GPS receiver containing the coordinates of each line including bend points and heritage no-go zones. Information on the survey methods and geodetic and geophysical datum employed is in the Contractors Survey Report (Appendix 3a & 3b)

2.5 Environment

The 2005 Discus Seismic Survey was conducted under a "Statement of Environmental Objectives" (SEO) published by PIRSA, which provided objectives and measurements for preparation and use of seismic lines in order to minimise impact and maximise rehabilitation. The dozer operators and surveyors were all competent in the techniques required to meet these objectives.

The terrain in the PEL 95 Discus Seismic Survey consisted mostly of sand dunes with a north-south orientation with an average height of 10 metres above the swales. The swales were wide and had sandy terrain. The Moomba to Sydney pipeline passed through the northern sector of the program. There was only one crossing point for this. The access track along the southern side was off limits to the crew so TC cut a separate access further south. VPs were placed no closer than 50m from the pipeline.

The PEL 107 terrain consisted of sand dunes that were north south trending and up to 20m above the swales. The Tantana to Gidgealpa surface oil pipeline passed through the eastern grid so an earth ramp was built over it under the supervision of a Santos field operator.

Comprehensive environmental guidelines on the preparation of lines were provided in written form and in inductions and were followed by the various crews. The major points stressed were.

- Weave lines to break the line of sight;
- Minimise dune cuts;
- Store sand from dune cuts on dune flanks and avoid "ramping"
- Minimise blade work in dune swales;
- Where blade-work is necessary, ensure that the windrows are flattened;
- Place doglegs at road and track crossings and try to avoid blade-work within 50m of road crossings;
- Report and avoid any aboriginal artefacts found;
- Spread drill cuttings so as not to create a "pile".
- Ensure that no litter is on the lines;

- Ensure that all gates are closed and drop gates reinstated;
- Report any fence wire breakages immediately and make sure that fences are stock-proof.

An environmental report for this area has been written and submitted to PIRSA. This is attached as Appendix 5 and contains EMP report and GAS audit reports.

2.6 Health and Safety

Safety received a high priority from Beach Petroleum, Terrex Seismic and all sub-contractors during this survey. An induction was held prior to the start of line preparation and again before the start of recording. An induction for the drill crew was given by Bruce Beer who also gave inductions to all new crewmembers upon arrival.

The basic tenets of the Terrex Seismic HSE policy were:

- Daily toolbox meetings pre-work
- Weekly safety meetings
- Site specific Emergency response plan

The safety efforts were comprehensive and there were no Lost Time Injuries on this project and no reportable incidents. Details are included in the Field Supervision Report (Appendix 1). The following table summarises some key safety statistics for the project.

Terrex Seismic Man-hours	1,704
Sub-Contractor Man-hours	1,104
Fatalities	0
LTI	0
MTI	0
First Aid / Medical Cases	6
Incident / Accident Reports	0
Hazard Identification Reports	0
Training Hours	2
Tool Box / Safety Meeting Man-hours	34
Audits / Inspections	66
Drills	0
Land Spills (< 5 litres)	0

2.7 Recording Operations

Terrex Seismic was selected as the Vibroseis seismic data acquisition contractor for this project. The survey commenced on 12th October 2005 through to 21st October. Full details of the operation are in Appendix 1 and Appendix 2. The acquisition parameters are listed in Table 6. Parameters similar to previous Cooper Basin seismic surveys were used. These have been fine-tuned over the last 15 years and proven to be very effective for acquiring high quality data.

Table 6 ***Acquisition Parameters***

Instruments	
Model	Sercel SN388
No. Channels	124
Tape Format	SEGD rev 1 (Demux) IBM 3490E cart.
Filters	Hi 125 Hz Low Out
Correlation	Zero Phase – after sum
Stack	Diversity stack plus burst edit
Record Length	4 sec
Sample rate	2 ms
Source Parameters	
Vibrators	3 x I/O AHV IV on 4x4 Buggies
Electronics	Pelton Advance III VibePro
Sweep frequency	5-90 Hz Linear
Sweep length	3 sec
No. of sweeps	2 standing
VP interval	37.5 m
Vibrator Array	3 vibs in line, 12.5m pad to pad, centred between stn – no moveup
Phase lock	Ground Force
Drive Level	90% varied by Amplitude control (Peak to Peak)
Receiver Parameters	
Group interval	37.5m
Spread	Split, 2306.25 – 93.75 – 0 – 93.75 – 2306.25
Geophones	Sensor SM4 10Hz
Array	12 in line, centred on station, 3.125m spacing
Connection	Series/Parallel (6x2)
Fold	62 (60 processed)

Data quality throughout the Discus Seismic Survey was good in all areas although slightly better in PEL 107.

The Terrex Seismic crew were accommodated in a mobile camp put together specifically for the Cooper Basin campaign. The crew had 34 persons including the camp and administrative personnel. The average recording rate for this survey of 17.6 km/per day is misleading for this survey due to the small program in each area. The average of the 4 full production days on the survey was 24.9 which is very good. 3.34-km/recording hour was achieved which is a reasonable performance for the crew. The average cycle time for the given parameters was about 40 seconds per VP.

2.8 LVL Acquisition

The uphole program for the survey consisted of 102 holes at an average spacing of 1.3 km. Scanlon Drilling of Kalgoorlie were contracted through Terrex Seismic to conduct the drilling work. Drilling was conducted using a Bourne 1000 truck mounted drilling rig. Uphole logging was contracted to Velocity Data using a weight drop unit mounted on a Toyota Hi-Lux dual cab 4x4 tray back unit. The unit had a down-hole geophone tool with a 150m cable. Drilling commenced on 23rd October and was completed on 16th November 2005.

In PEL 95 the average hole depth was 75.4m and an average of 3.5 holes per day were recorded and logged. In PEL 107 the average hole depth was 40.5m and an average of 7 holes per day were recorded and logged. Plots of elevation vs. elevation of base of weathering show that across the broad area of this survey that the base of weathering is consistently at 10-20m above sea level datum in the PEL 107 area and varies more in PEL 95 ranging from 20-40m above sea level datum. The weathering thickness varies with elevation above these levels. Table 8 is a list of the uphole locations and .fbr file names.

2.9 Rehabilitation and de-permitting

At the end of field acquisition activities the lines were checked for any rubbish and pegs left behind. The method of low impact line preparation use does not require any rehabilitation activities as the windrows were minimised and the lines should regenerate naturally. Three Environmental Monitoring Points (EMP) were established which will enable a record to be kept over time as the lines recover.

3.0 DATA PROCESSING

3.1 Processing tests

Fugro Seismic Imaging Pty Ltd of Perth WA was awarded the contract to process the data. Processing flow was based on the previous year's program. The Contractor report in Appendix 4 discusses the detail and results of the processing.

3.2 Processing sequence

Table 7 ***Processing Sequence***

Sequence	Processing Parameters
Transcription	Transcribe SEGD to Fugro internal format
Gain recovery	Sperical divergence correction Gain (db)=3.0t+10log(t)
Phase conversion	Convert Zero to Minimum phase
CDP Gather	62 nominal fold cdp interval 18.75m
Deconvolution	Surface consistent spiking with 2 windows (120ms operator)
Refraction Statics	Float datum correction Green Mountain Refraction statics calibrated to upholes
Spectral balance	Spectral whitening using band pass filter 5-10-90-95
Velocity analysis 1	Prelim approx 1.5 km intervals
Residual statics 1	Surface consistent – 9 trace pilot (max shift +/- 25ms)
Velocity analysis 2	2nd round approx 1 km intervals
Residual Statics 2	Surface consistent – 9 trace pilot (max shift +/- 25ms)
Dip moveout	Hales method, 62 equal offset planes
Velocity analysis 3	Final velocities at .5 km intervals
NMO corrections	Velocity function referenced to surface
Mute	Offset /time 150m/0ms, 200/200, 650/500,1330/1200, 2307/1900
Scaling	500ms AGC
Statics	Float datum to sea level correction (new time origin –200ms)
CDP trim statics	CDP consistent trim statics –Ma +/- 8ms 9 tr pilot window 200-3000ms
Stack	CDP stack (62 fold)CDP interval 18.75 m
DAS	Decon after Stack 120ms operator 20ms gap
Migration	FD Migration – Steep dip Second Order (65 deg) solution 12ms step 100% smoothed stacking velocities
Band pass filter	500 ms 8/12/-80/90, 1500ms 8/12-70/80, 2500ms 8/12-60/70
Scaling	Dual window AGC 1000ms & 400ms 50% application
Phase Shift	0 deg for BC05 vintage – various for other vintages see App 4

3.3 Static corrections

Refraction first breaks were picked using Green Mountain Refraction statics Delay Time method, which estimates the refractor velocities to model the weathering thickness. Weathering velocities were interpreted at uphole locations shot along the lines. These upholes were also used as calibration points. Seismic reference datum of 0m above sea level was used. A two-layer model was best suited for the Cooper Basin data.

3.4 Archived data

An archive data listing is included in the Fugro processing report (Appendix 4). A field tape summary is in Table 9. For each line both new and reprocessed the following files were archived onto CDs.

SEGY – Filtered Migration Stack, Raw Stack, Raw Migration, Final Stack

CGM+ - Final Stack, Filtered Migrated Stack

4.0 CONCLUSIONS & RECOMMENDATIONS

The 2005 Discus Seismic Survey was a technical and operational success. The data acquired was of a very good standard and together with the reprocessed data provides information to further evaluate the leads and prospects within PEL 95 and PEL 107. Environmental and cultural heritage considerations made in the planning and conduct of the survey are expected to result in very low long-term impact on the survey area. Line preparation methods employed were successful in avoiding significant visual and potential erosion problems and regeneration of the line over time is expected to remove most evidence of the survey. Areas discovered to be of cultural significance were avoided during the survey and remain undisturbed.

All the contractors utilised during the survey performed well and would all be commended for future projects in the area. A detailed list of recommendations appears in the Field Supervision Report (Appendix 1)

A brief Summary of recommendations from the field supervision (Appendix 1) report follows.

- The Discus Seismic Survey was conducted in an efficient manner by Terrex Seismic and only marred by 1.5 days standby due to weather. Terrex Seismic is recommended for future work.
- Data quality was good in all parts of the program although the PEL 107 data seemed to be slightly better than the PEL 95.
- The line preparation operation went smoothly and efficiently under the newly named Terrex Contracting. They are recommended for future work.
- The change in ownership of Denham and O'Keeffe to Terrex Contracting heralds the end of an era. Warren Denham and Bill O'Keeffe have revolutionised the seismic line preparation business with their introduction of converted railway carriages for camp accommodation, the invention of "rill kill" on the graders to eliminate windrows and the novel idea of using new equipment to eliminate downtime. They will be missed.
- DSS provided only two surveyors for this job. They were Ron Weekes and Ben Allsopp. These are two of their best employees and they handled the job easily. DSS are recommended for future contracts.
- For the first time in memory, the drilling rig was on standby because the logging unit was down. It often happens the other way around. In this instance a software upgrade proved to be faulty and Ian Wyatt had to return to Brisbane for repairs. 3.5 days of standby for the rig resulted. This has highlighted the need for more backup spare equipment to be carried by Velocity Data.
- Drilling reports were sent to the main crew each morning by fax. The reliability of faxes between satellite phones is not high and there were frequent instances of reports not arriving on time. For years now the drillers and loggers have talked about getting email installed. It is time this is insisted upon.
- If the drill camp had broad band email we would open up the possibility of emailing results and plots each day. This would reduce the turnaround time for processing.
- Despite the downtime incident, Velocity Data is recommended for future work. They have a few bugs to iron out but, basically, with their end of job reports they represent a dramatic improvement in service over previous logging companies.

- Once drilling got under way, the productivity of Scanlon drilling was exceptional. On numerous occasions they drilled over 300m per day. Ian Wyatt, who has worked with a number of drilling contractors over the years, commented that the secret of Scanlon's success is that they start very early in the morning. This explains their often high total hours each day. Scanlon Drilling is recommended for future work.
- Terrex Seismic's Crew Manager, Jon Turner, is a real professional and is good to work with. He has an excellent and non-threatening rapport with the crew that promotes a positive working atmosphere.
- There were no LTI's on this job but there was a serious injury that led to ongoing medical treatment. Juggy Sarah Anderson suffered a burn on the foot from swirling ashes from the camp fire. This incident meant that Sarah was unable to wear a boot for a few weeks so she was trained as a cable repair person.
- Trainee HSE Officer Jonathon Hynes was promoted from the line crew. Jon is a former personal trainer who has introduced weight training to a growing group of fitness fanatics on the crew. His encouragement of warm-up exercises as a means of avoiding muscular strains has added a novel new perspective to morning toolbox meetings.

Table 8 ***Uphole listing***

Name	Easting	Northing	Elev	Static	Line	Station	X Line	FBR File
PEL 95								
DHBC05-397	476209	6837588	61.8	-48.1	BC05-48	359 + 34	85-XWG	DHBC05-397.FBR
DHBC05-398	474213	6837535	61.3	-44.8	BC05-48	306 + 25	85-XWF	DHBC05-398.FBR
DHBC05-399	473117	6837529	48.8	-38.3	BC05-48	277 + 17	81-KWE	DHBC05-399.FBR
DHBC05-400	471367	6837477	60.2	-46.3	BC05-48	230 + 28	76-JGH	DHBC05-400.FBR
DHBC05-401	472302	6836610	52.4	-38.1	BC05-49	215 + 6	79-JTD	DHBC05-401.FBR
DHBC05-402	473142	6836595	48.6	-40.0	BC05-49	237 + 21	81-KWE	DHBC05-402.FBR
DHBC05-403	474214	6836601	53.6	-39.9	BC05-49	266 + 6	85-XWF	DHBC05-403.FBR
DHBC05-404	476208	6836609	63.5	-47.2	BC05-49	319 + 13	85-XWG	DHBC05-404.FBR
DHBC05-405	477405	6836608	65.4	-53.6	BC05-49	351 + 9	BC02-39	DHBC05-405.FBR
DHBC05-406	478220	6836611	67.5	-55.9	BC05-49	373	85-XWH	DHBC05-406.FBR
DHBC05-407	479203	6836607	68.4	-47.4	BC05-49	399 + 7	BC05-52	DHBC05-407.FBR
DHBC05-408	480194	6836598	67.7	-62.0	BC05-49	425 + 23	BC04-14	DHBC05-408.FBR
DHBC05-409	481375	6836619	69.4	-58.1	BC05-49	457 + 5	BC05-51	DHBC05-409.FBR
DHBC05-410	483060	6836615	71.9	-64.0	BC05-49	502 + 2	BC04-15	DHBC05-410.FBR
DHBC05-411	483902	6836612	73.8	-63.4	BC05-49	524	BC04-09	DHBC05-411.FBR
DHBC05-412	484333	6836609	74.2	-63.4	BC05-49	536	92-DJP	DHBC05-412.FBR
DHBC05-413	485983	6836628	82.7	-68.9	BC05-49	580	BC05-50	DHBC05-413.FBR
DHBC05-414	486811	6836619	78.8	-64.0	BC05-49	602 + 3	84-SWK	DHBC05-414.FBR
DHBC05-415	483498	6834935	70.9	-62.8	BC05-50	396 + 28	BC04-15	DHBC05-415.FBR
DHBC05-416	482086	6834028	73.1	-62.3	BC05-50	352	76-JGP	DHBC05-416.FBR
DHBC05-417	481029	6833320	73.9	-57.1	BC05-50	318 + 3	BC04-14	DHBC05-417.FBR
DHBC05-418	479718	6832475	73.6	-65.9	BC05-50	276 + 18	87-ARL	DHBC05-418.FBR
DHBC05-419	478672	6831780	65.8	-57.3	BC05-50	243	BC02-39	DHBC05-419.FBR
DHBC05-420	477733	6831160	60.7	-58.4	BC05-50	213		DHBC05-420.FBR
DHBC05-421	473717	6831990	62.1	-51.9	BC05-51	211 + 2		DHBC05-421.FBR
DHBC05-422	477245	6834107	65.7	-47.4	BC05-51	320 + 29	87-ARM	DHBC05-422.FBR
DHBC05-423	479696	6835618	66.5	-77.2	BC05-51	397 + 21	87-ARL	DHBC05-423.FBR
DHBC05-424	480340	6836013	70.3	-63.8	BC05-51	417 + 26	BC04-14	DHBC05-424.FBR
DHBC05-425	482813	6837525	68.9	-66.7	BC05-51	495	BC04-15	DHBC05-425.FBR
DHBC05-426	484581	6838571	78.1	-70.3	BC05-51	549 + 29	92-DJP	DHBC05-426.FBR
DHBC05-427	486569	6839798	79.9	-59.6	BC05-51	612 + 3	84-SWK	DHBC05-427.FBR
DHBC05-428	487464	6840308	87.1	-77.0	BC05-51	639 + 20	93-ELW	DHBC05-428.FBR
DHBC05-429	484766	6840002	79.3	-72.8	BC05-52	591	92-DJP	DHBC05-429.FBR
DHBC05-430	483684	6839318	68.7	-71.0	BC05-52	556 + 33		DHBC05-430.FBR
DHBC05-431	481760	6838161	71.6	-69.2	BC05-52	497	76-JGG	DHBC05-431.FBR
DHBC05-432	480058	6837099	68.7	-59.5	BC05-52	443 + 19	BC04-14	DHBC05-432.FBR
DHBC05-433	477242	6835377	67.1	-53.8	BC05-52	355 + 18	87-ARM	DHBC05-433.FBR
DHBC05-434	474211	6833536	60.4	-49.0	BC05-52	260 + 34	85-XWF	DHBC05-434.FBR
DHBC05-435	472443	6832462	62.7	-47.3	BC05-52	206 + 34	BC02-41	DHBC05-435.FBR
PEL 107								
DHBC05-436	376601	6891221	31.9	-30.3	BC05-53	219 + 29	BC03-21	DHBC05-436.FBR
DHBC05-437	376947	6890593	43.0	-45.0	BC05-53	239	87-BCP	DHBC05-437.FBR
DHBC05-438	377426	6889737	38.1	-36.4	BC05-53	265 + 1	88-BNT	DHBC05-438.FBR
DHBC05-439	377788	6889091	29.9	-22.6	BC05-53	284 + 30	BC03-22	DHBC05-439.FBR
DHBC05-440	378019	6888662	28.9	-25.6	BC05-53	297 + 29	BC05-58	DHBC05-440.FBR
DHBC05-441	378238	6888281	23.5	-23.1	BC05-53	309 + 19	BC03-23	DHBC05-441.FBR
DHBC05-442	378456	6887844	21.9	-20.2	BC05-53	322 + 19	BC05-57	DHBC05-442.FBR
DHBC05-443	378891	6887051	27.7	-25.4	BC05-53	346 + 24	BC05-56	DHBC05-443.FBR
DHBC05-444	379095	6886727	21.8	-19.0	BC05-53	356 + 31	88-BNX	DHBC05-444.FBR
DHBC05-445	379459	6886072	28.2	-24.8	BC05-53	376 + 31	90-CRT	DHBC05-445.FBR
DHBC05-446	379488	6887421	34.7	-36.7	BC05-54	344 + 9	BC05-56	DHBC05-446.FBR
DHBC05-447	379254	6887844	24.0	-22.7	BC05-54	331 + 13	BC03-24	DHBC05-447.FBR

Name	Easting	Northing	Elev	Static	Line	Station	X Line	FBR File
DHBC05-448	379066	6888201	25.4	-26.1	BC05-54	320 + 23	BC05-57	DHBC05-448.FBR
DHBC05-449	378821	6888643	29.3	-31.1	BC05-54	307 + 5	BC03-23	DHBC05-449.FBR
DHBC05-450	378616	6889016	27.7	-27.4	BC05-58	293 + 29	BC05-58	DHBC05-450.FBR
DHBC05-451	378043	6890038	27.9	-31.4	BC05-54	262 + 27	88-BNT	DHBC05-451.FBR
DHBC05-452	377192	6891566	23.7	-24.0	BC05-54	217 + 34	BC03-21	DHBC05-452.FBR
DHBC05-453	377720	6891885	25.0	-24.3	BC05-55	218 + 34	BC03-21	DHBC05-453.FBR
DHBC05-454	378542	6890428	27.3	-24.4	BC05-55	263 + 20	88-BNT	DHBC05-454.FBR
DHBC05-455	379153	6889365	29.6	-32.6	BC05-55	296 + 8	BC05-58	DHBC05-455.FBR
DHBC05-456	379352	6889001	29.2	-32.7	BC05-55	307 + 11	BC03-23	DHBC05-456.FBR
DHBC05-457	379599	6888544	40.3	-44.6	BC05-57	311	BC05-57	DHBC05-457.FBR
DHBC05-458	380043	6887752	31.0	-33.4	BC05-55	345 + 13	BC05-56	DHBC05-458.FBR
DHBC05-459	380587	6886761	28.5	-25.6	BC05-55	375 + 18	90-CRT	DHBC05-459.FBR
DHBC05-460	381902	6888907	27.0	-22.0	BC05-56	448 + 30	95-FQE	DHBC05-460.FBR
DHBC05-461	381602	6888731	23.9	-23.7	BC05-56	439 + 19	BC03-28	DHBC05-461.FBR
DHBC05-462	380606	6888126	24.7	-25.1	BC05-56	408 + 17	88-BPS	DHBC05-462.FBR
DHBC05-463	378301	6886682	19.8	-15.2	BC05-56	335 + 34	95-FQH	DHBC05-463.FBR
DHBC05-464	377090	6885939	36.7	-37.0	BC05-56	298 + 1	90-CRR	DHBC05-464.FBR
DHBC05-465	376053	6885297	23.9	-20.8	BC05-56	265 + 19	87-BCR	DHBC05-465.FBR
DHBC05-466	375375	6884890	27.3	-24.1	BC05-56	244 + 15	BC03-27	DHBC05-466.FBR
DHBC05-467	374743	6884502	23.8	-19.7	BC05-56	224 + 24	BC03-26	DHBC05-467.FBR
DHBC05-468	376662	6886713	20.4	-17.3	BC05-57	218 + 26	90-CRR	DHBC05-468.FBR
DHBC05-469	377707	6887361	24.2	-21.8	BC05-57	251 + 18	88-BPT	DHBC05-469.FBR
DHBC05-470	380149	6888890	33.2	-35.0	BC05-57	328 + 12	88-BPS	DHBC05-470.FBR
DHBC05-471	381127	6889471	24.7	-22.5	BC05-57	358 + 25	BC03-28	DHBC05-471.FBR
DHBC05-472	380629	6890314	34.1	-38.2	BC05-58	357 + 24	BC03-28	DHBC05-472.FBR
DHBC05-473	379681	6889689	37.7	-42.6	BC05-58	327 + 14	88-BPS	DHBC05-473.FBR
DHBC05-474	377238	6888168	47.8	-52.7	BC05-58	250 + 19	88-BPT	DHBC05-474.FBR
DHBC05-475	376207	6887518	25.9	-22.2	BC05-58	218 + 5	90-CRR	DHBC05-475.FBR
DHBC05-476	370994	6891356	26.0	-21.2	BC05-59	555 + 20	BC03-26	DHBC05-476.FBR
DHBC05-477	369815	6891345	23.9	-20.0	BC05-59	523 + 32	BC03-20	DHBC05-477.FBR
DHBC05-478	369108	6891349	20.3	-18.3	BC05-59	505 + 8	BC03-32	DHBC05-478.FBR
DHBC05-479	368159	6891364	22.7	-21.0	BC05-59	479 + 34	BC03-33	DHBC05-479.FBR
DHBC05-480	367256	6891359	43.3	-45.0	BC05-59	455 + 32	BC03-30	DHBC05-480.FBR
DHBC05-481	366019	6891359	19.8	-17.5	BC05-59	422 + 32	88-BPX	DHBC05-481.FBR
DHBC05-482	364852	6891360	26.8	-25.9	BC05-59	391 + 27		DHBC05-482.FBR
DHBC05-483	363683	6891357	20.6	-17.7	BC05-59	360 + 21	89-BZK	DHBC05-483.FBR
DHBC05-484	363062	6891370	20.1	-17.6	BC05-59	344	90-CSX	DHBC05-484.FBR
DHBC05-485	361533	6891373	18.7	-16.4	BC05-59	303 + 8	88-BPW	DHBC05-485.FBR
DHBC05-486	360680	6891388	20.2	-17.8	BC05-60	328 + 328	BC05-60	DHBC05-486.FBR
DHBC05-487	359687	6891383	19.1	-14.8	BC05-59	254	91-DDE	DHBC05-487.FBR
DHBC05-488	358234	6891384	38.5	-39.3	BC05-59	215 + 9	85-XQT	DHBC05-488.FBR
DHBC05-489	357357	6889235	29.7	-27.7	BC05-60	222 + 16	85-XQX	DHBC05-489.FBR
DHBC05-490	358947	6890251	40.6	-40.7	BC05-60	272 + 28	85-XQT	DHBC05-490.FBR
DHBC05-491	360142	6891030	29.1	-31.7	BC05-60	310 + 30	81-KRH	DHBC05-491.FBR
DHBC05-492	361571	6891958	18.3	-16.0	BC05-60	356 + 8	BC05-61	DHBC05-492.FBR
DHBC05-493	362572	6892573	21.1	-21.9	BC05-60	387 + 21		DHBC05-493.FBR
DHBC05-494	363585	6891943	21.9	-18.7	BC05-61	357 + 22		DHBC05-494.FBR
DHBC05-495	362454	6891941	31.9	-31.5	BC05-61	327 + 16	88-BNW	DHBC05-495.FBR
DHBC05-496	360590	6891937	19.3	-16.7	BC05-61	277 + 26	91-DDE	DHBC05-496.FBR
DHBC05-497	360129	6891972	20.1	-17.3	BC05-61	265 + 15	81-KRH	DHBC05-497.FBR
DHBC05-498	358501	6891954	22.5	-19.0	BC05-61	222		DHBC05-498.FBR

Table 9 ***Field Tape Listing***

Beach Discus 2D, PEL 95						
Tape #	**Line**	**First FFID**	**Last FFID**	**First VP**	**Last VP**	**Date Recorded**
1A	BC05-51	1	466	666.5	200.5	12-Oct-05
2A	BC05-52	1	409	200.5	611.5	13-Oct-05
3A	BC05-49	1	455	659.5	200.5	14-Oct-05
4A	BC05-48	1	192	200.5	389.5	15-Oct-05
5A	BC05-50	1	246	200.5	445.5	15-Oct-05
Beach Discus 2D, PEL 107						
6A	BC05-56	1	266	200.5	465.5	18-Oct-05
7A	BC05-57	1	177	379.5	200.5	18-Oct-05
8A	BC05-58	1	184	200.5	384.5	18-Oct-05
9A	BC05-55	1	188	200.5	389.5	19-Oct-05
10A	BC05-54	1	188	389.5	200.5	19-Oct-05
11A	BC05-53	1	187	200.5	388.5	20-Oct-05
12A	BC05-59	1	367	569.5	200.5	20-Oct-05
13A	BC05-61	1	166	200.5	366.5	21-Oct-05
14A	BC05-60	1	193	391.5	200.5	21-Oct-05

APPENDIX 1

FIELD SUPERVISION REPORT
B BEER

APPENDIX 2

ACQUISITION CONTRACTOR REPORT
TERREX SEISMIC

APPENDIX 3a – PEL 95
APPENDIX 3b – PEL 107

SURVEY CONTRACTOR REPORT
DYNAMIC SATELLITE SURVEYS

APPENDIX 4

DATA PROCESSING REPORT
FUGRO SEISMIC IMAGING

APPENDIX 5

ENVIRONMENTAL REPORT
BRUCE BEER

BEACH PETROLEUM LIMITED

Field Supervision Report

for the

2005 PEL 95 & 107 DISCUS 2D Seismic Survey

Cooper Basin, South Australia

Conducted by:

Terrex Seismic Pty Ltd

From

October 12th – 21st, 2005

Prepared by: Bruce Beer
Consulting Geophysicist
B. C. & M. Beer Pty. Ltd.
ABN 96 007 830 882

CONTENTS

Beach Petroleum Limited:
2005 PEL 95 & 107 Discus Seismic Survey

1.0 INTRODUCTION

The 2005 Discus 2D Seismic Survey was operated by Beach Petroleum Limited and conducted in PEL's 95 and 107 in the Cooper Basin in north-east South Australia by Terrex Seismic. The PEL 95 program was located in sand dune terrain approximately 80 km south east of Moomba. The PEL 107 program was located in sand dune terrain approximately 40 km west of Moomba.

Terrex Seismic was contracted to collect the seismic data on a turnkey rate basis. 138.375 km of 2D seismic data was recorded on 14 lines. 66.375 km was recorded in PEL 95 and 72.0000 km in PEL 107. Recording operations began on October 12th and were completed on October 21st, 2005.

Beach Petroleum sub-contracted (through Terrex Seismic) Dynamic Satellite Surveys (DSS) to do the surveying, Terrex Contracting (TC) to do the line preparation, Scanlon Drilling to do the up-hole drilling and Velocity Data to do the up-hole logging.

The crews were billeted in three separate camps that were located at two sites at different times (see Fig. # 1-3).

Beach Petroleum's Operations Coordinator Doug Roberts was in overall control of the project while Bruce Beer was contracted to represent Beach in the field.

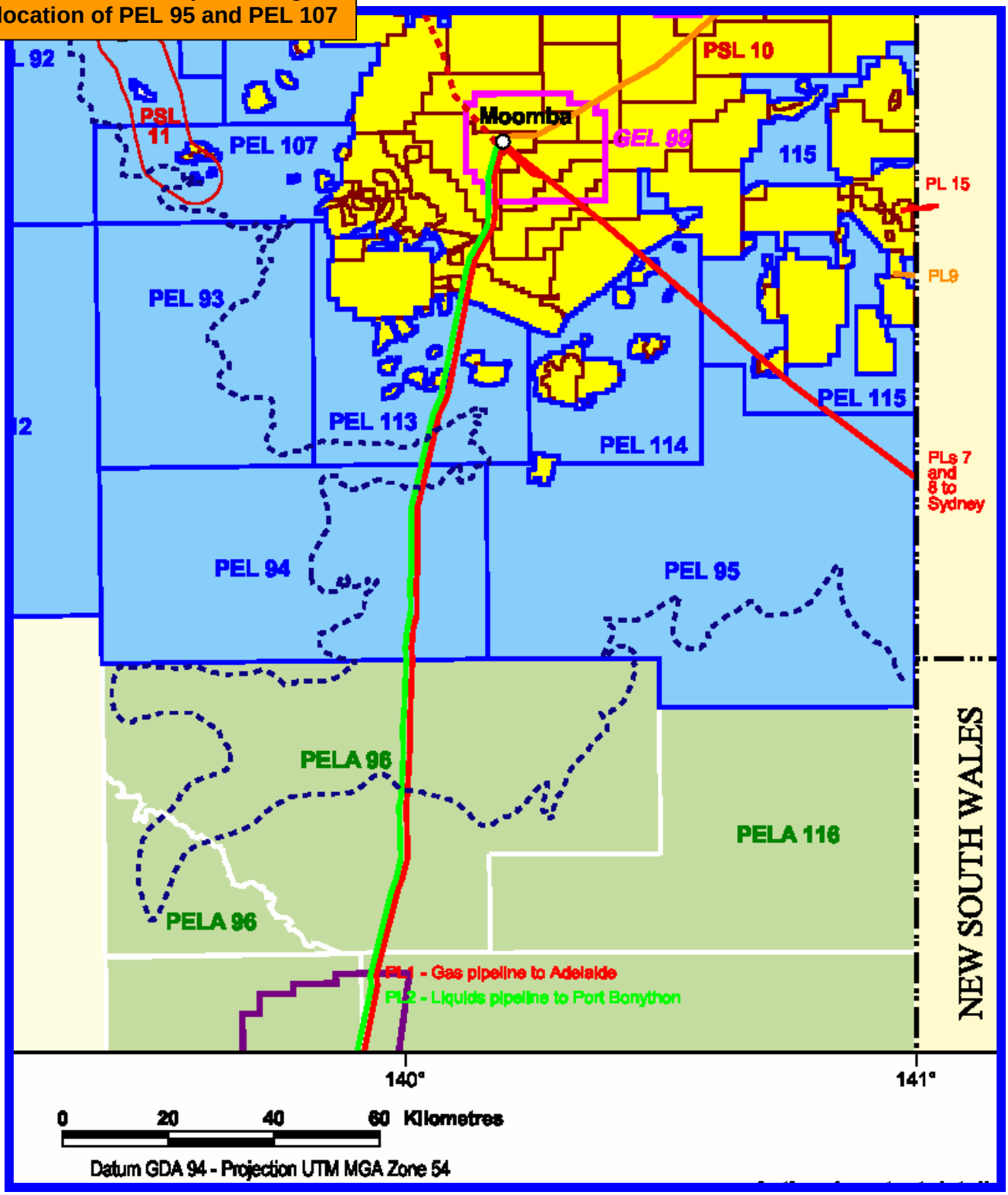
There were no Lost Time Injuries during the job.

Details of production are contained in the appendices.

Fig. # 1-1 is an excerpt from the SA sector Cooper Basin Tenements Map showing the location of PELs 85 and 107. Fig. # 1-2 shows a topographic map of the PEL 95 area and Fig. # 1-3 shows a topographic map of the PEL 107 area. Campsite locations are also shown on these maps.

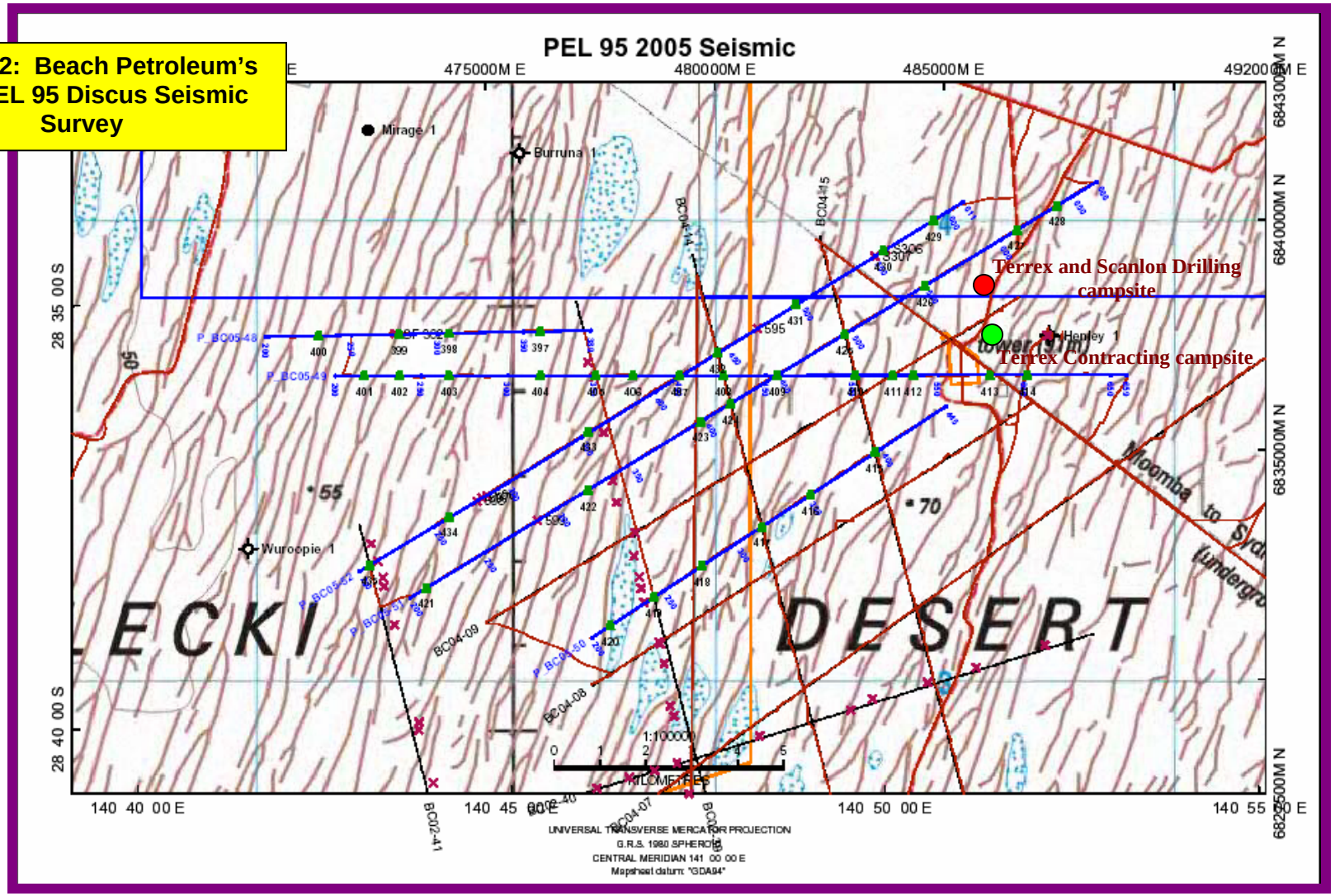
1.0 INTRODUCTION

Fig. # 1-1: Cooper Basin Tenements Map showing location of PEL 95 and PEL 107



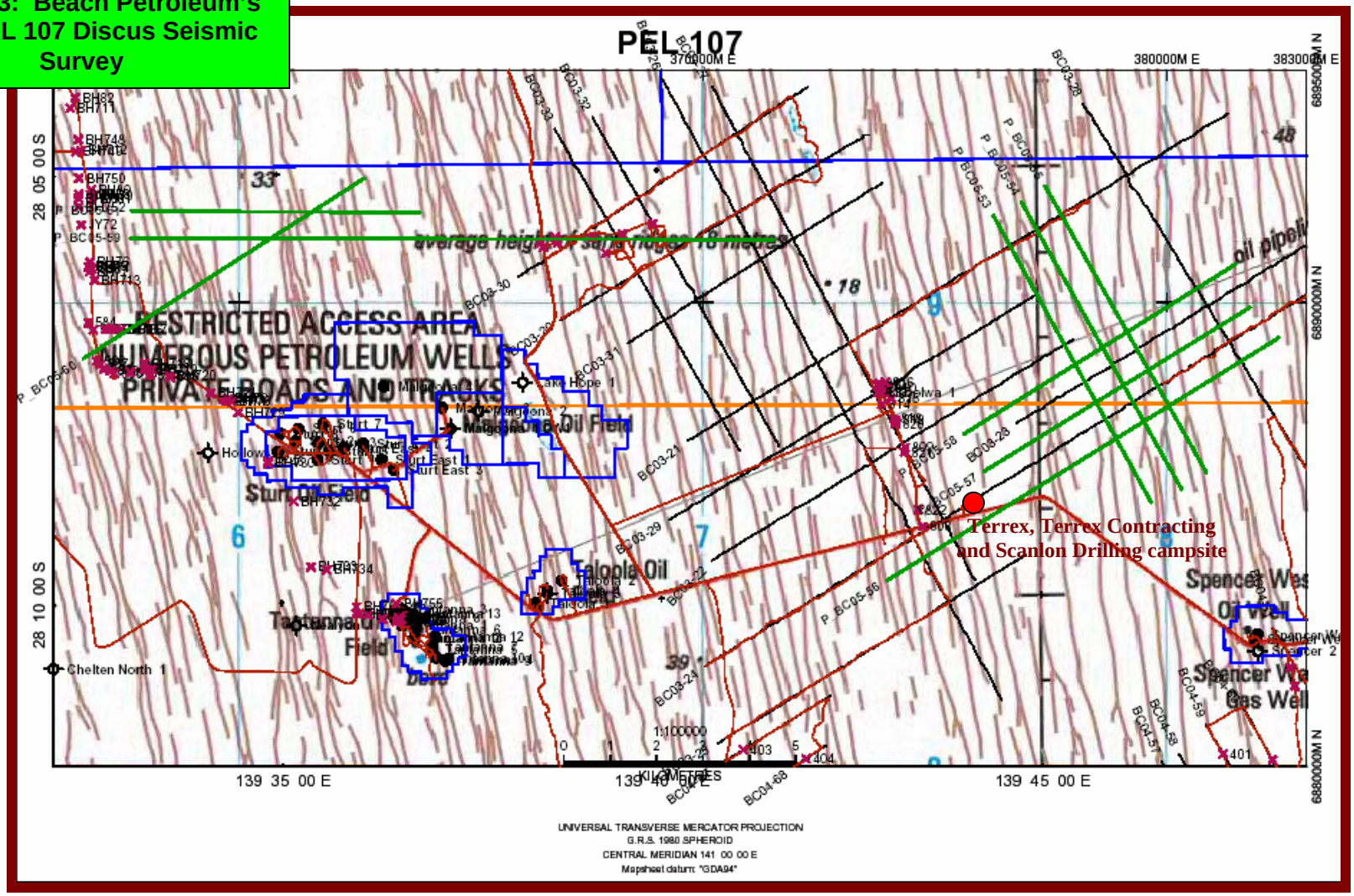
1.0 INTRODUCTION

Fig. # 1-2: Beach Petroleum's 2005 PEL 95 Discus Seismic Survey



1.0 INTRODUCTION

Fig. # 1-3: Beach Petroleum's 2005 PEL 107 Discus Seismic Survey



2.0 LOGISTICS

The Terrex Contracting dozer camp and DSS moved to the PEL 95 area on September 27th and set up camp 700 metres north of the Moomba-Sydney pipeline crossing at the MW83 tower. They moved camp to PEL 107 on September 30th and set up camp at

PEL 107 camp coordinates:

E 375 575 N 6 885 530

This site is 9 km west of Spencer West on the Tantana road and is the same camp site used in the past 3 years of operations in PEL 107.

The Terrex crew moved to a slightly different location in PEL 95. It was further north of the Sydney pipeline (about 2 km) at

E 485898 N 6838734
Lat 28 deg 34' 42" Long 140 deg 51' 21"

On October 17th the Terrex camp moved to the same PEL 107 camp that TC occupied earlier. This was after having a standby day of the 16th due to road closures after rain around Moomba.

Scanlon Drilling moved into PEL 95 on October 23rd. They camped at the same site as the Terrex main camp. They moved on November 7th but stayed overnight in Moomba to do maintenance then moved to PEL 107 on the 8th and occupied the same site as Terrex and TC.

Drinking water was obtained from the de-min plant in Moomba. Drilling water at PEL 95 was obtained from Tower Bore with the permission of Grant Rieke. At PEL 107 drilling water was obtained from Lycium Bore with the permission of Graham Betts and Rodney Fullarton.

In PEL 95, access to Moomba was via Narcoonowie, Toolachee, Dullingari and the Della road. In PEL 107 it was via Gidgealpa.

Personnel crew changes were made out of the airport at Moomba. Food supplies were ordered out of Adelaide and delivered to Moomba by Mansell Transport where they were picked up by the Terrex supply truck.

Communication was via satellite telephone and broad-band internet.

3.0 TIMETABLE of EVENTS

Sep 28 Start line preparation on Discus PEL 95 Seismic Survey.

Sep 29 Complete line preparation on Discus PEL 95 Seismic Survey.

Oct 1 Start line preparation on Discus PEL 107 Seismic Survey.

Oct 1 Complete line preparation on Discus PEL 107 Seismic Survey.

Oct 12 Begin recording on Discus PEL 95 Seismic Survey

Oct 15 Complete recording on Discus PEL 95 Seismic Survey

Oct 18 Begin recording on Discus PEL 107 Seismic Survey

Oct 21 Complete recording on Discus PEL 107 Seismic Survey

Oct 23 Scanlon Drilling start drilling on Discus PEL 95 Seismic Survey

Nov 6 Scanlon Drilling complete drilling on Discus PEL 95 Seismic Survey

Nov 8 Scanlon Drilling start drilling on Discus PEL 107 Seismic Survey

Nov 16 Scanlon Drilling complete drilling on Discus PEL 107 Seismic Survey

4.0 - PARAMETERS

4.0 RECORDING PARAMETERS

Survey: 2005 Discus Seismic Survey PEL: 95 & 107
Lines: BCO5-48 → BC05-52 PEL 95 Areas: Various
BCO5-53 → BC05-61 PEL 107

Instrumentation

Instruments:	:	Sercel 388
No. Channels	:	124
Tape Drives	:	3490E (x 2)
Tape Format	:	SEGD Revision 1 8058IEEE Demultiplexed, Noise edited correlated summed 4 sec record
Filters	:	Hi cut 125 Hz, (half Nyquist - Linear) Lo cut: Out
Sample Rate	:	2 ms
Record Length	:	7 sec (3 sec sweep, 4 sec listen)
RTC	:	Yes
Correlation Type	:	Zero Phase, After Sum
Stack	:	Diversity stack plus burst edit

Source Data

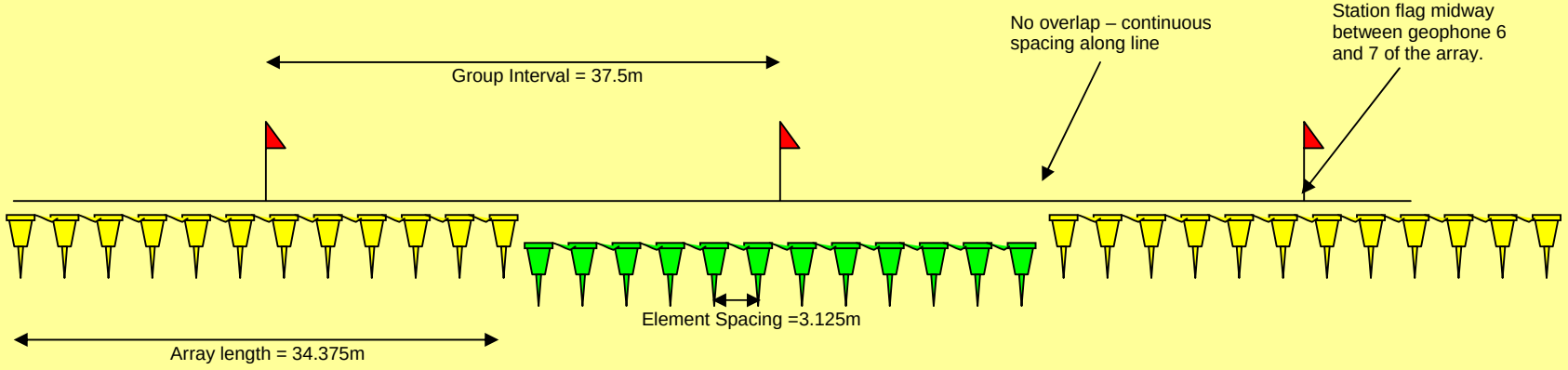
Vibrators	:	3 x I/O AHV IV's on 4x4 Buggies
Electronics	:	Pelton Advance III, VibePro
Sweep Frequency	:	Mono-sweep, 5-90 Hz
Sweep Length	:	3 seconds
No. Sweeps	:	2 standing
VP Interval	:	37.5m
Vibrator Array	:	3 vibs in line, 12.5m pad to pad standing. No move-up.
Sweep Amplitude Taper	:	100% (none)
Drive Level	:	90% varied by amplitude control function
End Tapers (cosine)	:	0.2s
Phase Locking Type	:	Ground Force
Amplitude Control?	:	Peak to Peak

Receivers

Receiver Group Interval	:	37.5m
Number of live traces	:	124
Spread	:	Split, 2306.25-93.75-0-93.75-2306.75
Geophones	:	Sensor SM4 10 Hz
Array	:	12 in-line, centred on station, 3.125 spacing
Connection	:	Series/Parallel (6x2)
Multiplicity	:	62 fold (60 fold processed)

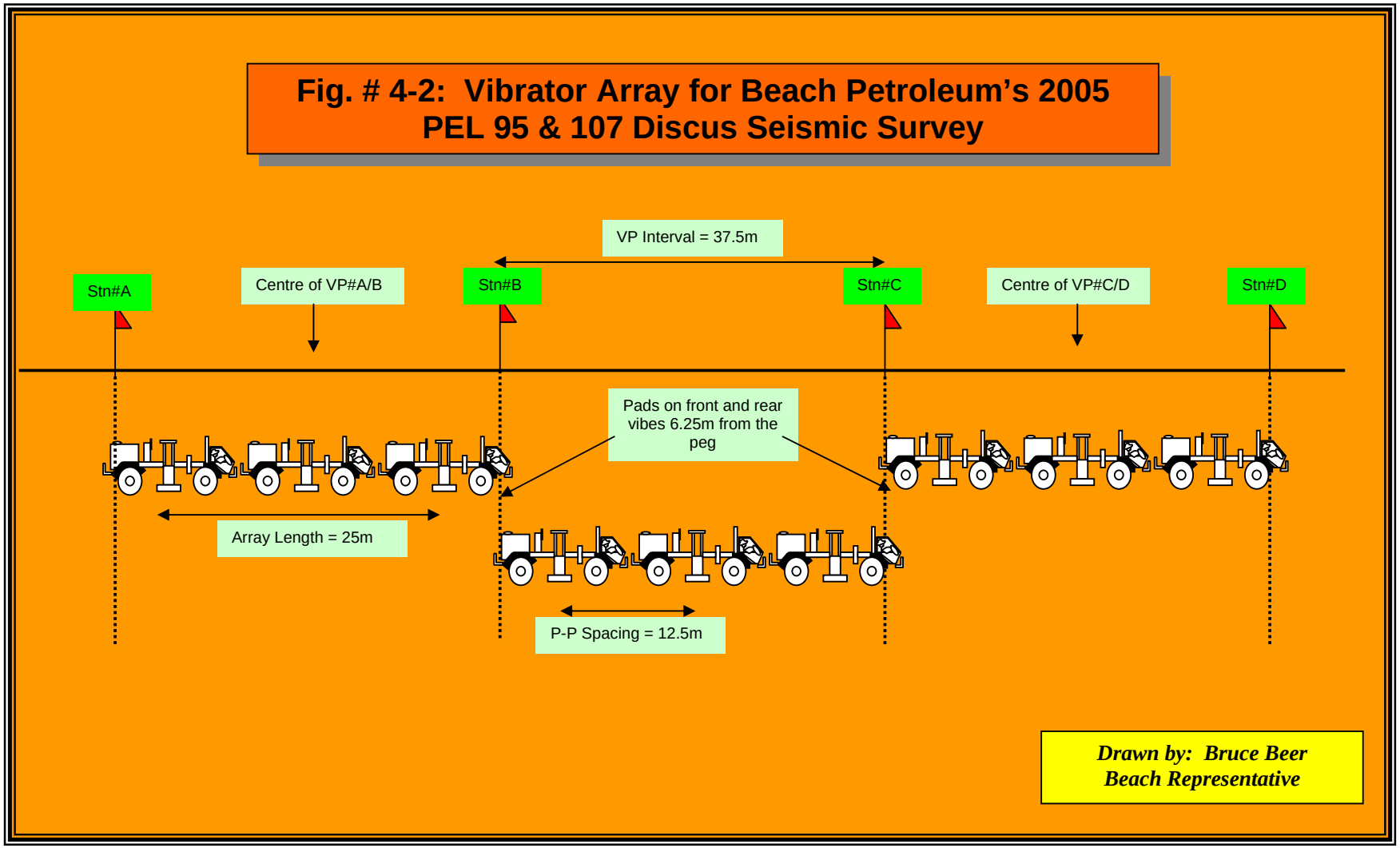
4.0 - PARAMETERS

Fig. # 4-1: Geophone Array for Beach Petroleum's 2005 PEL 95 & 107 Discus Seismic Survey



Drawn by: Bruce Beer
Beach Representative.

4.0 - PARAMETERS



5.0 - RECORDING

Introduction

The 2005 Discus Seismic Survey was operated by Beach Petroleum Limited and located in the Cooper Basin, in north eastern South Australia. It was split in two PELs. The PEL 95 program was approximately 80 km southeast of Moomba and The PEL 107 program was approximately 40 km west of Moomba. Terrex Seismic carried out the survey. The recording phase was conducted from October 12th – 21st, 2005.

The contract was based on a turnkey basis. A total of 138.375 kms of 2D seismic data was recorded on 14 lines. Of this total 66.375 km was in PEL 95 and 72.00 km was in PEL 107. The program areas are shown in Fig. # 1-2 and 1-3 in the Introduction section.

Full production statistics appear in Appendix I.

Picture # 5- 1: vibes on line BC05-50

Terrain

The terrain was mainly dune fields in both PELs. The dunes were further apart and lower in PEL 95 than in PEL 107.

Equipment

Terrex provided their Sercel 388 telemetric recording system, along with a field deployment of 600 x 12 strings of Sensor SM4 10 hz geophones.

5.0 - RECORDING

There were three Input Output AHV IV 60,000 lb vibrators on line with a fourth as spare.

There was one Station Unit (SU) every 6 stations and a battery unit (PSU) every 48 stations. The batteries lasted 2 days between charges.

Picture # 5- 2: Line BC05-50; weaving and little or bladework

Parameters

Parameters are listed in Section 4.0. They are the standard 2D parameters used in previous Beach Petroleum programs. Summarising: 2 x 3 second sweeps/vp, 5-90 hz linear upsweep, 4 second listen, 2ms sample rate, 3 vibes in line, 12.5 m P-P, 37.5m group interval and 37.5m VP interval, 124 live channels, 62 fold recording.

Recording Crew Strength

The following table details the strength and disposition of the crew:

Table 1: Terrex Seismic Crew Strength and Disposition on 16-10-05

Contract Requirement	**Actually on Crew**
Crew Manager (1)	Jon Turner (1)
HSE Representative (1)	Ray Ackram, Jonathon Hynes (2)
Geophone Repair (1)	Noel Grainger (1)
Senior Vehicle Mechanics (2)	Ken Mathews, Tony Screagh (2)
Supply Driver (1)	Allan Tuite, Geoff Oswell (2)

5.0 - RECORDING

Camp Cook (1)	Mark Foxon, Dennis Viney (2)
Kitchen Hand (1)	(0)
Camp attendant (1)	Peggy Tomlinson (1)
Senior Vibe Tech (1)	Shane Goosens (1)
Lead Vibe Op (1)	Steve Bates(1)
4 Vibe Operators (4)	Sean Purcell, Allan Cabot, Shane Shufflebottom (3)
Senior Observer (1)	Peter O'Donnell (1)
Line Boss (1)	Mitchell Burton (1)
Trouble Shooter (not specified)	Warren Campbell (1)
Cable truck personnel (6)	6 people on 3 cable trucks (6)
Jug truck drivers (2)	2 jug truck drivers (2)
Line crew (10)	Line crew (7)
Total Contract Requirement = 34	**Actually on crew = 34**

From Table #1, it can be seen that the crew strength was kept exactly at contract levels.

Picture # 5- 3: front juggy Sarah Anderson stomping; and wearing proper PPE

5.0 - RECORDING

Operations in PEL 95

Operations were affected by poor access. The Moomba-Sydney pipeline could only be crossed at one place near the MW83 tower. The lines north of the pipeline were connected by access between each other but not along the pipeline to the crossing point. It was therefore a long drive back up the lines to intersect the tower road. To the south west was the boundary fence between Merty Merty and Bollards Lagoon Stations. Cousins Martin and Grant Rieke who manage these stations respectively gave permission to lay this fence down where necessary. Dunes in the south western areas were not high but were very soft and difficult to negotiate.

The I/O AHV IV vibrators were fitted with tyres having large lugs more suitable to rocks than sand. They had considerable trouble traversing dunes from the east to west direction, up the steep slip face. Terrex have debated the viability of purchasing sand tyres for the vibes and finally look like doing it in 2006.

Operations in PEL 107

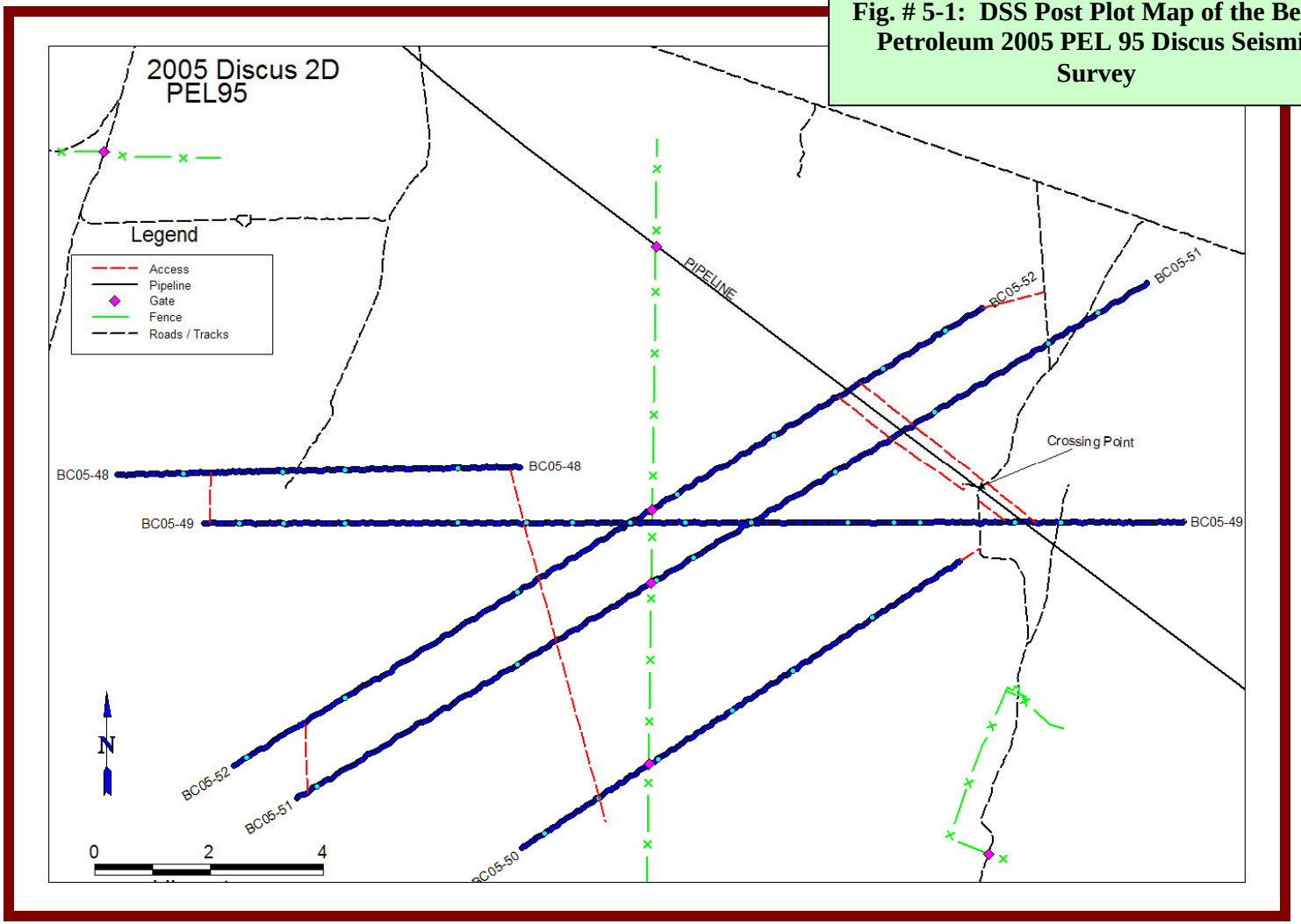
The Terrex main crew camped at the same location as it has in PEL 107 for the past 3 years. This is because suitable campsites in PEL 107 are rare since the dunes are so close together and the swales are generally too soft and sandy for a camp.

Access to the eastern grid of the PEL 107 program was made easy by having a track from the camp north east to a gate in the boundary fence between Mulka and Mungeranie Stations. The other major impediment to access was the surface oil pipeline from Tantana to Gidgealpa which cut the eastern grid (see Fig. # 5-1). To give access an earth ramp was constructed by TC with the permission and supervision of Santos.

Picture # 5- 4: front juggy Robin Smith stomping

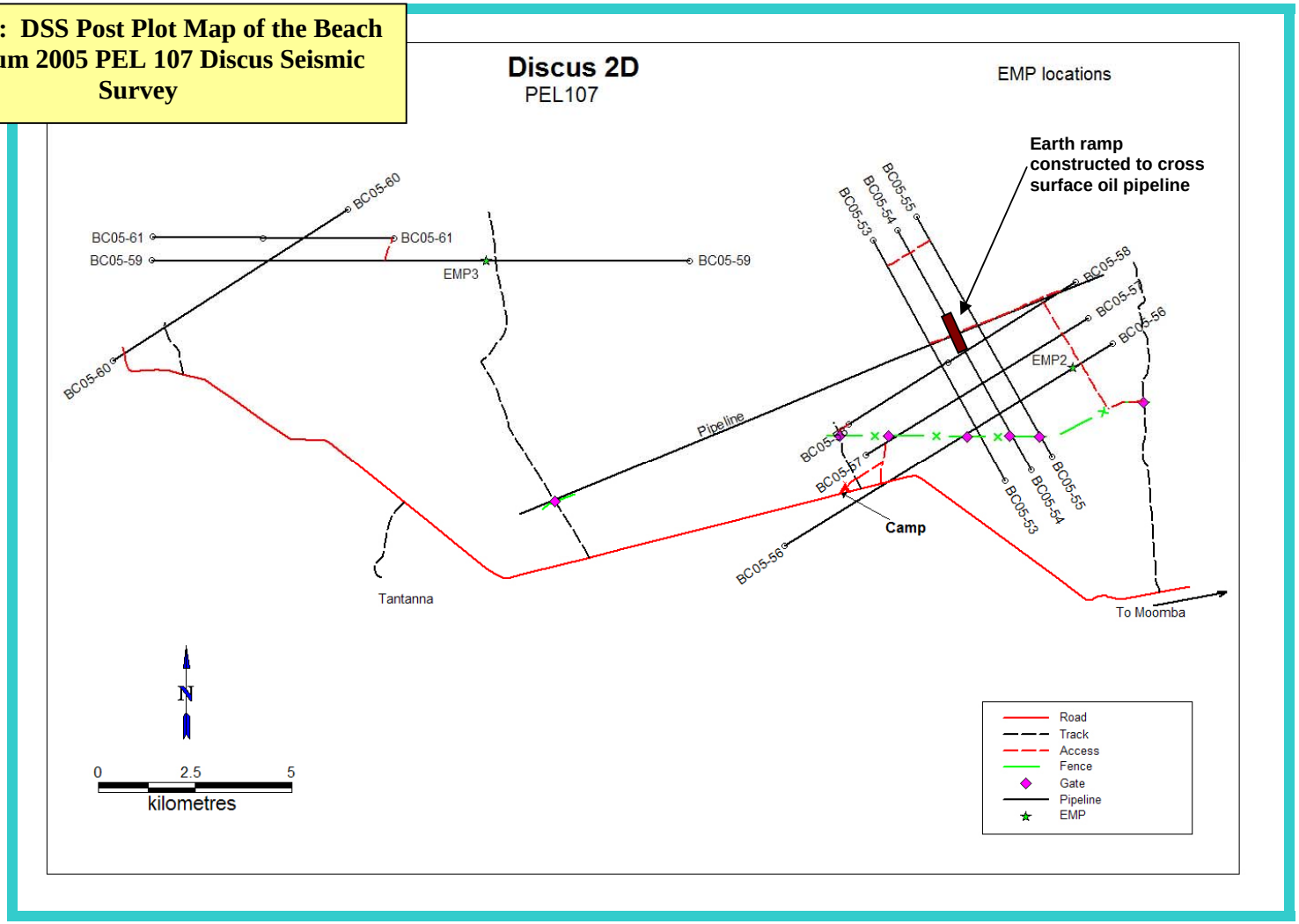
5.0 - RECORDING

Fig. # 5-1: DSS Post Plot Map of the Beach Petroleum 2005 PEL 95 Discus Seismic Survey



5.0 - RECORDING

Fig. # 5-1: DSS Post Plot Map of the Beach Petroleum 2005 PEL 107 Discus Seismic Survey



5.0 - RECORDING

Production

Fig. # 5-3: Recording Production for Beach Petroleum's 2005 Discus Seismic Survey

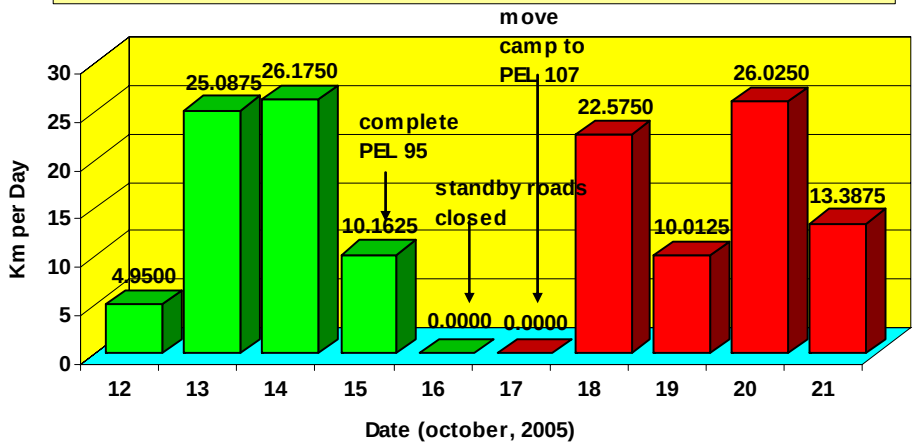
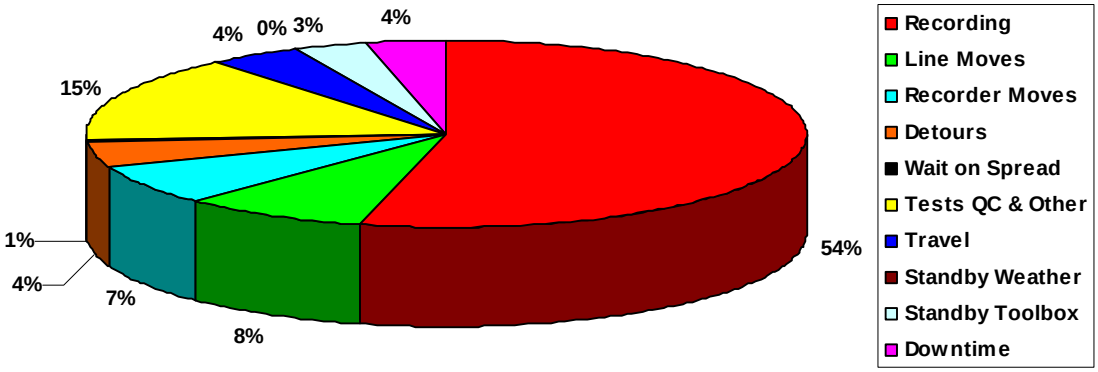


Fig. #5-3 above details daily production in the 2005 Discus Seismic Survey. The programs were too short to make averages meaningful, but it can be seen from the chart that average full production days were of the order of 25-26 km.

Fig. #5-3 shows the distribution of recording hours in percentage terms for the 2005 PEL 95 Discus Seismic Survey:

Fig. # 5-4: Distribution of Recording Hours in the PEL 95 Discus Seismic Survey

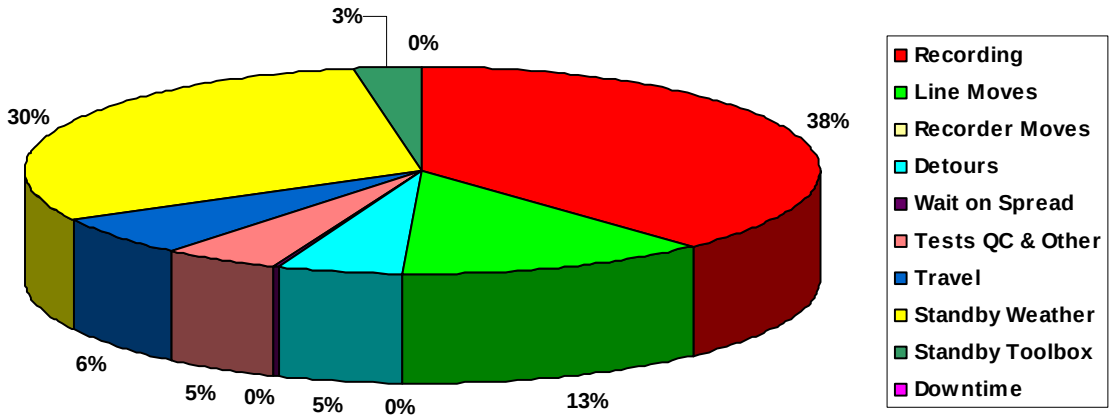


The above pie chart shows that 54% of total time was spent recording. This is a good result. Line moves were 8%, reflecting the spread-out nature of the program and travel was 4%. Detours were 4% reflecting the difficulty of getting around the pipeline. Downtime was 4%.

5.0 - RECORDING

Fig. # 5-5 shows the distribution of recording hours for PEL 107.

Fig. # 5-5: Distribution of Recording Hours for the 2005 PEL 107 Discus Seismic Survey



As can be seen from the above pie chart, the PEL 107 SS was far less efficient than the PEL 95. The main reason is the weather standby of 30%. This was due to a whole day being lost after PEL 95 waiting for Santos to open the roads to PEL 107, and losing half a day due to rain at PEL 107.

Table #5-2 below details the statistics for PEL 95:

Table 5-2: Statistical Summary of the 2005 PEL 95 Discus Seismic Survey

Start Date	October 12th, 2005
End date	October 15th, 2005
Total Recorded Linear Kms	66.375
Total Recording Hours	20.8
Total Standby Rate Charge Hours	1.2
Total Overall Hours	38.1 (excl mobe & layout)
Average Km/Recording Hr	3.19
Total VPs	1764
Total Skips	11
Percentage Skips/Possible VPs	0.6 %
Average Recording Cycle Time	42.19 seconds/VP
Efficiency Factor (Rec Hr/Tot Hr)	54% (excludes layout & mobe)

Table # 5-2 shows that Terrex conducted an efficient survey in PEL 95.

Table #5-2 below details the statistics for PEL 107:

5.0 - RECORDING

Table 5-3: Statistical Summary of the 2005 PEL 107 Discus Seismic Survey

Start Date	October 18th, 2005
End date	October 21st, 2005
Total Recorded Linear Kms	72.0
Total Recording Hours	20.8
Total Standby Rate Charge Hours	18.0
Total Overall Hours	54.5 (excl mobe & layout)
Average Km/Recording Hr	3.46
Total VPs	1915
Total Skips	14
Percentage Skips/Possible VPs	0.7 %
Average Recording Cycle Time	38.82 seconds/VP
Efficiency Factor (Rec Hr/Tot Hr)	38% (excludes layout & mobe)

Table # 5-3 shows that the PEL 107 survey was inefficient at 38%. But this was due to the weather standby time. The actual recording rate and cycle time were better than those at PEL 95.

Picture # 5- 5: the I/O AHV IV vibrator with the heavy lug tyres.

Data Quality

Data quality was generally excellent in all areas. Signal to noise was high.

5.0 - RECORDING

PEL 95

Sample paper monitor records for PEL 95 are shown in Sample Monitor # 5-1 and 5-2. It must be noted that the monitor records have a 24 Hz low cut and a 70 hz hi-cut playback filter applied to them. The observers do this to cosmetically clean up the record and make it easier to trouble shoot. But the effect is to mask the lower frequencies and, in particular, the full impact of ground-roll.

Sample Monitor # 5-1 is from Line BC05-51 VP# 274.5. This is from the south west of the prospect. It shows the top of the Permian at 1.4 seconds and the C horizon at 1.15 seconds. The P horizon has a definite "ringiness' about it. Signal/noise is good.

Sample Monitor # 5-2 is from Line BC05-51 VP# 548.5. It shows the Permian top at 1.4 secs and the C horizon very faintly defined at 1.15 secs.

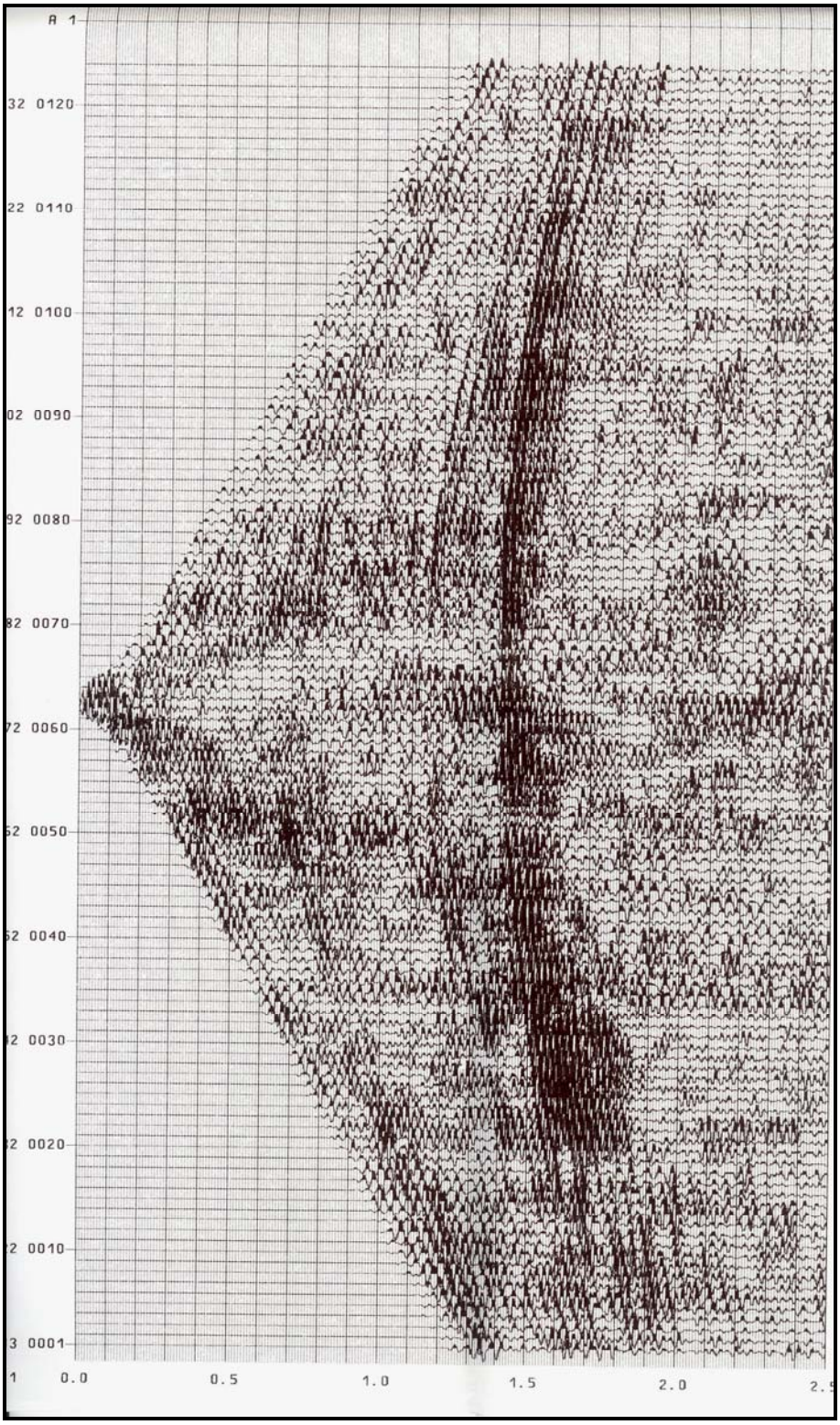
Picture # 5- 6: PEL 107 Line BC05-58; well vegetated dunes

PEL 107

Sample Monitor # 5-3 is from Line BC05-55 VP# 260.5. It shows a strong crisp P horizon at 1.85 secs and the C horizon at 1.45.

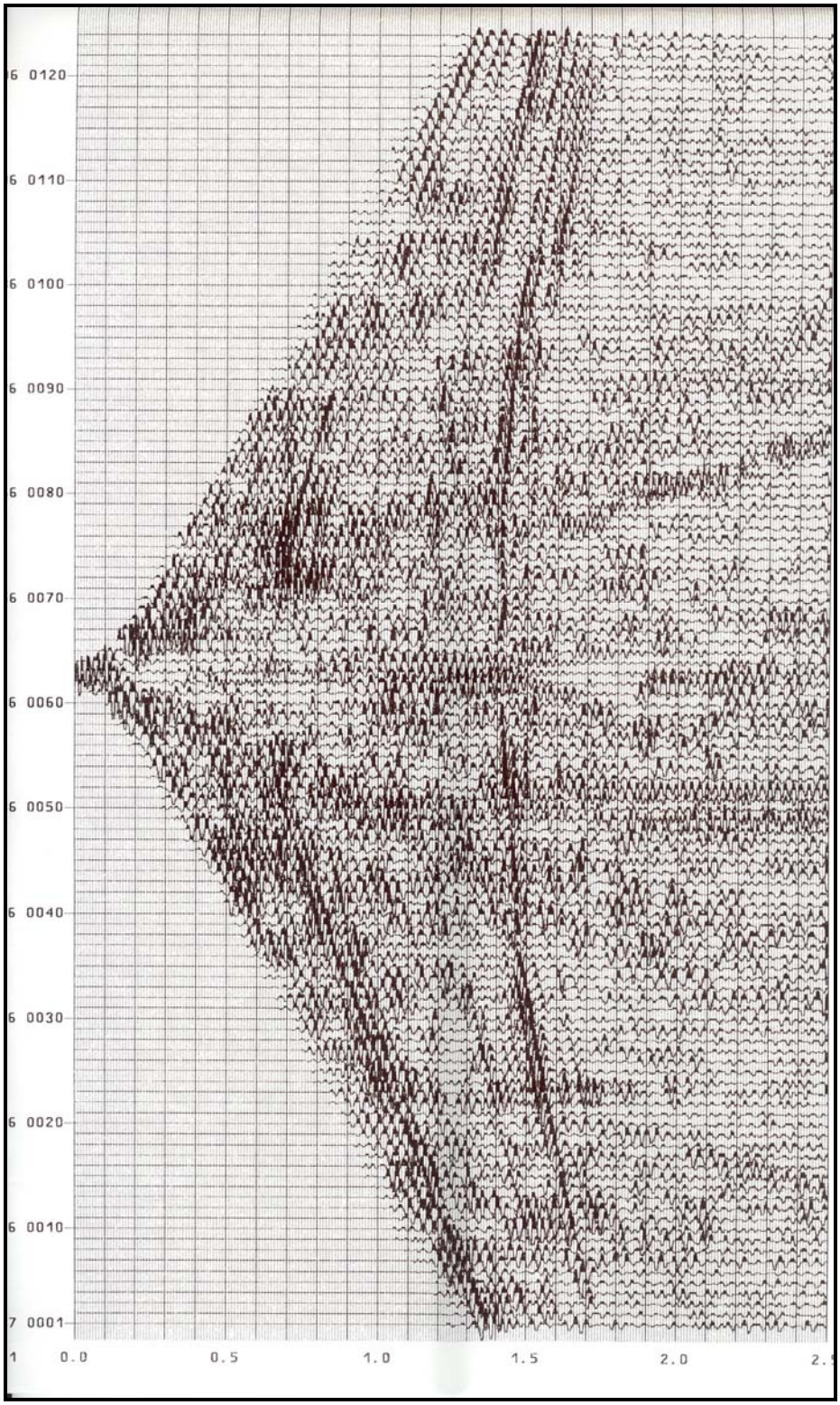
In summary, the data quality was good in both areas but perhaps better in PEL 107 with the deeper section.

5.0 - RECORDING



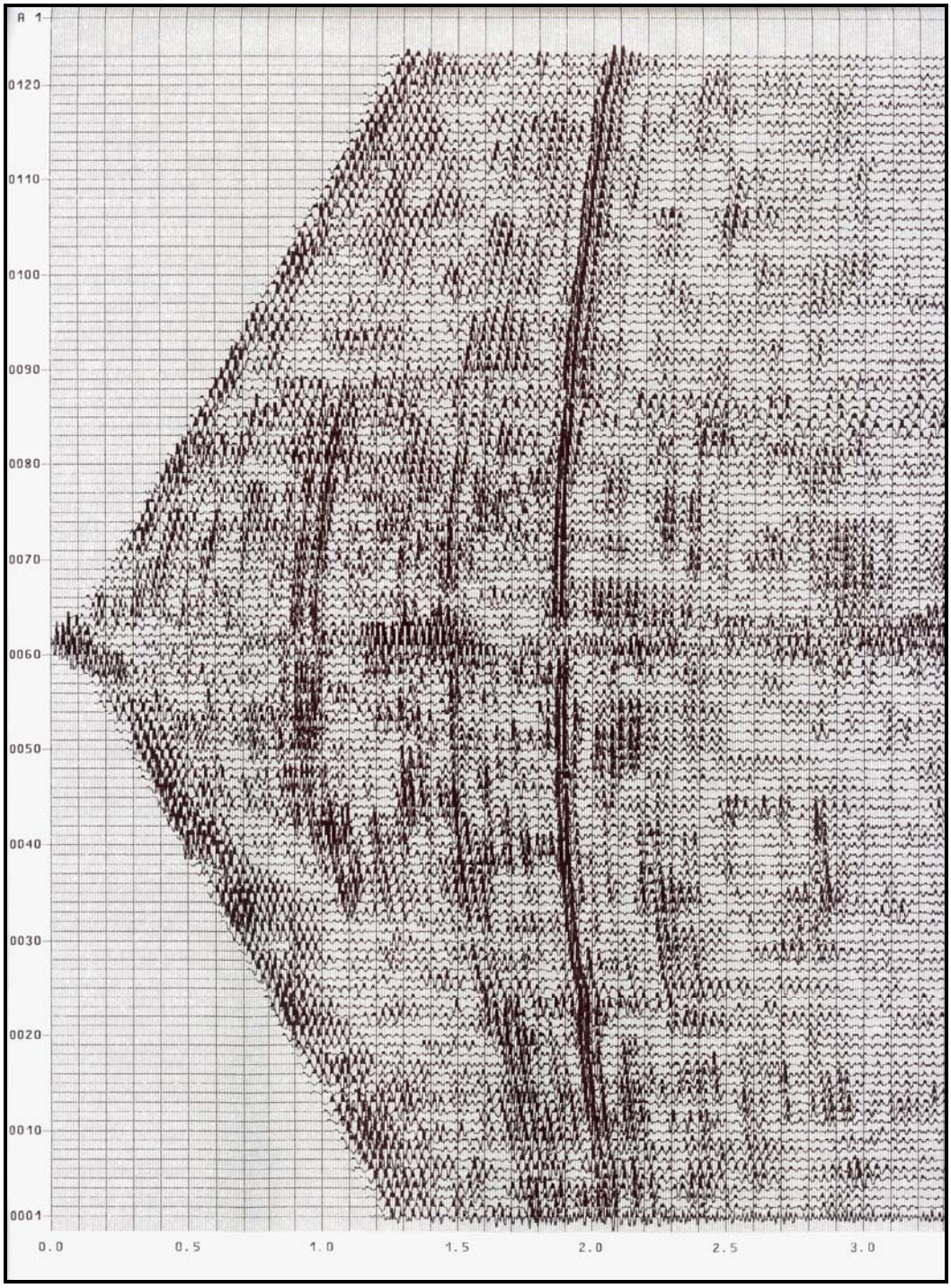
Sample Monitor # 5- 1: PEL 95 Line BC05-51 VP# 274.5

5.0 - RECORDING



Sample Monitor # 5- 2: PEL 95 Line BC05-51 VP # 548.5

5.0 - RECORDING



Sample Monitor # 5- 3: PEL 107 Line BC05-55 VP# 260.5

5.0 - RECORDING

Picture # 5- 7: Line BC05-57; vibes approach boundary fence between Mulka and Mungeranie

Observer & Line Boss

The observer on this job was Peter O'Donnell. Peter has vast experience in the industry and a reputation for both productivity and quality. The line boss was Mitchell Burton and the trouble shooter was Warren Campbell. They all have a quality over quantity attitude and did an excellent job.

Summary

The 2005 Discus Seismic Survey was spread over two widely separated PELs. It is unfortunate that rain intervened exactly when the crew was due to move from one to the other. Weather standby totalled 16.5 hrs and marred what was otherwise an excellent job by Terrex Seismic.

5.0 - RECORDING

Picture # 5- 8: building sand trails through camp after rain on 16-10-05

Picture # 5- 9: Observer Peter O'Donnell and the birddog look at the data.

6.0 DRILLING & LVL

Introduction

The uphole program for the 2005 Discus Seismic Uphole Survey consisted of 102 holes (see Map # 6-1). Total metres drilled and logged was 5492. The survey was split between two PELs, PEL 95 and PEL 107. There were 39 holes and 2940m drilled in PEL 95 and 63 holes and 2552m drilled in PEL 107. Drilling began on October 23rd and was completed on November 16th, 2005.

Scanlon Drilling from Kalgoorlie WA was contracted to do the uphole drilling while Velocity Data was contracted to do the logging. The drilling contract was let on an hourly rate (+ consumables) basis while the logging contract for Velocity Data was also based on an hourly rate. Both were subcontracted to Terrex Seismic. Full production statistics appear in Appendix II & III for PEL 95 and V & VI for PEL 107.

Picture # 6- 1: Scanlon camp with VD caravan to the left

Scanlon Drilling & Expertest
Equipment

Table 6- 1: Equipment list for Scanlon Drilling Company

Item	Description
Drilling rig	Bourne 1000
Water trucks	2x Hino 4x4; 4500 litre tanks
Water truck	1x International S-Liner 6x4; 12,000 litre tanks;
Camp	1x kitchen/diner/sleeper van
Ablution	1x trailer with chemical toilet mounted
Utility	1x Toyota 4x4 Station Wagon
Communications	All vehicles have UHF radios; 2 x satellite telephones;

6.0 DRILLING & LVL

Velocity Data provided their Toyota Hi-Lux mounted weight drop logging init and an accommodation/office caravan.

Personnel

Scanlon Drilling:	Driller	Russell St Jack/Brett Andrew
	Offsider	T. Jones/B. Sier
	Offsider	Wyndham Middleton/ Sasha Rohr
Velocity Data	Logger	Ian Wyatt and Nathan Jones

Drilling in PEL 95

The table below details production in PEL 95:

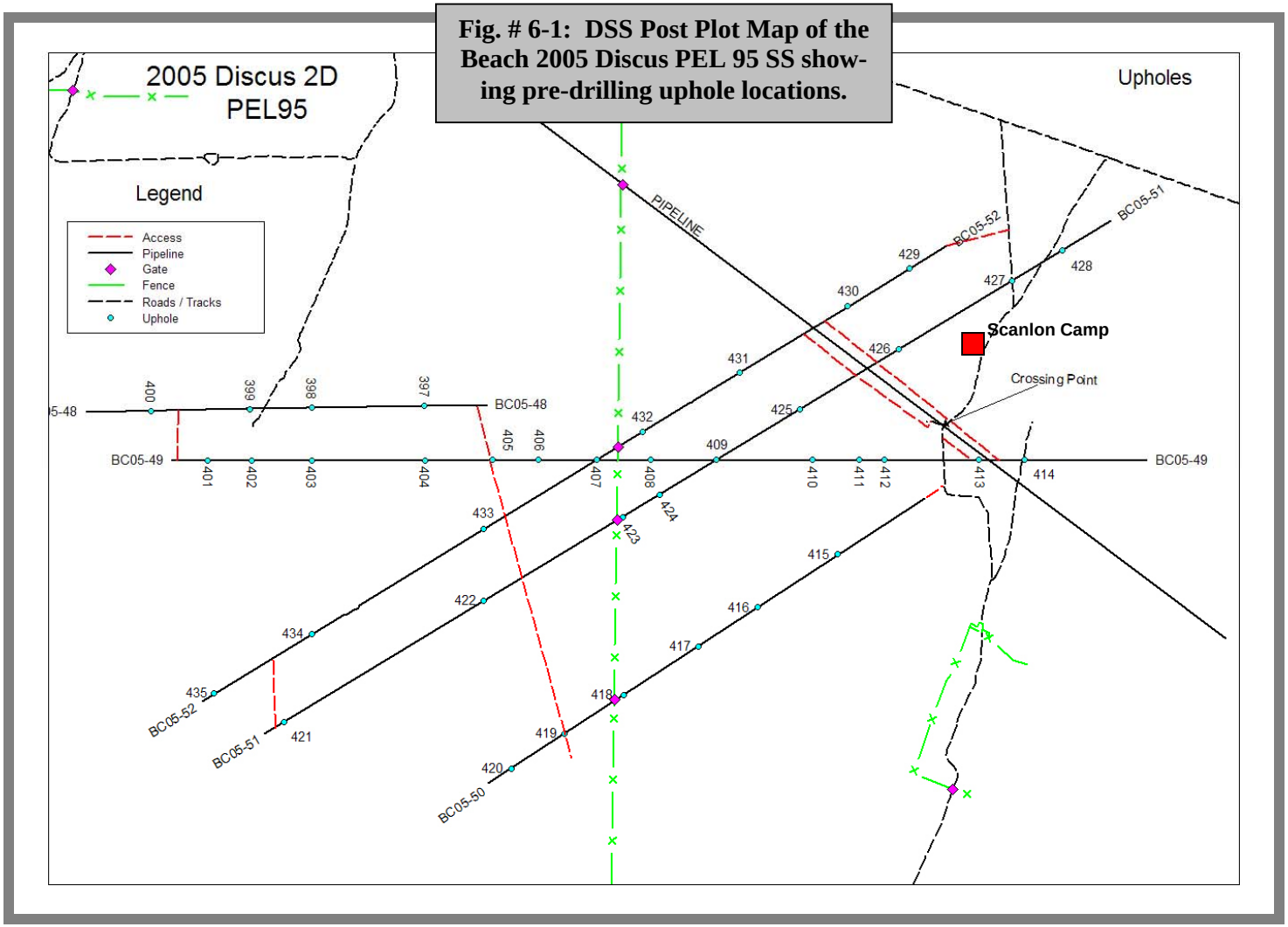
Table 6- 2: Statistics for Scanlon Drilling on the 2005 PEL 95 Discus Seismic Survey

Start Date	October 23rd, 2005
End date	November 6th, 2005
Total Days	15
Total Holes Drilled	39
Average Holes/Day	2.6
Average Holes/Day excluding standby days	3.54
Total Metres Drilled	2940
Average Depth of Hole	75.38 metres
Average Depth of Weathering	45.2 metres
Total Full Rate Drill Hours	132.75 (excluding mobe and demobe)
Total Standby Rate Charge Hours	37.5
Average Metres/Full Rate Drill Hr	22.15 (excluding mobe and demobe)
Average Metres/Total Charge Hr	16.9 (including stby, mobe & demobe)
Scanlon Drilling Driller	Russell St Jack/Brett Andrew
Velocity Data Logger(s)	Ian Wyatt/ Nathan Jones
Total $4^3/_4$" Regular bits used	11
Total $4^3/_4$" Chevron bits used	0
Total TCI bits used	0
Total drums of Biovis used	20
Total bags of OzGel used	5

From the above table it can be seen that holes were generally deep (75m). All holes were drilled on mud with Biovis being the main additive. This is organically compatible. Drilling water was obtained from Tower Bore with the permission of Grant Rieke of Bollards Lagoon Station. A drum of diesel for the bore motor was left at the end of the job.

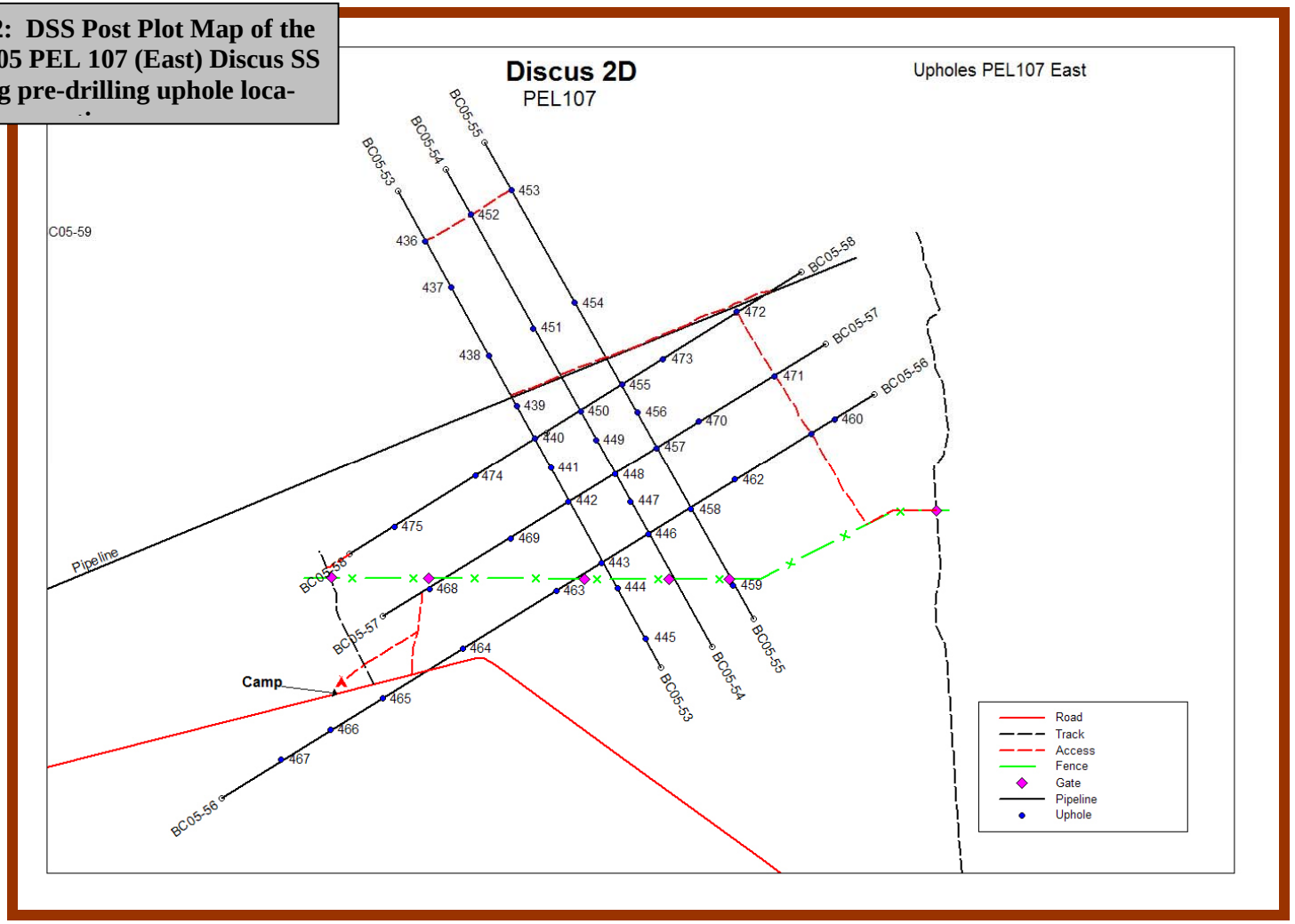
6.0 DRILLING & LVL

Fig. # 6-1: DSS Post Plot Map of the Beach 2005 Discus PEL 95 SS showing pre-drilling uphole locations.



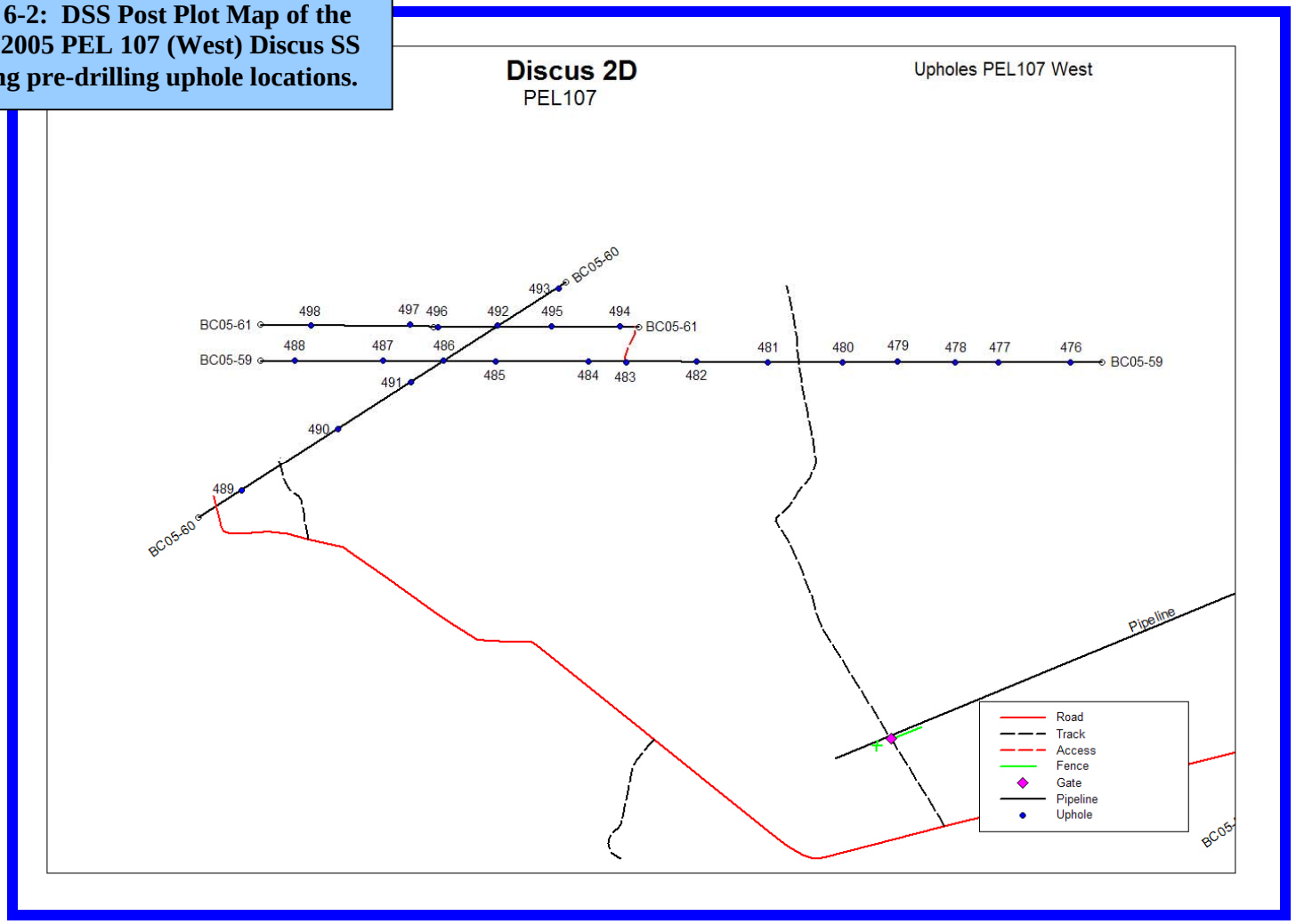
6.0 DRILLING & LVL

Fig. # 6-2: DSS Post Plot Map of the Beach 2005 PEL 107 (East) Discus SS showing pre-drilling uphole loca-



6.0 DRILLING & LVL

Fig. # 6-2: DSS Post Plot Map of the Beach 2005 PEL 107 (West) Discus SS showing pre-drilling uphole locations.



6.0 DRILLING & LVL

Lithologies were listed by the drillers as predominantly sands and clays. There were surprisingly few silcrete layers. Blade bits were sufficient to cut through any of the layers encountered. Sub-weathering velocities were in the range 1780 to 2000 metres/sec, but typically in the mid 1800's.

In order to give an example of the weathering profile in the area, line BC05-49 has been selected. Using elevations provided by DSS and taking the weathering depths as interpreted by Velocity Data, a value for the elevation of the base of weathering was calculated at each uphole location. Using the series-trend function in Excel, a linear interpolation was made between each control point. The results were plotted as follows:

Fig. # 6-4: Weathering Profile for Line BC05-49 in PEL 95 on Beach Petroleum's 2005 Discus Seismic Survey

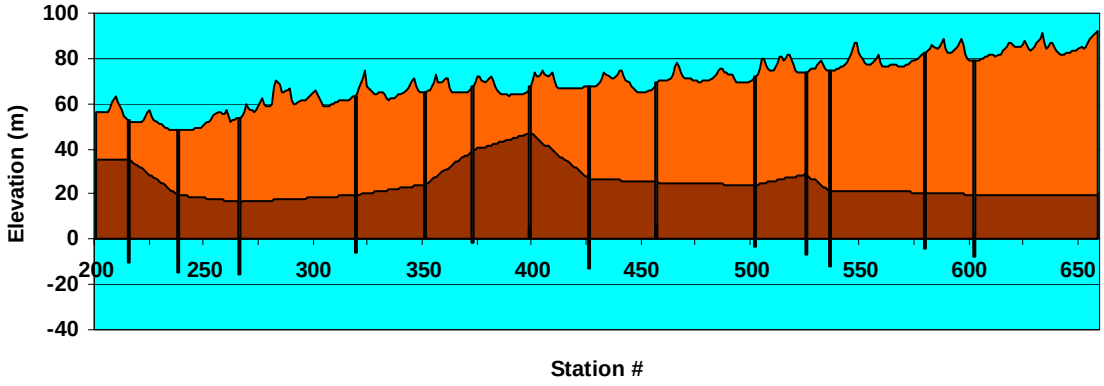
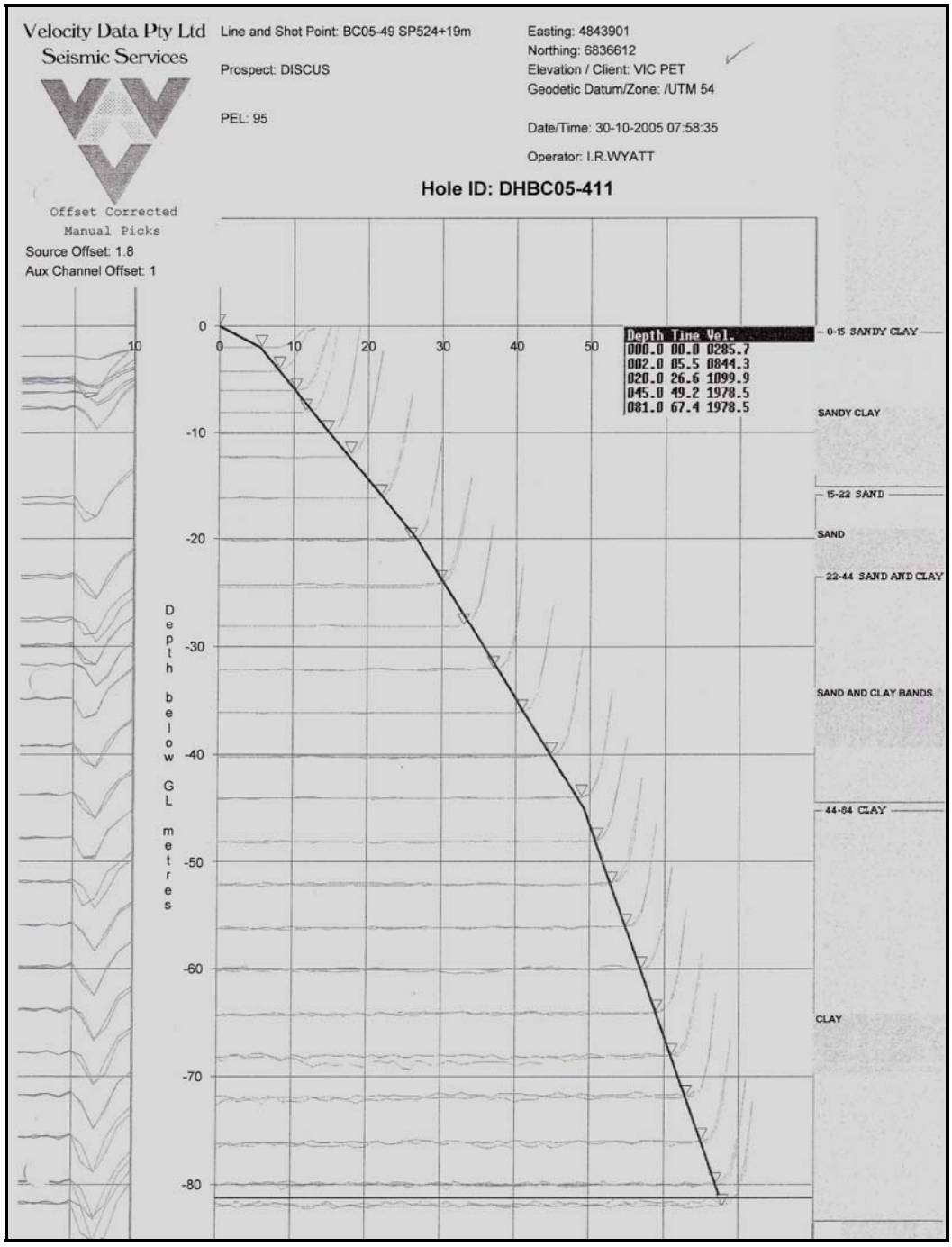


Fig # 6-4 shows a few anomalies in the otherwise flat base of weathering. A look at the relevant uphole plots for these anomalies shows that the interpretation is pretty straight forward and incontrovertible. It warrants further investigation. Note that all holes were drilled below datum.

The model used in the plot in Fig. # 6-4 assumes that the base of weathering is linear between control points. 14 up-hole plots were used in producing the above plot. The weathering profiles in these up-holes tend to confirm that this model is approximately correct, with the exceptions noted above.

An example of a Velocity Data Uphole plot from one of the above contributors is shown in Sample Uphole Plot # 1.

6.0 DRILLING & LVL



Sample Uphole Plot # 1: plot for Hole # 411

6.0 DRILLING & LVL

Drilling in PEL 107

The table below details production in PEL 107:

Table 6- 2: Statistics for Scanlon Drilling on the 2005 PEL 107 Discus Seismic Survey

Start Date	November 8th, 2005
End date	November 16th, 2005
Total Days	9
Total Holes Drilled	63
Average Holes/Day	7
Total Metres Drilled	2552
Average Depth of Hole	40.51 metres
Average Depth of Weathering	13.2 metres
Total Full Rate Drill Hours	115.75 (excluding mobe and demobe)
Total Standby Rate Charge Hours	2.5
Average Metres/Full Rate Drill Hr	22.05 (excluding mobe and demobe)
Average Metres/Total Charge Hr	21.58 (including stby, mobe & demobe)
Scanlon Drilling Driller	Russell St Jack/Brett Andrew
Velocity Data Logger(s)	Ian Wyatt/ Nathan Jones
Total $4^3/_4$" Regular bits used	8
Total $4^3/_4$" Chevron bits used	0
Total TCI bits used	0
Total drums of Biovis used	16
Total bags of OzGel used	0

From the above table it can be seen that holes were relatively shallow (40.51m). All holes were drilled on mud with Biovis being the main additive. This is organically compatible. Drilling water was obtained from Lycium Bore with the permission of Graham Betts and Rodney Fullarton of Mungeranie Station.

There were two separate grids in the PEL 107 program, the eastern and western grids. In order to give an example of the weathering profile in the eastern area, line BC05-53 has been selected. Using elevations provided by DSS and taking the weathering depths as interpreted by Velocity Data, a value for the elevation of the base of weathering was calculated at each uphole location. Using the series-trend function in Excel, a linear interpolation was made between each control point. The results were plotted as follows:

6.0 DRILLING & LVL

Fig. # 6-5: Weathering profile on Line BC05-53 in PEL 107 on Beach Petroleum's 2005 Discus Seismic Survey

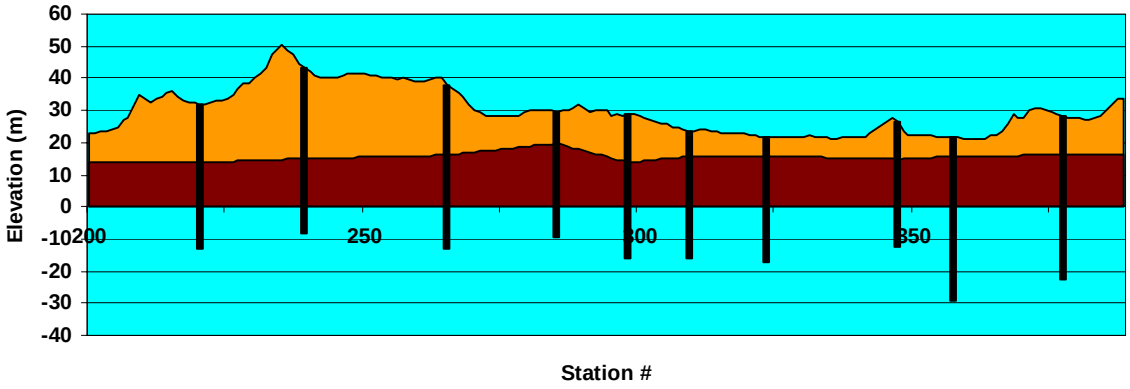


Fig # 6-5 shows a fairly flat and consistent base of weathering at around 15m elevation. It also shows a large elevation difference between each end of the line Note that all holes were drilled below datum.

In order to give an example of the weathering profile in the western area, line BC05-59 has been selected. The plot is as follows:

Fig. # 6-6: Weathering Profile for Line BC05-59 in the western grid of PEL 107 on the Beach Petroleum 2005 Discus SS

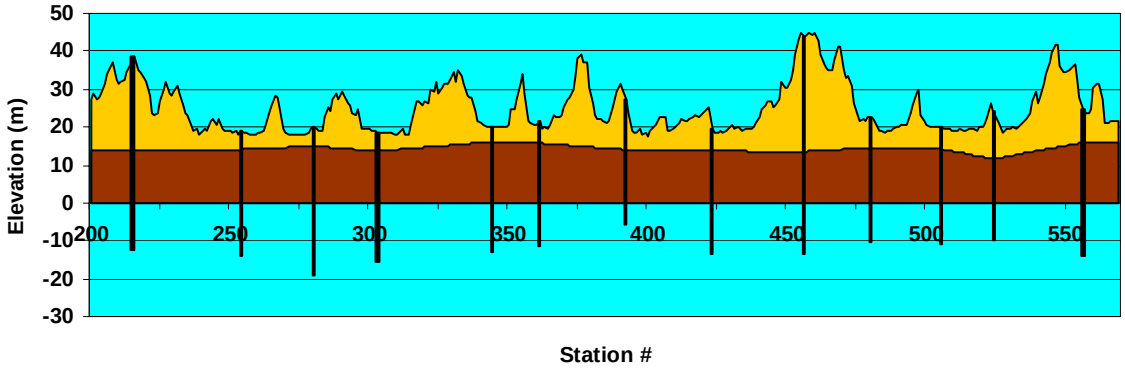
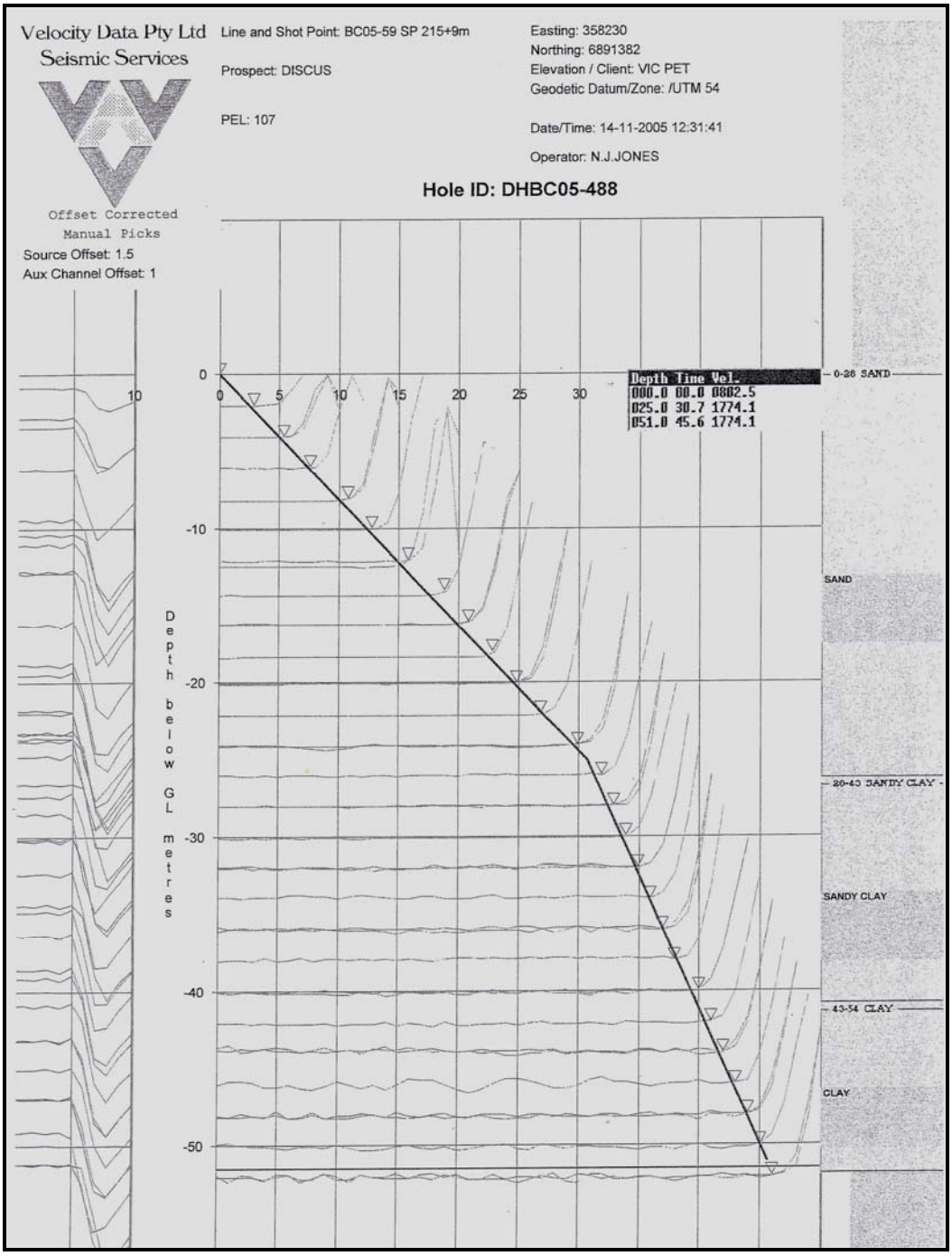


Fig. # 6-6 shows a flat and consistent base of weathering at around 15m elevation. The depth of weathering in the swales is 5-7m. Note that all holes are drilled well below datum.

An example of an uphole plot from PEL 107 is shown in sample uphole plot # 2:

6.0 DRILLING & LVL



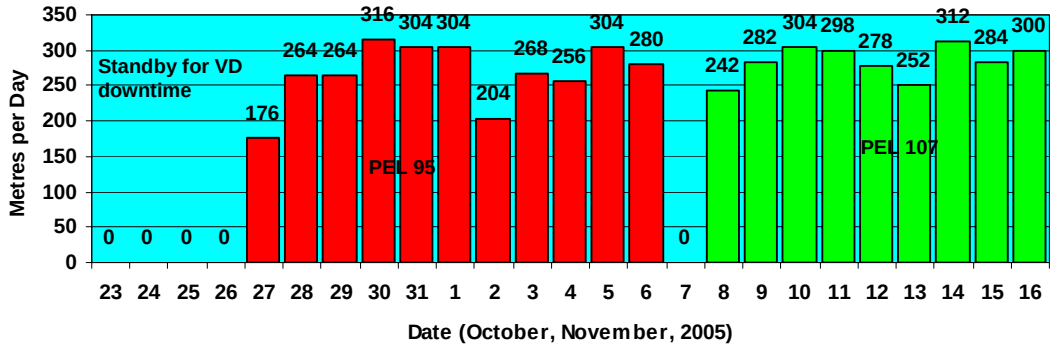
Sample Uphole Plot # 2: plot for Hole # 488

Production

Fig. #6-7 shows production for Scanlon Drilling in the Discus SS:

6.0 DRILLING & LVL

Fig. # 6-7: Drilling Production for Scanlon Drilling on the 2005 Discus Seismic Survey



In uphole drilling over the years in the Cooper Basin, 200 metres per day is considered good. Over 250 metres/day is considered very good and over 300 metres/day is exceptional. From the above chart it can be seen that Scanlon Drilling exceeded 300 metres/day on a number of occasions. 4 days were lost at the start of the PEL 95 program when the upgraded Velocity Data software did not work. Ian Wyatt had to make a rushed return to Brisbane to get it fixed. The 7th was a down day due to a camp move.

Picture # 6- 2: Velocity Data's Ian Wyatt logging an uphole

6.0 DRILLING & LVL

Summary for Scanlon Drilling and Velocity Data

Scanlon Drilling did an exceptional job on the Discus Seismic Survey. They work long hours each day and give good value for money. Drillers Brett Andrew and Russell St Jack are exceptional. Greg Scanlon has trained them well. They are recommended for future work.

Velocity Data had a software upgrade during the break and when they went to resume it would not work. Ian Wyatt was forced to return to Brisbane for repairs while Scanlon's stood by for 4 days. This is the first time in my memory that a drilling rig has been put on standby for a logging unit fault. They are generally so reliable.

Ian Wyatt trained Nathan Jones to be an operator on this job. Nathan seems to have grasped the job well.

Picture # 6- 3: Scanlon Drilling rig in action

7.0 – LINE PREPARARTION, SURVEYING, PERMITTING & ENVIRONMENT

Introduction

Terrex Contracting (TC) was contracted to do the line preparation on the 2005 Discus Seismic Survey. Dynamic Satellite Surveys (DSS) was contracted to do the surveying. Line preparation started on September 28th and was completed on October 4th, 2005. Both companies were sub-contracted through Terrex Seismic. TC was contracted on an hourly rate basis and DSS were contracted on a turnkey rate.

Two camp locations were used (see 1.0 Introduction and the maps in Fig. # 1-2 and 1-3).

The program was located in two widely separated PELs. PEL 95 was on Merty Merty and Bollards Lagoon Stations and PEL 107 was on Mulka and Mungeranie Stations.

Picture # 7- 1: the TC Komatsu operated by Bill Anderson at PEL 95

Line Preparation

TC provided a 2D version of their railway carriage camp. They had three train carriages in the camp plus their workshop trailer. DSS provided their own office van and a new sleeper van.

The DOK crew list is as follows:

7.0 – LINE PREPARARTION, SURVEYING, PERMITTING & ENVIRONMENT

Position Held	Name
Supervisor	Bill O'Keeffe, Warren Denham
Dozer Operator	Gene Greenhalgh/Bill Anderson
Dozer Operator	Eric Ree/Selwyn Price
Grader Operator	Max Young
Offsider	Faye Holly
Cook	Marion Anderson
Mechanic	Lyle Holly/Matt Gower

The following table details production in the Discus SS.

Table 7- 1: Line Preparation Statistics for TC on the Discus SS

Start Date for Line Preparation	September 28th, 2005
End Date for Line Preparation (dozing)	October 4th, 2005
Total Kms Cleared	138.3 km
Total Days (excluding camp moves)	5.5
Average Km/day	25.15
Total Full Rate Dozer Work/Walk/Float Hours	120.0
Average Km/Dozer Full Rate Hour	1.2
Total Dozer Standby Hours	2.5
Total Grader Work Hours	63.5
Total Grader Standby Hours	4.25

From Table # 7-1 it can be seen that TC kept up a good rate of production and did an economical job.

Operations

The surveyors mounted gps receivers on the dozers and loaded line coordinates into them, including any deviations specified by the WAC team. Note that the dozers did not operate on differential gps because that sort of accuracy was not required. The operator simply followed the line on the screen in front of him making appropriate detours and weaves to meet environmental requirements.

The allowable deviations to weave the line were +/- 20 metres. The dozer operators were encouraged to use all of this and, as a result, the weaving on this survey was good.

Surveying

DSS had only two surveyors on their crew for this job. The contract was based on a turnkey rate.

DSS fielded an office/accommodation van and a new sleeper van

7.0 – LINE PREPARARTION, SURVEYING, PERMITTING & ENVIRONMENT

The DSS crew list is as follows:

Position	Name
Head Surveyor	Ron Weekes
Surveyor	Ben Allsopp

Annotated wooden pegs were used every 5th station on receiver lines with pink and blue pin flags in between. These pegs and pin flags were picked up by the recording back-crew and recycled.

Surveying was done using the RTDGPS method where a base station at a known point broadcasts continuous corrections to a roving unit. By this method, horizontal accuracy was down to cms.

One of the duties of the survey crew was to install Environmental Monitoring Points (EMPs). In this survey, three (3) EMP's were installed

Photographs were taken in each of the line directions before line preparation and after recording. A separate "Environmental Report" has been written and this includes details on the EMPs. It is intended that revisits will be made at intervals of 1, 2 and 4 years after the operation to monitor the rehabilitation of the lines. The EMPs also served as permanent markers (PMs).

Another duty of the surveyors was to photograph and register any cultural heritage sites not found during the cultural heritage clearance process. These are normally incorporated into an Environmental Report Form (ERF) prepared by the Line Pointer. There were no ERF's reported in the Discus Seismic Survey by the surveyors.

Summary

DSS were under-staffed for this job, but the two people they did have were the best that DSS has. DSS are recommended for future work.

Permitting

The Discus Seismic Survey was located in two different PELs. PEL 95 was on Merty Merty and Bollards Lagoon Stations managed by Martin and Grant Rieke respectively. Grant allowed us to use water from Tower Bore for camp and drilling. PEL 107 was on Mulka and Mungeranie Stations. Rodney Fullarton of Mungeranie allowed us the use of water from Lycium Bore. There were no outstanding issues with landowners.

We had to get permission to build an earth ramp over the Tantana oil pipeline in PEL 107. This was given by Santos and the construction was supervised by a Santos field operator from Tantana. This ramp has yet to be removed.

7.0 – LINE PREPARARTION, SURVEYING, PERMITTING & ENVIRONMENT

Environment

The terrain in the PEL 95 Discus Seismic Survey consisted mostly of sand dunes with a north-south orientation with an average height of 10 metres above the swales. The swales were wide and had sandy terrain. The Moomba to Sydney pipeline passed through the northern sector of the program. There was only one crossing point for this. The access track along the southern side was off limits to the crew so TC cut a separate access further south. VPs were placed no closer than 50m from the pipeline.

The PEL 107 terrain consisted of sand dunes that were north south trending and up to 20m above the swales. The Tantana to Gidgealpa surface oil pipeline passed through the eastern grid so an earth ramp was built over it under the supervision of a Santos field operator.

TC used proper and professional line preparation techniques in these terrain types giving a good environmental result and allowing for operational efficiency.

Summary

The environmental aspect of the Discus Seismic Survey met all accepted guidelines. TC managed a good rate of production considering the spread out nature of the program.

Picture # 7- 2: PEL 95 Line BC05-50; low dunes, sandy swales

7.0 – LINE PREPARARTION, SURVEYING, PERMITTING & ENVIRONMENT

Picture # 7- 3: Line BC05-57; pale sand, good weaving

8.0 – SAFETY

Introduction

The HSE officers on the Terrex crew were Ray Ackram and Jonathon Hynes. Jonathon was a trainee.

The basic tenets of the HSE policy were:

- An induction meeting prior to the start of operations at which potential hazards were identified and discussed. Inductions by Terrex and Beach for all new crew members;
- Producing a site-specific safety plan including an Emergency Response Plan detailing the procedure to adopt in case of emergency;
- Daily toolbox meetings: these were held before departure in the mornings. They provided a forum for any safety or operational issues to be aired. These meetings were paid for by Beach at the standby rate;
- Weekly safety meetings: these were held on Sunday mornings and were more focused on purely safety issues. The HSE officer would review the week's safety performance and often include a first aid demonstration. The Crew Manager, Bird-dog and section heads added their views on crew safety performance and then comments from the various departments on the crew were invited.

All vehicles were equipped with first aid kits and fire extinguishers. About 30% of the crew were trained first aiders. Some of the safety related procedures introduced to the crew were:

- All vehicles were fitted with dune poles and warning flags;
- All vehicles had headlights on at all times when driving;
- Journey management procedures were instituted for all vehicles travelling outside the operational area;
- Supply truck drivers were given a mobile satellite telephone for communications;
- All crewmembers were required to wear long sleeve shirts and hats;
- All crewmembers were required to wear ankle-supporting lace-up boots;
- All line vehicles carried large containers of water and regular camp water runs were made when shortages were reported;
- All electrical cables in camp were buried to avoid tripping;
- Spotlights were placed around camp to illuminate the major traffic areas;

The Terrex QHSE end of contract report and safety meeting minutes were included in the Terrex report so will not be duplicated here. There were no LTI's on the job but there was reportable incident and medical treatment case. Full details are in the Terrex report but, briefly, it was:

i. On 16-10-05 juggy Sarah Anderson was walking past the ashes of the central campfire which was unlit. Sarah had just finished work and was only wearing thongs. In a freak occurrence a whirly-whirly came through camp

and disturbed the ashes from the fire bed. Some of these ashes lodged on Sarah's exposed left ankle and she suffered burns. She immediately sought medical treatment on crew but her level of discomfort was so great that she was taken to the Moomba medical centre late the same night. She was treated by the paramedics and told not to wear any boots and to check back in a couple of days. Sarah resumed light duties and in fact started training as a geophone and cable repair person. With her newly acquired skills Sarah reckons the day she got burned by swirling ashes was the luckiest day of her life!

Summary

The accident to Sarah Anderson was a freakish occurrence. Apart from that the level of HSE conformity on the crew was good.

Picture 8- 1: juggy Sarah Anderson stomping geophones on line BC05-50 in PEL 95 a few days before she suffered burns to the left ankle that ultimately led to a career change to a cable and geophone repair person.

9.0 – REMARKS & RECOMMENDATIONS

1) The Discus Seismic Survey was conducted in an efficient manner by Terrex Seismic and only marred by 1.5 days standby due to weather. Terrex Seismic is recommended for future work.

2) Data quality was good in all parts of the program although the PEL 107 data seemed to be slightly better than the PEL 95.

3) Two campsites were used by the Terrex main, Terrex Contracting and Scanlon Drilling crew for this job. One was in PEL 95 and one in PEL 107.

4) The line preparation operation went smoothly and efficiently under the newly named Terrex Contracting. They are recommended for future work.

5) The change in ownership of Denham and O'Keeffe to Terrex Contracting heralds the end of an era. Warren Denham and Bill O'Keeffe have revolutionised the seismic line preparation business with their introduction of converted railway carriages for camp accommodation, the invention of "rill kill" on the graders to eliminate windrows and the novel idea of using new equipment to eliminate downtime. They will be missed by old-timers such as me.

Picture # 9- 1: Bill O'Keeffe (red jacket) and Warren Denham (check shirt) at their farewell barbecue; the end of an era!

6) DSS provided only two surveyors for this job. They were Ron Weekes and Ben Allsopp. These are two of their best employees and they handled the job easily. DSS are recommended for future contracts.

7) For the first time in memory, the drilling rig was on standby because the logging unit was down. It often happens the other way around. In this instance a

9.0 – REMARKS & RECOMMENDATIONS

software upgrade proved to be faulty and Ian Wyatt had to return to Brisbane for repairs. 3.5 days of standby for the rig resulted.

8) This has highlighted the need for more backup spare equipment to be carried by Velocity Data.

Picture # 9- 2: Velocity Data's Ian (Woggy) Wyatt; a horror start to the job.

9) Drilling reports were sent to the main crew each morning by fax. The reliability of faxes between satellite phones is not high and there were frequent instances of reports not arriving on time. For years now the drillers and loggers have talked about getting email installed. It is time we insisted on this.

10) If the drill camp had broad band email we would open up the possibility of emailing results and plots each day. This would reduce the turnaround time for processing.

11) Despite the downtime incident, Velocity Data is recommended for future work. They have a few bugs to iron out but, basically, with their end of job reports they represent a dramatic improvement in service over previous logging companies.

12) Once drilling got under way, the productivity of Scanlon drilling was exceptional. On numerous occasions they drilled over 300m per day. Ian Wyatt, who has worked with a number of drilling contractors over the years, commented that the secret of Scanlon's success is that they start very early in the morning. This explains their often high total hours each day. Scanlon Drilling is recommended for future work.

9.0 – REMARKS & RECOMMENDATIONS

Picture # 9- 3: driller Russell St Jack at the controls of the Scanlon rig.

13) Terrex Seismic's Crew Manager, Jon Turner, is a real professional and is good to work with. He has an excellent and non-threatening rapport with the crew that promotes a positive working atmosphere.

14) There were no LTI's on this job but there was a serious injury that led to ongoing medical treatment. Juggy Sarah Anderson suffered a burn on the foot from swirling ashes from the camp fire. This incident meant that Sarah was unable to wear a boot for a few weeks so she was trained as a cable repair person. Every cloud has a silver lining!

15) Trainee HSE officer Jonathon Hynes was promoted from the line crew. Jon is a former personal trainer who has introduced weight training to a growing group of fitness fanatics on the crew. His encouragement of warm-up exercises as a means of avoiding muscular strains has added a novel new perspective to morning toolbox meetings.

16) In summary, the 2005 Discus Seismic Survey went well in all departments.

Bruce Beer
Beach Representative

APPENDIX I

RECORDING PRODUCTION

RECORDING PRODUCTION by Terrex Energy on Beach Petroleum's 2005 Discus Seismic Survey

Note: this is a turnkey contract

	Line Details							Charge Kms		Hours									Charge Hrs						Comme
Date	Area	Line	First Stn	Last Stn	# Stns	# VPs	# Skips	Line Kms	**Total Daily Km**	Record	Line Move	Rec Move	Detours	Wait on Spread	Tests, QC & Other	Layout & Pickup	Travel	Total Work Hrs	Additional Charge Hrs	Standby/Client weather, etc	Standby Toolbox	Total Charge Hrs	Downtime	Total Hours for Day	Comme
Oct																									
12	PEL95	BC05-51	666	534	132	133	0	4.9500	**4.9500**	1.9			0.7		3.2	1.2		7.0	5.0		0.3	5.3		12.3	c/m 5 hrs; setup 3.1 hrs
13	"	BC05-51	534	200	334	331	3	12.5250	**25.0875**	8.0	0.5	1.9		0.2	0.3		0.4	11.3			0.3	0.3	**1.1**	12.7	dwn due inst fault
	"	BC05-52	200	535	335	336	0	12.5625																	
14	"	BC05-52	535	611	76	73	3	2.8500	**26.1750**	7.8	1.7	0.7	1.0				0.6	11.8			0.3	0.3	**0.3**	12.4	
	"	BC05-49	659	200	459	455	5	17.2125																	
	"	BC05-48	200	363	163	164	0	6.1125																	
15	"	BC05-48	363	389	26	26	0	0.9750	**10.1625**	2.8	1.0				2.2		0.6	6.6			0.3	0.3		6.9	complete PEL 95 progr
		BC05-50	200	445	245	246	0	9.1875																	
PEL 95 Totals					1770	1764	11	66.3750	**66.3750**	20.5	3.2	2.6	1.7	0.2	5.7	1.2	1.6	36.7	5.0	0.0	1.2	6.2	1.4	44.3	
Total Km in PEL 95 Discus SS =								66.3750																	
Average Km/Rec Hr =								3.2378																	

15	PEL107							0.0000										0.0	3.0			3.0		3.0	p/u spread; prepare for
16	"							0.0000										0.0		10.0		10.0		10.0	standby due to road clo
17	"							0.0000							0.5		0.3	0.8	11.0		0.3	11.3		12.1	move camp 6.3 hr; l/o 2
18	"	BC05-56	200	465	265	266		9.9375	**22.5750**	6.9	1.3		1.8		1.3		0.7	12.0			0.3	0.3		12.3	start recording on PEL
	"	BC05-57	379	200	179	177	3	6.7125										0.0							
	"	BC05-58	200	358	158	158	1	5.9250										0.0							
19	"	BC05-58	358	384	26	26	0	0.9750	**10.0125**	2.7	1.5		0.2		0.4		0.7	5.5		6.5	0.3	6.8		12.3	stby in morning due to
	"	BC05-55	200	389	189	188	2	7.0875																	

RECORDING PRODUCTION by Terrex Energy on Beach Petroleum's 2005 Discus Seismic Survey

Note: this is a turnkey contract

	Line Details							Charge Kms		Hours									Charge Hrs						Comme
Date	Area	Line	First Stn	Last Stn	# Stns	# VPs	# Skips	Line Kms	**Total Daily Km**	Record	Line Move	Rec Move	Detours	Wait on Spread	Tests, QC & Other	Layout & Pickup	Travel	Total Work Hrs	Additional Charge Hrs	Standby/Client weather, etc	Standby Toolbox	Total Charge Hrs	Downtime	Total Hours for Day	Comme
	"	BC05-54	389	337	52	53	0	1.9500																	
20	"	BC05-54	337	200	137	135	2	5.1375	**26.0250**	7.6	2.9		0.5		0.3		0.8	12.1			0.3	0.3		12.4	
	"	BC05-53	200	388	188	187	2	7.0500																	
	"	BC05-59	569	200	369	367	3	13.8375																	
21	"	BC05-61	200	366	166	166	1	6.2250	**13.3875**	3.6	1.2		0.2	0.2	0.1	4.0	0.8	10.1			0.3	0.3		10.4	complete PEL 107 prog
	"	BC05-60	391	200	191	192	0	7.1625																	
22	"				0			0.0000										0.0				0.0		0.0	
23	"				0			0.0000										0.0				0.0		0.0	
PEL 107 Totals					1920	1915	14	72.0000	72.0000	20.8	6.9	0.0	2.7	0.2	2.6	4.0	3.3	40.5	14.0	16.5	1.5	32.0	0.0	72.5	

Total Km in PEL 107 Program =	72.0000	Cum Total day Hrs =	72.5
Average Km/Rec Hr =	3.4615	Cum extra Charge Hrs =	14.0
Average Km/Total Hr =	0.9931	Cum Stby Hrs =	18.0

APPENDIX II

UPHOLE DRILLING PRODUCTION FOR PEL 95

Production for *SCANLON DRILLING Co.* , on Beach Petroleum's 2005 Discus Seismic Survey

		Line Details			Drill Hours						Consumables						
Date	Prospect	Lines	# Holes	Metres	Work	Other Charge	Stby	Charge	Travel	Down	43/4 Regular	5 1/8" Blades	TCI Bit	Bio-Vis (drums)	OzGel	Hi-Seal (bags)	Comme
Oct05																	
23	PEL 95					3.50	6.50	10.00									mobilise to PEL 95
24	"						10.00	10.00									standby wait on VD
25	"						10.00	10.00									standby wait on VD
26	"						10.00	10.00									standby wait on VD
27	"	BC05-51	2	176	12.00			12.00	0.25		2			1	2		VD tool stuck in bot
28	"	BC05-51, 52	3	264	12.50			12.50	0.50		1			1.5	2		
29	"	BC05-49	3	264	12.25			12.25	0.50		1			2			
30	"	BC05-49,51.50	4	316	12.50			12.50	0.50		1			2	1		
31	"	BC05-50	4	304	12.00		0.25	12.25	0.75		1			2			standby safety meet
Nov05	"							0.00									
1	"	BC05-50, 51, 52	4	304	12.25			12.25	1.00		1			2			
2	"	BC05-52, 49	3	204	12.00			12.00	1.00		1			1.5			dunes blown in - acc
3	"	BC05-49	4	268	12.00			12.00	1.25					2			
4	"	BC05-48	4	256	12.00			12.00	1.25		1			2			
5	"	BC05-49, 52	4	304	12.00		1.00	13.00	1.00		1			2			stby 1 hr for thunder
6	"	BC05-49, 51	4	280	11.25			11.25	1.00		1			2			complete PEL 95 up
7	"																
8	"																
Totals			39	2940	132.75	3.50	37.75	174.00	9.00	0.00	11	0	0	20	5	0	

Average Depth of Hole =	75.38
Average Metres/Chg Hr =	16.90
Metres/Drill Hour =	22.15

APPENDIX III

VELOCITY DATA LVL PRODUCTION FOR PEL 95

Production for Velocity Data on Beach Petroleum's 2005 Discus Seismic Survey, PEL 95

								Hours					
Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Work/ Charge Hours	Standby	Travel	Down	Total Hours	Comments
Oct													
23	PEL 95												mobilise to PEL 95
24	"										10.00	10.00	down with digitiser problems
25	"										10.00	10.00	down with digitiser problems
26	"										10.00	10.00	down with digitiser problems
27	"	BC05-51	428	640	88	68	2	13.50				13.50	tool stuck in both holes; rig to retrieve
"	"	BC05-51	427	612	88	60							
28	"	BC05-51	426	550	88	56	3	13.00				13.00	
"	"	BC05-52	429	591	88	58							
"	"	BC05-52	430	557	88	46							
29	"	BC05-49	412	536	88	53	3	12.50				12.50	
"	"	BC05-49	413	580	88	58							
"	"	BC05-49	414	602	88	59							
30	"	BC05-49	411	525	82	45	4	12.50				12.50	
"	"	BC05-51	425	495	82	56							
"	"	BC05-49	410	502	76	48							
"	"	BC05-50	415	397	76	57							
31	"	BC05-50	416	352	82	48	4	12.00	0.25			12.25	standby safety meeting
		BC05-50	417	318	76	49							
		BC05-50	418	276	76	52							
		BC05-50	420	213	70	44							
Nov	"												
1	"	BC05-50	419	243	82	50	4	12.50				12.50	
"	"	BC05-51	422	321	76	40							
"	"	BC05-51	421	211	82	32							
"	"	BC05-52	435	205	64	40							
2	"	BC05-52	433	355	70	49	3	12.00				12.00	
	"	BC05-52	434	261	70	39							
	"	BC05-49	405	351	64	41							
3	"	BC05-49	404	319	70	44	4	12.00				12.00	

Production for Velocity Data on Beach Petroleum's 2005 Discus Seismic Survey, PEL 95

								Hours					
Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Work/ Charge Hours	Standby	Travel	Down	Total Hours	Comments
	"	BC05-49	403	266	70	37							
	"	BC05-49	402	238	64	29							
	"	BC05-49	401	215	64	17							
4	"	BC05-48	400	231	70	45	4	12.25				12.25	
	"	BC05-48	399	277	58	34							
	"	BC05-48	398	307	64	36							
	"	BC05-48	397	360	64	43							
5	"	BC05-49	406	373	70	28	4	12.00	1.00			13.00	stby 1 hr for thunderstorms
	"	BC05-49	407	399	64	21							
	"	BC05-52	431	497	82	60							
	"	BC05-52	432	444	88	56							
6	"	BC05-49	408	428	82	41	4	13.00				13.00	complete PEL 95 program
	"	BC05-49	409	457	64	29							
	"	BC05-51	424	418	64	41							
	"	BC05-51	423	398	70	52							
7	"												
Totals					2940	1761	39	137.25	1.25		30.00	168.50	

Average Depth of Hole to Date = 75.38

Average Depth of Weathering to Date 45.15

APPENDIX IV

UPHOLE LOCATION FILE FOR PEL 95

DSS Uphole Location Listing for the Beach Petroleum 2005 PEL 95 Discus Seismic Survey

DSS UPHOLE LISTING - (Pre-Drilling)						POST-DRILLING INFORMATION					
Line	Station#	Easting	Northing	Elevation (m)	Uphole Name	Drilled Yet?	Date Drilled	Was the hole Shifted?	New Location/Reason	New Easting	New Northing
BC05-49	215+6	472301.96	6836610.158	52.4	DHBC05-401	Y	11/03/2005	NO			
BC05-49	237+21	473141.817	6836594.919	48.563	DHBC05-402	Y	11/03/2005	NO			
BC05-49	266+6	474213.598	6836600.912	53.574	DHBC05-403	Y	11/03/2005	NO			
BC05-49	319+13	476208.164	6836609.337	63.478	DHBC05-404	Y	11/03/2005	NO			
BC05-49	351+9	477404.878	6836607.691	65.425	DHBC05-405	Y	11/02/2005	NO			
BC05-49	373	478220.153	6836611.312	67.517	DHBC05-406	Y	11/05/2005	NO			
BC05-49	399+7	479202.84	6836606.667	68.374	DHBC05-407	Y	11/05/2005	NO			
BC05-49	425+23	480193.705	6836598.418	67.712	DBHC05-408	Y	11/06/2005	NO			
BC05-49	457+5	481375.122	6836618.815	69.366	DHBC05-409	Y	11/06/2005	NO			
BC05-49	502+2	483060.484	6836615.211	71.915	DHBC05-410	Y	30/10/05	NO			
BC05-49	524+19	483901.706	6836611.731	73.823	DHBC05-411	Y	30/10/05	NO			
BC05-49	536	484333.161	6836608.779	74.2	DHBC05-412	Y	29/10/05	NO			
BC05-49	580	485983.034	6836627.808	82.743	DHBC05-413	Y	29/10/05	NO			
BC05-49	602+3	486811.119	6836618.501	78.755	DHBC05-414	Y	29/10/05	NO			
BC05-50	396+28	483497.754	6834934.888	70.852	DHBC05-415	Y	30/10/05	NO			
BC05-50	352	482085.956	6834028.256	73.079	DHBC05-416	Y	31/10/05	NO			
BC05-50	318+3	481029.16	6833319.525	73.874	DHBC05-417	Y	31/10/05	NO			
BC05-50	276+18	479718.133	6832475.037	73.619	DHBC05-418	Y	31/10/05	NO			
BC05-50	243	478672.423	6831779.789	65.766	DHBC05-419	Y	11/01/2005	NO			
BC05-50	213	477733.455	6831160.147	60.749	DHBC05-420	Y	31/10/05	NO			
BC05-51	639+20	487463.974	6840308.012	87.139	DHBC05-428	Y	27/10/05	NO			
BC05-51	612+3	486568.9	6839798.437	79.872	DHBC05-427	Y	27/10/05	NO			
BC05-51	549+29	484581.109	6838570.961	78.1	DHBC05-426	Y	28/10/05	NO			
BC05-51	211+2	473716.83	6831990.437	62.113	DHBC05-421	Y	11/01/2005	NO			

DSS Uphole Location Listing for the Beach Petroleum 2005 PEL 95 Discus Seismic Survey

DSS UPHOLE LISTING - (Pre-Drilling)						POST-DRILLING INFORMATION					
Line	Station#	Easting	Northing	Elevation (m)	Uphole Name	Drilled Yet?	Date Drilled	Was the hole Shifted?	New Location/Reason	New Easting	New Northing
BC05-51	320+29	477244.54	6834107.232	65.746	DHBC05-422	Y	11/01/2005	NO			
BC05-51	397+21	479696.314	6835617.522	66.507	DHBC05-423	Y	11/06/2005	NO			
BC05-51	417+26	480340.033	6836013.106	70.29	DHBC05-424	Y	11/06/2005	NO			
BC05-51	495	482813.184	6837525.069	68.942	DHBC05-425	Y	30/10/05	NO			
BC05-52	556+33	483684.467	6839318.104	68.747	DHBC05-430	Y	28/10/05	NO			
BC05-52	591	484765.883	6840001.755	79.282	DHBC05-429	Y	28/10/05	NO			
BC05-52	497	481759.513	6838161.345	71.626	DHBC05-431	Y	11/05/2005	NO			
BC05-52	443+19	480057.728	6837099.393	68.731	DHBC05-432	Y	11/05/2005	NO			
BC05-52	355+18	477241.619	6835377.219	67.058	DHBC05-433	Y	11/02/2005	NO			
BC05-52	260+34	474211.155	6833535.549	60.363	DHBC05-434	Y	11/02/2005	NO			
BC05-52	206+34	472477.408	6832488.929	64.756	DHBC05-435	Y	11/01/2005	YES	hole shifted 42m south west on line 52	?	?
BC05-48	230+28	471366.944	6837476.548	60.176	DHBC05-400	Y	11/04/2005	NO			
BC05-48	277+17	473117.285	6837529.133	48.813	DHBC05-399	Y	11/04/2005	NO			
BC05-48	306+25	474213.026	6837535.493	61.255	DHBC05-398	Y	11/04/2005	NO			
BC05-48	359+34	476208.653	6837588.384	61.827	UH 397	Y	11/04/2005	NO			
					Total Drilled =	39					

APPENDIX V

DRILLING PRODUCTION IN PEL 107

Production for *SCANLON DRILLING Co.* , on Beach Petroleum's 2005 PEL 107 Discus Seismic Survey

		Line Details			Drill Hours					Consumables						
Date	Prospect	Lines	# Holes	Metres	Work	Stby	Charge	Travel	Down	43/4 Regular	5 1/8" Blades	TCI Bit	Bio-Vis (drums)	OzGel	Hi-Seal (bags)	Comments
Nov																
7	PEL 107				3.50	2.50	6.00		4.00							move PEL 95 to Moomba;
8	"	BC05-56, 53, 54	5	242	11.00		11.00	1.00		1			1			complete move; start drillin
9	"	BC05-54,53,59,55,56,57	8	282	12.75		12.75	0.75		2			2			good day
10	"	BC05-58,53,54,55	7	304	13.00		13.00	1.00		1			2			
11	"	BC05-54,58,55,57	7	298	12.50		12.50	1.00					2			
12	"	BC05-58,53,57,58	7	278	12.25		12.25	0.75		1			2			
13	"	BC05-58,57,56	6	252	12.50		12.50	0.75					1.5			
14	"	BC05-60,59,61	7	312	12.75		12.75	1.00		1			2			
15	"	BC05-61,59,60	8	284	12.75		12.75	1.00		1			2			
16	"	BC05-59	8	300	12.75		12.75	1.25		1			1.5			
17	"															
Totals			63	2552	115.75	2.50	118.25	8.50	4.00	8	0	0	16	0	0	

Average Depth of Hole in PEL 107 = 40.51

Average Metres/Chg Hr in PEL 107 = 21.58

Metres/Drill Hour in PEL 107 = 22.05

APPENDIX VI

VELOCITY DATA LVL STATISTICS FOR PEL 107

Production for Velocity Data on Beach Petroleum's 2005 Discus Seismic Survey, PEL 107

		Production Details						Hours					
Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Work/ Charge Hours	Standby	Travel	Down	Total Hours	Comments
Nov													
01-Nov-06													
02-Nov-06	PEL 107							3.50	2.50		4.00	10.00	stby roads; move PEL 95 to Moomba; maintenance
03-Nov-06	"	BC05-56	463	336	52	32	5	11.00		0.25		11.25	complete move to PEL 107; start logging
	"	BC05-53	444	357	52	6						0.00	
	"	BC05-53	445	377	52	12						0.00	
	"	BC05-54	446	344	46	20						0.00	
	"	BC05-54	448	321	40	10						0.00	
04-Nov-06	"	BC05-54	447	331	34	10	8	12.25		0.75		13.00	
	"	BC05-53	443	347	40	12							
	"	BC05-59	459	375	34	14							
	"	BC05-55	458	345	40	16							
	"	BC05-56	462	408	32	10							
	"	BC05-56	461	440	34	10							
	"	BC05-56	460	449	34	11							
	"	BC05-57	471	359	34	11							
05-Nov-06	"	BC05-58	472	358	40	19	7	14.00				14.00	
	"	BC05-53	438	265	52	22							
	"	BC05-53	437	236	52	28							
	"	BC05-53	436	220	46	18							
	"	BC05-54	452	218	40	10							
	"	BC05-55	453	219	34	11							
	"	BC05-55	454	264	40	12							
06-Nov-06	"	BC05-54	451	264	36	13	7	13.50				13.50	
	"	BC05-58	473	327	50	22							
	"	BC05-58	455	296	40	14							
	"	BC05-55	456	307	40	14							
	"	BC05-57	470	328	46	21							
	"	BC05-57	547	311	46	24							
	"	BC05-54	449	307	40	15							
07-Nov-06	"	BC05-58	450	296	40	13	7	13.50				13.50	
	"	BC05-53	439	285	40	10							
	"	BC05-53	440	298	46	15							
	"	BC05-53	441	310	40	8							
	"	BC05-53	442	323	40	6							

Production for Velocity Data on Beach Petroleum's 2005 Discus Seismic Survey, PEL 107

		Production Details						Hours					
Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Work/ Charge Hours	Standby	Travel	Down	Total Hours	Comments
	"	BC05-57	469	251	32	12							
	"	BC05-58	475	218	40	13							
08-Nov-06	"	BC05-58	474	251	52	31	6	13.25				13.25	
	"	BC05-57	468	219	40	7							
	"	BC05-56	464	298	46	23							
	"	BC05-56	467	225	40	6							
	"	BC05-56	466	244	40	11							
	"	BC05-56	465	266	34	8							
09-Nov-06	"	BC05-60	489	222	52	16	7	14.00				14.00	
	"	BC05-60	490	273	52	27							
	"	BC05-60	491	310	48	16							
	"	BC05-60	486	328	40	5							
	"	BC05-59	488	215	52	25							
	"	BC05-61	498	222	34	8							
	"	BC05-61	497	265	34	6							
10-Nov-06	"	BC05-61	496	278	34	6	8	14.00				14.00	
	"	BC05-59	487	254	34	5							
	"	BC05-59	485	303	34	5							
	"	BC05-60	493	388	34	8							
	"	BC05-61	495	327	40	19							
	"	BC05-60	492	356	34	6							
	"	BC05-61	494	358	40	11							
	"	BC05-59	484	344	34	4							
11-Nov-06	"	BC05-59	483	361	34	6	8	15.00				15.00	
	"	BC05-59	482	392	34	13							
	"	BC05-59	481	423	34	6							
	"	BC05-59	476	556	40	9							
	"	BC05-59	477	524	34	8							
	"	BC05-59	478	505	32	6							
	"	BC05-59	479	480	34	8							
	"	BC05-59	480	451	58	30							
Sub Total PEL 107					2552	833	63	124.00	2.50	1.00	4.00	131.50	

Average Depth of hole in PEL 107 = 40.51

Average Depth of weathering in PEL 107 = 13.22

APPENDIX VII

UPHOLE LOCATION FILE FOR PEL 107 UPHOLES

DSS Uphole Location Listing & Post Drilling Information for the Beach Petroleum 2005 PEL 107 Discus Seismic Survey

DSS UPHOLE LISTING - (Pre-Drilling)						POST-DRILLING INFORMATION					
Hole Number	Line	Station	Easting	Northing	Elevation	Drilled Yet?	Date Drilled	Was the hole Shifted?	New Location/Reason	New Easting	New Northing
DHBC05-436	BC05-53	219+29	376601.1	6891221.1	31.85	Y	10/11/2005	N			
DHBC05-437	BC05-53	238+4	376938.1	6890621.6	44.21	Y	10/11/2005	Y	moved hole 33m south on line bc05-53		
DHBC05-438	BC05-53	265+1	377425.6	6889737.1	38.06	Y	10/11/2005	N			
DHBC05-439	BC05-53	284+30	377787.9	6889090.5	29.89	Y	12/11/2005	N			
DHBC05-440	BC05-53	297+29	378018.6	6888661.7	28.93	Y	12/11/2005	N			
DHBC05-441	BC05-53	309+19	378237.6	6888281	23.5	Y	12/11/2005	N			
DHBC05-442	BC05-53	322+19	378456.2	6887844.2	21.85	Y	12/11/2005	N			
DHBC05-443	BC05-53	346+24	378891.3	6887051.2	27.68	Y	9/11/2005	N			
DHBC05-444	BC05-53	356+31	379094.8	6886727	21.82	Y	8/11/2005	N			
DHBC05-445	BC05-53	376+31	379459.3	6886071.8	28.22	Y	8/11/2005	N			
DHBC05-446	BC05-54	344+9	379487.8	6887421	34.73	Y	8/11/2005	N			
DHBC05-447	BC05-54	331+13	379253.5	6887844	23.99	Y	9/11/2005	N			
DHBC05-448	BC05-54	320+23	379066.2	6888201	25.4	Y	8/11/2005	N			
DHBC05-449	BC05-54	307+5	378820.7	6888642.8	29.32	Y	11/11/2005	N			
DHBC05-450	BC05-58	293+29	378616.2	6889015.8	27.73	Y	12/11/2005	N			
DHBC05-451	BC05-54	262+27	378004.4	6890094	31.86	Y	11/11/2005	Y	shifted 58m south on BC05-54		
DHBC05-452	BC05-54	217+34	377192	6891565.6	23.72	Y	10/11/2005	N			
DHBC05-453	BC05-55	218+34	377719.7	6891884.6	25	Y	10/11/2005	N			
DHBC05-454	BC05-55	263+20	378541.8	6890427.9	27.27	Y	10/11/2005	N			
DHBC05-455	BC05-55	296+8	379152.7	6889364.6	29.61	Y	11/11/2005	N			
DHBC05-456	BC05-55	307+11	379351.8	6889000.6	29.22	Y	11/11/2005	N			
DHBC05-457	BC05-57	311	379599	6888543.7	40.28	Y	11/11/2005	N			
DHBC05-458	BC05-55	345+13	380042.9	6887752.1	31.03	Y	9/11/2005	N			
DHBC05-459	BC05-55	375+18	380586.8	6886760.7	28.51	Y	9/11/2005	N			
DHBC05-460	BC05-56	448+30	381902.2	6888907	26.96	Y	9/11/2005	N			
DHBC05-461	BC05-56	439+19	381602.1	6888730.7	23.92	Y	9/11/2005	N			

DSS Uphole Location Listing & Post Drilling Information for the Beach Petroleum 2005 PEL 107 Discus Seismic Survey

DSS UPHOLE LISTING - (Pre-Drilling)						POST-DRILLING INFORMATION					
Hole Number	Line	Station	Easting	Northing	Elevation	Drilled Yet?	Date Drilled	Was the hole Shifted?	New Location/Reason	New Easting	New Northing
DHBC05-462	BC05-56	408+17	380606.4	6888125.7	24.74	Y	9/11/2005	N			
DHBC05-463	BC05-56	335+34	378300.9	6886682.4	19.78	Y	8/11/2005	N			
DHBC05-464	BC05-56	298+1	377090.2	6885938.6	36.74	Y	13/11/2005	N			
DHBC05-465	BC05-56	265+19	376052.9	6885297.2	23.94	Y	13/11/2005	N			
DHBC05-466	BC05-56	244+15	375374.8	6884889.8	27.33	Y	13/11/2005	N			
DHBC05-467	BC05-56	224+24	374743.1	6884501.8	23.78	Y	13/11/2005	N			
DHBC05-468	BC05-57	218+26	376661.8	6886713.2	20.38	Y	13/11/2005	N			
DHBC05-469	BC05-57	251+18	377706.7	6887361.4	24.24	Y	12/11/2005	N			
DHBC05-470	BC05-57	328+12	380149.3	6888890.4	33.19	Y	11/11/2005	N			
DHBC05-471	BC05-57	358+25	381127.1	6889471.2	24.68	Y	9/11/2005	N			
DHBC05-472	BC05-58	357+24	380629.2	6890313.5	34.07	Y	10/11/2005	N			
DHBC05-473	BC05-58	327+14	379681.2	6889689.1	37.66	Y	11/11/2005	N			
DHBC05-474	BC05-58	251+1	377249.8	6888177.6	47.7	Y	13/11/2005	Y	hole moved 17m west along BC05-58		
DHBC05-475	BC05-58	218+5	376207.3	6887517.9	25.87	Y	12/11/2005	N			
DHBC05-476	BC05-59	555+20	370994.2	6891355.5	25.97	Y	16/11/2005	N			
DHBC05-477	BC05-59	523+32	369814.5	6891345.2	23.92	Y	16/11/2005	N			
DHBC05-478	BC05-59	505+8	369107.5	6891349.3	20.28	Y	16/11/2005	N			
DHBC05-479	BC05-59	479+34	368158.6	6891364	22.71	Y	16/11/2005	N			
DHBC05-480	BC05-59	455+32	367256.1	6891359.1	43.34	Y	16/11/2005	N			
DHBC05-481	BC05-59	422+32	366018.5	6891359.1	19.78	Y	16/11/2005	N			
DHBC05-482	BC05-59	391+27	364851.7	6891359.9	26.83	Y	16/11/2005	N			
DHBC05-483	BC05-59	360+21	363683.2	6891356.6	20.57	Y	16/11/2005	N			
DHBC05-484	BC05-59	344	363062.2	6891370.4	20.1	Y	15/11/2005	N			
DHBC05-485	BC05-59	303+8	361532.9	6891372.6	18.67	Y	15/11/2005	N			
DHBC05-486	BC05-60	328	360679.7	6891388	20.22	Y	14/11/2005	N			
DHBC05-487	BC05-59	254	359687.2	6891382.6	19.12	Y	15/11/2005	N			

DSS Uphole Location Listing & Post Drilling Information for the Beach Petroleum 2005 PEL 107 Discus Seismic Survey

DSS UPHOLE LISTING - (Pre-Drilling)						POST-DRILLING INFORMATION					
Hole Number	Line	Station	Easting	Northing	Elevation	Drilled Yet?	Date Drilled	Was the hole Shifted?	New Location/Reason	New Easting	New Northing
DHBC05-488	BC05-59	215+9	358233.6	6891384.3	38.51	Y	14/11/2005	N			
DHBC05-489	BC05-60	222+16	357356.8	6889234.7	29.67	Y	14/11/2005	N			
DHBC05-490	BC05-60	272+28	358947.2	6890251.3	40.64	Y	14/11/2005	N			
DHBC05-491	BC05-60	310+30	360141.9	6891030.3	29.12	Y	14/11/2005	N			
DHBC05-492	BC05-60	356+8	361571.2	6891957.5	18.31	Y	15/11/2005	N			
DHBC05-493	BC05-60	387+21	362572.4	6892573	21.11	Y	15/11/2005	N			
DHBC05-494	BC05-61	357+22	363585.4	6891943	21.88	Y	15/11/2005	N			
DHBC05-495	BC05-61	327+16	362454	6891940.6	31.87	Y	15/11/2005	N			
DHBC05-496	BC05-61	277+26	360589.5	6891937.1	19.25	Y	15/11/2005	N			
DHBC05-497	BC05-61	265+15	360128.6	6891972.1	20.12	Y	14/11/2005	N			
DHBC05-498	BC05-61	222	358501.2	6891954	22.53	Y	14/11/2005	N			
					Total Holes Drilled =	63					

APPENDIX VIII

LINE PREPARATION PRODUCTION

LINE PREPARATION Production by Terrex Contracting on Beach Petroleum's 2005 Discus Seismic Survey

		Dozer #5 (Komatsu D65EX) Bill Anderson						**Dozer #6** (Komatsu D65EX) Eric Ree						**John Deere Grader**					
Date	AREA	Line	Km	Work	Walk / Float	Stand by	Charge	Line	Km	Work	Walk / Float	Stand by	Charge	Work / Walk	Stby	Charge	Tot Km for Day	Camp Move	Comments
Sept05																			
27	PEL95																	10.00	move from McKinlay to PEL 95;
28	"	BC05-51,52	14.5875	9.00	2.00	0.25	11.25	BC05-48,50	16.2750	9.50	1.50	0.25	11.25	8.00	3.25	11.25	30.8625		
29		BC05-51,53	18.3000	10.00	1.00	0.25	11.25	BC05-49	17.2125	11.00		0.25	11.25	12.00	0.25	12.25	35.5125		dozing complete; some grading to do
30	"	-			1.00		1.00	-			1.00		1.00	3.50		3.50			cmplt grading; c/m to PEL 107; 9 hrs;
Sub Total Pel 95			32.8875	19.00	4.00	0.50	23.50		33.4875	20.50	2.50	0.50	23.50	23.50	3.50	27.00	66.3750	10.00	
"	PEL107	-				0.25	0.25	-				0.25	0.25					6.00	complete move to PEL 107;
Oct	"																		NB Beach pay 2/3 and GAOG 1/3
1	"	BC05-56,58	12.1125	10.00	1.00	0.25	11.25	BC05-54,55,57	11.2875	11.00		0.25	11.25	11.00	0.25	11.25	23.4000		
2	"	53,54,55,57,58	11.7750	9.00	2.00	0.25	11.25	BC05-53,58	8.2500	9.50	1.50	0.25	11.25	11.00	0.25	11.25	20.0250		
3	"	BC05-53,60,61	8.8500	7.50	2.50	0.25	10.25	BC05-59	11.8875	10.00		0.25	10.25	10.00	0.25	10.25	20.7375		
4	"	BC05-60,61	3.9375	3.00	2.00		5.00	BC05-59,61	3.8250	4.00	1.00		5.00	8.00		8.00	7.7625		complete PEL 107 program
5																			c/m from PEL 107 to PEL 106;
Sub Totals PEL 107			36.6750	29.50	7.50	0.75	37.75		35.2500	34.50	2.50	0.75	37.75	40.00	0.75	40.75	71.9250	6.00	

Total Km Cleared = 138.3000 km.

Total Dozer Wk/Wlk Hrs = 120.00 hrs

Total Dozer Stby Hrs = 2.50 hrs

Total Grader Work Hrs = 63.50 hrs

Total Grader Stby Hrs = 4.25 hrs

Average Km/Dozer Wk/Wlk Hr = 1.2

APPENDIX IX

SURVEYING PRODUCTION

Survey Production by *DYNAMIC SATELLITE SURVEYS* (DSS) on Beach Petroleum's 2005 Discus Seismic Survey

				Extra Chargeable Hrs								
Date	Area	Lines	Kms	Travel	Line Point	Control	Survey	Office	Standby	Other	Total Hours	Comments
Sept	PEL 95											
27	"										10.00	move camp to PEL 95 from McKinlay;
28	"	BC05-48,50,51,52	30.8250	0.00	11.00	0.00	23.50	2.00	3.75	3.00	43.25	start surveying on PEL 95
29	"	BC05-49,51,52	35.5500	0.00	11.00	0.00	17.75	6.00	0.75	0.00	35.50	complete surveying on PEL 95 program
30	"										0.00	move camp to PEL107;
		Sub Total PEL 95	66.3750	0.00	22.00	0.00	41.25	8.00	4.50	3.00	78.75	
Oct	PEL107										0.00	
1	"	BC05-54 --> 58	22.0125	0.00	11.00	0.00	12.00	2.25	0.50	0.00	25.75	start surveying on PEL 107
2	"	BC05-53,54,55,57,58	21.4125	0.00	11.00	0.00	12.00	2.25	0.50	0.00	25.75	
3	"	BC05-53,59,60,61	17.6250	0.00	10.00	2.00	11.00	2.25	0.50	0.00	25.75	
4	"	BC05-59,60,61	10.9500	0.00	5.00	1.50	5.50	9.75	0.00	2.50	24.25	
5												
	"	Sub Total PEL 107	72.0000	0.00	37.00	3.50	40.50	16.50	1.50	2.50	101.50	
		AGGREGATE TOTALS	138.3750	0.00	59.00	3.50	81.75	24.50	6.00	5.50	180.25	

APPENDIX X

PERSONNEL LIST

All Clients		Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Days on Crew
Sick / LTI	**Working Offsite**	12	13	14	15	16	17	18	19	20	21	
POSITION	**NAMES**											
Crew Manager	Turner Jon	1	1	1	1	1	1	1	1	1	1	**10**
Crew Manager	Ernst Terry											**0**
Crew Manager	Kneipp Mark											**0**
HSE	McHugh Leeton	1										**1**
HSE Trainee	Auckram Ray	1	1	1	1	1	1	1	1	1	1	**10**
HSE Trainee	Hynes Jonathan	1			1	1	1	1	1	1		**7**
		4	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**28**
Admin Staff		**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**20**
		2	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**8**
Mechanic	Carmody Richard	1										**1**
Mechanic	Matthews Kenneth	1	1	1	1	1	1	1	1	1	1	**10**
Mechanic	Screagh Tony		1	1	1	1	1	1	1	1	1	**9**
Supply Driver	Oswell Geoff	1	1	1	1	1	1	1	1	1		**9**
Supply Driver	Tuite Allan	1	1	1	1	1	1	1	1	1	1	**10**
Supply Driver	McKenna Arnold											**0**
Cook	McComack Campbell											**0**
Cook	Foxon Mark	1	1	1	1	1	1	1	1	1	1	**10**
Cook	Viney Dennis	1	1	1	1	1	1	1	1	1		**9**
Kitchen Hand	Iwasaki Masako										1	**1**
Campy	Tomlinson Peggy		1	1	1	1	1	1	1	1	1	**9**
Campy	Crossie Elizabeth	1	1									**2**
		7	**8**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**6**	**70**
Camp Staff		**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**50**
		2	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**20**
Observer	Carry Joel											**0**
Observer	O'Donnell Peter	1	1	1	1	1	1	1	1	1	1	**10**
Observer	Helme Nick											**0**
Cable Repair	Grainger Leslie	1	1	1	1	1	1	1	1	1	1	**10**
Cable Repair	Fadian Scott											
Cable Repair	Rea Darren											**0**
		2	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**20**
Technical		**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**20**
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Vib Op	Bates Steven		1	1	1	1	1	1	1	1	1	**9**
Vib Op	Bann Abby	1										**1**
Vib Op	Lynch Dave	1										**1**
Vib Op	Shufflebotham Shane	1	1	1	1	1	1	1	1	1	1	**10**
Vib Op	Purcell Sean		1	1	1	1	1	1	1	1	1	**9**
Vib Op	Cabot Allen	1	1	1	1	1	1	1	1	1	1	**10**
Vibe Scout	Campbell Warren											**0**
		4	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**40**
Vibrator Crew		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**40**
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Vib Tech	Corbin Dennis											**0**
Vib Tech	Garden Robert	1										**1**
Vib Tech	Goosens Shane		1	1	1	1	1	1	1	1	1	**9**
		1	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
Vib Tech		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

All Clients		Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Days on Crew
Sick / LTI	**Working Offsite**	12	13	14	15	16	17	18	19	20	21	
POSITION	**NAMES**											
Line Boss	Burton Mitchell	1	1	1	1	1	1	1	1	1	1	**10**
Line Boss	Hutchison Tony											**0**
		1	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
Snr Line		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
T/Shooter	Fadian Scott											**0**
T/Shooter	Fox Ricky											**0**
T/Shooter	Campbell Warren	1	1	1	1	1	1	1	1	1	1	**10**
		1	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
Trouble Shooters		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
De-Pegger	Goodwill Jamie											**0**
De-Pegger												**0**
De-Pegger												**0**
De-Pegger												**0**
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
De-Peggers		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**10**
		-1	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**	**-10**
Line Crew	Anderson Sarah	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Bishoff Daryn	1										**1**
Line Crew	Byrne Gareth	1	1	1	1	1	1	1				**7**
Line Crew	Byrne Liam	1										**1**
Line Crew	Capper Arlo	1										**1**
Line Crew	Christopher John											**0**
Line Crew	Crossie Elizabeth			1	1	1	1	1	1	1		**7**
Line Crew	Davies Jason	1										**1**
Line Crew	Fadian Scott										1	**1**
Line Crew	Fisher Gavin											**0**
Line Crew	Flavell Aaron										1	**1**
Line Crew	Fox Ricky	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Goodwill Jamie	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Grams Chris											**0**
Line Crew	Harland June	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Hedditch Tom	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Henderson Andrew	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Hill Andrew	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Hockey Jeremy											**0**
Line Crew	Hodgins Julie											**0**
Line Crew	Hutchison Gary										1	**1**
Line Crew	Hynes Jonathan		1	1							1	**3**
Line Crew	Jones Nicola	1										**1**
Line Crew	Koonwaiyou Tapa	1	1	1	1	1	1	1	1	1		**9**
Line Crew	Lavender Greg											**0**
Line Crew	Linnie James										1	**1**
Line Crew	McKenna Arnold		1	1	1	1	1	1	1	1	1	**9**
Line Crew	Pohatu Tammy	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Smith Christine	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Smith Kelley	1										**1**

All Clients		Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Days on Crew
Sick / LTI	**Working Offsite**	12	13	14	15	16	17	18	19	20	21	
POSITION	**NAMES**											
Line Crew	Smith Robyn	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Temple-Heald Derek	1	1	1	1	1	1	1	1	1	1	**10**
Line Crew	Welsh Lisa											**0**
Line Crew	Wilson David	1										**1**
Line Crew	Wood Susan										1	**1**
												0
												0
												0
												0
		20	**15**	**16**	**15**	**15**	**15**	**15**	**14**	**14**	**18**	**157**
Line Crew		**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**160**
		4	**-1**	**0**	**-1**	**-1**	**-1**	**-1**	**-2**	**-2**	**2**	**-3**
		40	**34**	**34**	**34**	**34**	**34**	**34**	**33**	**33**	**35**	**345**

APPENDIX XI

EQUIPMENT LIST

ALL CLIENTS **Sep-05**

VEHICLE	REGISTRATION	RENTAL	Gone TERREX	Terrex No.
100 Series Landcruiser Wagon (Cli	929 IDH	4wd Hire		
100 Series Landcruiser Wagon	093 IIU		Yes	LV 002
100 Series Landcruiser Wagon	094 IIU		Yes	LV 003
100 Series Landcruiser Wagon	095 IIU		Yes	LV 004
100 Series Landcruiser Wagon	096 IIU		Yes	LV 005
Landcruiser Trayback (Cable)	307-IJX		Yes	LV 012
Landcruiser Trayback (Cable)	308-IJX		Yes	LV 013
Landcruiser Trayback (Cable)	309-IJX		Yes	LV 014
Landcruiser Trayback (Cable)	1BRD 037		Yes	LV 007
Landcruiser Trayback (Cable)	092-IIU		Yes	LV 001
Landcruiser Trayback (Geophone)	1BSR 496		Yes	LV 011
Landcruiser Trayback (Geophone)	310-IJX		Yes	LV 015
Landcruiser Trayback (T/S)	343-IJX		Yes	LV 019
Landcruiser Trayback (T/S)	344-IJX		Yes	LV 020
Landcruiser Trayback (Trayback)	588-IMH		Yes	LV 017
Landcruiser Trayback (Trayback)	118-IIU		Yes	LV 006
Landcruiser Trayback (Trayback)	1 BGN 212		Yes	
Landcruiser Trayback (Mechanics)	311-IJX		Yes	LV 016
Landcruiser Trayback (PM/HSE)	WOJ 226	Budget		
	LIGHT VEHICLE LIST			
I/O AHV-IV Vibrator	C 32657		Yes	HV 015
I/O AHV-IV Vibrator	C 32658		Yes	HV 016
I/O AHV-IV Vibrator	C 32659		Yes	HV 017
I/O AHV-IV Vibrator	C 32660		Yes	HV 018
Isuzu Recorder	1BSB 131		Yes	HV 003
Paystar Water Truck	688 IFS		Yes	HV 010
MAN Water Truck	G 12833		Yes	HV 013
Kenworth Water Truck	1AGB 177		Yes	HV 014
Paystar Spread Truck	686 IFS		Yes	HV 019
Paystar Vibe ServiceTruck	875 HJU		Yes	HV 011
Kenworth Spread Truck	874 HJU		Yes	HV 012
Hino Spread Truck	7DT 982		Yes	
Hino Spread Truck	BD 610		Yes	HV 006
Isuzu Spread Truck	IAOR 420		Yes	HV 002
Isuzu Generator Truck	1AMI 165		Yes	HV 001
Paystar Mechos	685 IFS		Yes	HV 008
Isuzu Truck (Crane)	9DL 970		Yes	HV 005
Hino Fuel Tanker	RMR 625		Yes	HV 007
Paystar Spread Truck 2	932 HVO		Yes	
	HEAVY VEHICLE LIST			

ALL CLIENTS	Sep-05	Gone	
Bimarco Shower/Laundry	N60196	Yes	CV 019
Cavalier Kitchen	6UO 308	Yes	CV 021
Cavalier Diner	6UO 309	Yes	CV 022
Coromal Caravan	8WS 627	Yes	CV 015
Coromal Caravan	8WS 671	Yes	CV 016
Coromal Caravan	9RG 567	Yes	CV 017
Elross 1 Room (4 man) sleeper	1 TER 545	Yes	CV 001
Elross 1 Room (4 man) sleeper	1 TER 546	Yes	CV 002
Elross Office	1 TFB 626	Yes	CV 003
Homemade 6 Man sleeper	497 QJG	Yes	CV 005
Homemade 6 Man sleeper	498 QJG	Yes	CV 006
Homemade 6 Man sleeper	499 QJG	Yes	CV 007
Homemade 2 Room HSE Office	502 QJG	Yes	CV 009
Rio Tinto 3 Room Sleeper	505 QJG	Yes	CV 012
Rio Tinto 3 Room Sleeper	506 QJG	Yes	CV 013
Spread Trailer	1TAR794	Yes	
Modern Caravan (Battery Hen)	6WC 169	Yes	CV 014
Tandem 3 Toilet Trailer	1 TDJ 497	Yes	CV 019
6 x 4 Toilet Trailer	1 TBF 454	Yes	TV 002
Tamworth Cable Repair	N 69423	Yes	CV 020
8 x 5 Tandem Box Trailer (Wash D	1 TBU 582	Yes	TV 003
Dry Stores/Coolroom on Trailer	508 QJG	Yes	TV 005
Mechanic's Workshop (C'made)	1 TAR 750	Yes	TV 001

VAN & TRAILER LIST

ALL CLIENTS Sep-05

Gone

RECORDING EQUIPMENT

- **SERCEL 388 - 24 Bit 3D Seismic Data Acquisition System**
- Sun Monitor and Sun Sparc 5 Computer
- OYO DFM 480 Plotter, UPS, LIM
- One (1) Sercel Real Time APM - Sweep Correlator
- Two (2) Fujitsu 3490 Tape Drives
- One Hundred (100) SU6 Telemetry units

(600 Channels)

- Two Hundred (200) 3 T/O Seismic Cables

(600 Channels)

- Twenty (20) Sercel PSUs and Three (3) Sercel CSUs
- Twelve (12) CSU Patch Cables
- Twenty Five (25) Battery case power Cords
- Fifty (50) Batteries for SU6 Units
- One (1) Sercel Handheld Cable Testers
- Five (5) Sercel Battery Chargers
- **Pelton VIBRPO** Real Time Similarity System
- One (1) 10 metre 6 DB Boost High Gain Antenna on Recording Truck

Sensor SM4 10Hz High Specification Superphones

- **12 Ph/Group Option:**
- One Thousand Two Hundred (1200) Geophone strings with 6 ph/group
- One (1) Sensor SMT100 Geophone Tester

RECORDING EQUIPMENT

BEACH PETROLEUM 2005
SEISMIC SURVEY
DISCUS 2D
PELs 95 & 107

OPERATIONS REPORT

FOR

BEACH PETROLEUM

OCTOBER 2005

BY

J.L. TURNER

OF

TERREX SEISMIC
U2 / 37 HOWSON WAY
BIBRA LAKE
WESTERN AUSTRALIA 6163

TABLE OF CONTENTS

1. INTRODUCTION

Terrex Seismic was contracted by Beach Petroleum to conduct the Discus 2D Seismic Survey on PELs 95 and 107 in South Australia. The contract consisted of 14, 2D lines on two prospects with a total of 138.375 kms to be recorded on both prospects.

Acquisition commenced on the 12th October 2005 after the crew mobilized from the Santos, McKinlay prospect with 4.95 kms recorded that afternoon. Acquisition was completed on the 21st October 2005.

1.1 GEOGRAPHICAL AREA

The PEL 95 prospect was located approximately 50 kms south of the Dullingarie satellite in South Australia and the PEL 107 prospect was located approximately 150 kms southwest of Moomba near the Spencer oil field in South Australia.

The country mainly consisted of sand dunes and flat claypans. PEL 95 was completed on the 15th October and camp was moved to PEL 107 on the 17th October after one day of standby due to wet weather.

Typical Line Conditions on the Discus 2D

1.2 WEATHER

The weather was unsettled during the acquisition period with 17.0 hrs standby recorded due to wet conditions. Santos closed roads on the 15th due to overnight rain which delayed the prospect move by one day. 15mm of rain was recorded on the night of the 18th October which put the crew on standby till midday the following day.

1.3 LOGISTICS

All equipment was mobilized from the McKinlay 3D prospect by Terrex personnel on the 12th October 2005, the crew arrived at the PEL 95 prospect at 1:00pm that day. Camp was setup and the line crew went to the field to commence acquisition with 4.95 km recorded for the afternoon. The crew moved camp on the 17th October to the PEL107 prospect, a move of 6.3hrs. The crew laid spread that day with the first production profile recorded the following morning.

Loading Vibrators for Prospect Move

Access to the lines was via local roads and farm tracks.

The accommodation facilities were in the form of mobile vans that were provided by Terrex Seismic and were capable of sleeping up to 45 people.

All meals were provided by the mobile kitchen and diner that was staffed by two cooks. All supplies were road transported into Moomba from Four Seasons in Adelaide.

Fuel for all vehicles was supplied by IOR Fuel agents in Eromanga.

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

2. SURVEYING

2.1 RANGING / CHAINING / SURVEYING

Line chaining and survey for the entire program were completed by Dynamic Satellite Surveys personnel.

2.2 LINE CLEARING

All line clearing was performed by Terrex Contracting.

2.3 PERMITTING

Permitting was carried out by Mr. Bruce Beer. Bruce was also the client representative on site for the entire contract.

3. RECORDING / PROCESSING

3.1 RECORDING PARAMETERS

Survey: 2005 Discus Seismic Survey
Lines: BCO5-48 → BC05-61
PEL: 95 & 107
Areas: Various

Instrumentation

Instruments	:	Sercel 388
No. Channels	:	124
Tape Drives	:	3490E (x 2)
Tape Format	:	SEGD Revision 1 8058IEEE Demultiplexed, Noise edited correlated summed 4 sec record
Filters	:	Hi cut 125 Hz, (half Nyquist) Lo cut: Out
Sample Rate	:	2 ms
Record Length	:	7 sec (3 sec sweep, 4 sec listen)
RTC	:	Yes
Correlation Type	:	Zero Phase, After Sum
Stack	:	Diversity stack plus burst edit

Source Data

Vibrators	:	3 x I/O AHV IV's on 4x4 Buggies
Electronics	:	Pelton Advance III, VibPro
Sweep Frequency	:	Mono-sweep, 5-90 Hz
Sweep Length	:	3 seconds
No. Sweeps	:	2 standing
VP Interval	:	37.5m
Vibrator Array	:	3 vibs in line, 12.5m pad to pad standing. No move-up.
Sweep Amplitude Taper	:	100% (none)
Drive Level	:	90% varied by amplitude control function
End Tapers (cosine)	:	0.2s
Phase Locking Type	:	Ground Force
Amplitude Control?	:	Peak to Peak

Receivers

Receiver Group Interval	:	37.5m
Number of live traces	:	124
Spread	:	Split, 2306.25-93.75-0-93.75-2306.75
Geophones	:	Sensor SM4 10 Hz
Array	:	12 in-line, centred on station, 3.125 spacing
Connection	:	Series/Parallel (6x2)
Multiplicity	:	62 fold (60 fold processed)

3.2 RECORDING

DISCUS PEL 95 PROSPECT

The first production profile on PEL 95 was recorded on line BC05-51 on the 12th October 2005. Acquisition began at 3:30pm after the crew had laid spread and 4.950 kms of production was recorded for the day.

Recorder Setup on the Discus 2D

Line BC05-51

Recording commenced at station 666 on the 12th and was completed at station 200 the following day, a total of 17.475 kms

Line BC05-52

Recording commenced on this line on the 13th October from station 200 and was completed the following day at station 611, a total of 15.4125 kms.

Line BC05-49

Recording commenced on this line on the 14th October from station 659 and was completed that same day at station 200, a total of 17.2125 kms.

Line BC05-48

Recording commenced on this line on the 14th May from station 200 and was completed the following day at station 389, a total of 7.0875 kms.

Line BC05-50

Recording commenced on this line on the 15th May from station 200 and was completed that same day at station 445, a total of 9.1875 kms. The final production profile of line 50 represented the completion of the PEL 95 prospect. Overnight rain meant that camp move was delayed by one day to the 17th October.

DISCUS PEL 107 PROSPECT

Line BC05-56

Recording commenced on this line on the 18th October after spread was layed the previous day following the camp move. The first production profile was recorded at station200 and the line was completed at station 465, that same day, a total of 9.9375 kms.

Line BC05-57

Recording commenced on this line on the 18th October from station 379 and was completed that same day at station 200, a total of 6.7125 kms.

Line BC05-58

Recording commenced on this line on the 18th October from station 200 and was completed the following day at station 384, a total of 6.90 kms.

Line BC05-55

Recording commenced on this line on the 19th October from station 200 and was completed that same day at station 389, a total of 7.0875 kms.

Line BC05-54

Recording commenced on this line on the 19th October from station 389 and was completed the following day at station 200, a total of 7.0875 kms.

Line BC05-53

Recording commenced on this line on the 20th October from station 200 and was completed that same day at station 388, a total of 7.050 kms.

Line BC05-59

Recording commenced on this line on the 20th October from station 569 and was completed that same day at station 200, a total of 13.8375 kms.

Line BC05-61

Recording commenced on this line on the 21st October from station 200 and was completed that same day at station 366, a total of 6.225 kms.

Line BC05-60

Recording commenced on this line on the 21st October from station 391 and was completed the following day at station 200, a total of 7.1625 kms. The finish of line 60 represented the completion of the PEL 107 and the Discus 2D seismic survey. A total of 138.375 kms recorded from the 12th October 2005 to the 21st October 2005

3.3 PROCESSING

All data 'A' tapes were sent to Fugro Seismic Imaging in Perth WA while the data 'B' tapes were sent to Beach Petroleum head office in Adelaide.

APPENDIX A

EQUIPMENT SPECIFICATIONS

SEISMIC ACQUISITION CREW - EQUIPMENT

RECORDING EQUIPMENT, SOURCE EQUIPMENT AND VEHICLES

RECORDING EQUIPMENT (2D Surveys)

- **SERCEL 388 - 24 Bit 3D Seismic Data Acquisition System**
  - Sun Monitor and Sun Sparc 5 Computer
  - OYO DFM 480 Plotter, UPS, LIM
  - One (1) Sercel Real Time APM - Sweep Correlator
  - Two (2) Fujitsu 3490 Tape Drives
  - One Hundred and Thirty Five (135) SU6 Telemetry units (810 Channels)
  - One Hundred and Thirty Five (135) Seismic Cables (810 Channels)
  - Twenty (20) Sercel PSUs and Three (3) Sercel CSUs
  - Twelve (12) CSU Patch Cables
  - Twenty Five (25) Battery case power Cords
  - Fifty (50) Batteries for SU6 units
  - Two (2) Sercel Handheld Cable Testers
  - Ten (10) Sercel Battery Chargers
  - **One (1) Pelton Adv 3 VibPro** Real Time Similarity System
  - One (1) 10 meter 6 DB Boost High Gain Antenna on Recording Truck
  - **Sensor SM4 10Hz High Specification Superphones**
  - Six Hundred (600) Geophone strings with 12 ph/group

SOURCE EQUIPMENT

Four I/O AHV IV Vibrators

- Peak Force is 60 000 lbs
- Four Pelton Advance III VibPro Sweep Generators

APPENDIX B

OCCUPATIONAL HEALTH AND SAFETY STANDARDS

- Crew startup induction / safety meeting
- Sunday crew safety meeting
- Long sleeve shirts and covered footwear must be worn by field crew at all times
- Sunscreen
- Reflective vests for all recording personnel working along roads
- Satellite Phone in recorder
- Functional UHF Radio fitted in all line vehicles
- Random drug and alcohol tests
- Vehicles fitted with First Aid kits
- Line Vehicles fitted with flashing beacons
- Road Signs
- Gloves to protect hands

APPENDIX C

TAPE LISTING

Beach Discus 2D, PEL 95						
Tape #	**Line**	**First FFID**	**Last FFID**	**First VP**	**Last VP**	**Date Recorded**
1A	BC05-51	1	466	666.5	200.5	12-Oct-05
2A	BC05-52	1	409	200.5	611.5	13-Oct-05
3A	BC05-49	1	455	659.5	200.5	14-Oct-05
4A	BC05-48	1	192	200.5	389.5	15-Oct-05
5A	BC05-50	1	246	200.5	445.5	15-Oct-05
Beach Discus 2D, PEL 107						
6A	BC05-56	1	266	200.5	465.5	18-Oct-05
7A	BC05-57	1	177	379.5	200.5	18-Oct-05
8A	BC05-58	1	184	200.5	384.5	18-Oct-05
9A	BC05-55	1	188	200.5	389.5	19-Oct-05
10A	BC05-54	1	188	389.5	200.5	19-Oct-05
11A	BC05-53	1	187	200.5	388.5	20-Oct-05
12A	BC05-59	1	367	569.5	200.5	20-Oct-05
13A	BC05-61	1	166	200.5	366.5	21-Oct-05
14A	BC05-60	1	193	391.5	200.5	21-Oct-05

APPENDIX D

HSE REPORT

Safety Statistics

Terrex Seismic Man-hours	1,704
Sub-Contractor Man-hours	1,104
Fatalities	0
LTI	0
MTI	0
First Aid / Medical Cases	6
Incident / Accident Reports	0
Hazard Identification Reports	0
Training Hours	2
Tool Box / Safety Meeting Man-hours	34
Audits / Inspections	66
Drills	0
Land Spills (< 5 litres)	0

Medical Statistics

Clinic Attendance	
Colds, Influenza type infections	0
Eye Irritation	1
Wound care, lacerations, dressings	0
Skin Irritations	2
Stomach & Digestion	1
Muscular / Skeletal / Soft Tissue	1
Bites and Stings	0
Miscellaneous	1
TOTAL	**6**

Remarks

Report compiled by: Jonathon Hynes - HSE Advisor

APPENDIX E

SAFETY MEETINGS

Date: 17-Oct-2005
Location: DISCUS 2D PEL107
Crew: 402
Client: Beach
Conducted by: John Turner
Attendance: 35
Meeting opened @ 5.45am
Meeting closed @ 6.00am

ACTION POINTS PREVIOUS MEETING
1. Use Hazard report cards to increase the participation in Safety Meetings***.-HSE distributed.***

TOPICS DISCUSSED

John Turner (PM)
- Camp move today to Spencer. We will stop at Moomba to get fuel and supplies.
- The roads are open and good.

Jonathan Hynes (HSE Trainee)
- We have had an increase in the occurrence of Tinea around camp. So were your thongs in the showers, dry your feet and when using ointment continue using it for at least a week after the symptoms are gone.
- The camp fire at night shall be put out by the last person up.
- HSE and Campies to manage fire during the day.
- As it is Safety Meeting could we please have some input from the crew starting with cable numbers , Tom

Tom Heditch (Cable Truckers)
- Communication is important on camp move. Call up hazards such as water on the road.

Christine Smith (Jugs)
- Back crew please be aware of placing geophones close to the track especially when going over the top of dunes.

Shane Shufflebotham (Vibes)
- Be wary of dusk in Vibes.

Arnold McKenna (Back Crew)
- No sleeping online.

Robyn Smith (Front Crew)
- Keep up your water during the day.

Tony Screagh (Mechos)
- Maintain vehicle gaps on camp move.
- Lights to be kept on whilst driving.

Mark Fox (Cook)
- Seatbelts and headlights on camp move.

Bruce Beer (Bird Dog)
- A safety and environmental issue. The spill tarp for the fuel truck has not been installed on this camp. I know it has only been a short stay but whether we are on a site for one hour or one month if there is a spill it will still cause damage.
- The next prospect is 76 linear km but it is quite spread out.

- There is the boundary fence between Mulka and Mungaranie running through it. So ensure fences are reinstated as there are cattle about.
- The weather looks bad for tomorrow night.
- There is an above ground pipeline, only cross it at the designated crossings. Even if the dune has blown over it.

ACTION POINTS
1. Ensure Fuel Truck Tarp is installed at all times ***– responsible HSE- Ongoing***

APPENDIX F

VEHICLE LIST

VEHICLE	USED FOR	REGISTRATION
100 Series Landcruiser Wagon	Client	XGF 686
100 Series Landcruiser Wagon	Front Crew	093 IIU
100 Series Landcruiser Wagon	PM / HSE	094 IIU
100 Series Landcruiser Wagon	Vibe Crew	095 IIU
100 Series Landcruiser Wagon	Back Crew	096 IIU
100 Series Landcruiser Wagon	Front / Back Crew	WZI 799
Landcruiser Trayback	Cable	307-IJX
Landcruiser Trayback	De-Pegger	308-IJX
Landcruiser Trayback	Cable	309-IJX
Landcruiser Trayback	Cable	092-IIU
Landcruiser Trayback	Cable	1BSR 496
Landcruiser Trayback	Geophones	343-IJX
Landcruiser Trayback	Trouble Shooter	344-IJX
Landcruiser Trayback	Mechanics	588-IMH
Landcruiser Trayback	Line Boss	118-IIU
Landcruiser Trayback	Cable	1 BGN 212
Landcruiser Trayback	Geophones	311-IJX
I/O AHV-IV Vibrator		C 32657
I/O AHV-IV Vibrator		C 32658
I/O AHV-IV Vibrator		C 32659
I/O AHV-IV Vibrator		C 32660
Isuzu Recorder		1BSB 131
Paystar Water Truck		628-JAH
MAN Water Truck		G 12833
Kenworth Water Truck		1AGB 177
Paystar Vibe Service Truck		875 HJU
Kenworth Spread Truck		874 HJU
Hino Spread Truck		7DT 982
Hino Spread Truck		BD 610
Paystar V8 Spread Truck		1BUI 775
Isuzu Spread Truck		IAOR 420
Isuzu Generator Truck		1AMI 165
Paystar Mechos		627-JAH
Isuzu Truck (Crane)		9DL 970
Hino Fuel Tanker		RMR 625
Homemade Pig Trailer Showers	6 Male/2 Female	504 QJG
Homemade Pig Trailer Laundry		496 QJG
Pacesetter 8 Man Sleeper		498 QJG
Cavalier Kitchen		6UO 308
Cavalier Diner		6UO 309
Coromal Caravan		8WS 627
Coromal Caravan		8WS 671

Coromal Caravan		9RG 567
Elross 1 Room (4 man) sleeper		1 TER 545
Elross 1 Room (4 man) sleeper		1 TER 546
Elross Office		1 TFB 626
Homemade 6 Man sleeper		497 QJG
Homemade 6 Man sleeper		501-QJG
Homemade 6 Man sleeper		499 QJG
Homemade 2 Room HSE Office		502 QJG
Rio Tinto 3 Room Sleeper		505 QJG
Rio Tinto 3 Room Sleeper		506 QJG
Spread Trailer		507-QJG
Modern Caravan (Battery Hen)		6WC 169
Tandem 3 Toilet Trailer		1 TDJ 497
6 x 4 Toilet Trailer		1 TBF 454
Tamworth Cable Repair		N 69423
8 x 5 Tandem Box Trailer (Wash Down)		1 TBU 582
Dry Stores/Coolroom on Trailer		508 QJG
Mechanic's Workshop (C'made)		1 TAR 750
Dolly		509-QJG

APPENDIX G

CREW LIST

POSITION	NAMES
Crew Manager	Turner Jon
HSE	McHugh Leeton
HSE Trainee	Auckram Ray
HSE Trainee	Hynes Jonathan
Mechanic	Carmody Richard
Mechanic	Matthews Kenneth
Mechanic	Screagh Tony
Supply Driver	Oswell Geoff
Supply Driver	Tuite Allan
Cook	Viney Dennis
Cook	Foxon Mark
Kitchen Hand	Masako Iwasaki
Campy	Crossie Elizabeth
Campy	Tomlinson Peggy
Observer	O'Donnell Peter
Cable Repair	Grainger Leslie
Vib Op	Bates Steven
Vib Op	Bann Abby
Vib Op	Lynch Dave
Vib Op	Shufflebotham Shane
Vib Op	Purcell Sean
Vib Op	Cabot Allen
Vib Tech	Garden Robert
Vib Tech	Goossens Shane
Line Boss	Burton Mitchell
T/Shooter	Campbell Warren
De-Pegger	Goodwill Jamie
Line Crew	Anderson Sarah
Line Crew	Bishoff Daryn
Line Crew	Byrne Gareth
Line Crew	Byrne Liam
Line Crew	Capper Arlo
Line Crew	Davies Jason
Line Crew	Fadian Scott
Line Crew	Flavel Aaron
Line Crew	Fox Ricky
Line Crew	Goodwill Jamie
Line Crew	Harland June
Line Crew	Hedditch Tom
Line Crew	Henderson Andrew
Line Crew	Hill Andrew
Line Crew	Hutchison Gary
Line Crew	Jones Nicola
Line Crew	Koonwaiyou Tapa
Line Crew	Linnie James
Line Crew	McKenna Arnold
Line Crew	Pohatu Tammy
Line Crew	Smith Christine
Line Crew	Smith Kelley
Line Crew	Smith Robyn
Line Crew	Temple-Heald Derek
Line Crew	Wilson David
Line Crew	Wood Susan

BEACH DISCUS 2D 2005 SEISMIC SURVEY - STATISTICS

Date	Travel Time	Extra Travel Time	Test Time	Recording Time	Line Change	Mobilisation	Vibes	WOS	Recorder Shutdown	Recorder Move	Safety & Other Charge	Detours & Terrain	Inductions	Troubleshoot	Laying Out, QC & Pickup Spread	Experimental Time	Total Stand-by Rate	Total Extra Travel	Total Downtime	Total Operational Hours	Total Km's
12 October 2005	0.30			1.90							0.30	0.70		0.10	1.20		**0.30**	-	**0.10**	3.80	**4.9500**
13 October 2005	0.40			8.00	0.50			0.20	1.10	1.90	0.30			0.30			**0.30**	-	**1.60**	10.40	**25.0875**
14 October 2005	0.60			7.80	1.70		0.30			0.70	0.30	1.00					**0.30**	-	**0.30**	11.20	**26.1750**
15 October 2005	0.60			2.80	1.00						0.30			0.20	5.00		**0.30**	-	**0.20**	8.80	**10.1625**
Total	**1.9000**	**0.0000**	**0.0000**	**20.5000**	**3.2000**	**0.0000**	**0.3000**	**0.2000**	**1.1000**	**2.6000**	**1.2000**	**1.7000**	**0.0000**	**0.6000**	**6.2000**	**0.0000**	**1.2000**	**0.0000**	**2.2000**	**34.2000**	**66.3750**

Dynamic
Satellite
Surveys

05048

Final Operations Report
on the

2005 PEL95 Discus 2D Seismic Survey

for

Beach Petroleum NL

and

Terrex Seismic Pty Ltd

September 2005

The Director
Dynamic Satellite Surveys Pty Ltd
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Table of Contents

1

INTRODUCTION

The following report covers the **2005 PEL95 Discus 2D Seismic Survey**, performed by **Dynamic Satellite Surveys Pty Ltd** (DSS) whilst contracted to **Terrex Seismic Pty Ltd** for **Beach Petroleum NL**.

The survey operation was located approximately 90km east of Moomba within the exploration lease PEL 95 near the Moomba to Sydney pipeline on Bollards Lagoon station.

A total of five 2D seismic lines were surveyed totalling **66.375 kilometres** at 37.5m station intervals. All lines were covered in 2 days giving an average of 33.1 kms per day.

The survey operations were undertaken on 28th and 29th September 2005.

2

INSTRUMENTATION AND PERSONNEL

2.1 Personnel and Logistics

DSS personnel involved in the survey were:

Name	Qualifications	Task
Ben Allsopp	Bachelor of Surveying, Curtin University of Technology, WA	Survey, Data Processing
Ron Weekes	Bachelor of Applied Science (Surveying and Mapping) WA Institute of Technology	Line Pointing, Mapping, Report
Mike Borthwick	RNZN Certificate in Hydrographic Surveying	Survey, Data Processing

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

Survey operations were based at the fly camp established by the line clearing contractors, Terrex Contracting.

2.2 Equipment

Equipment provided by DSS and used on this project:

	Description	Qty
Vehicles	Toyota Landcruiser Trayback - DSS	3
GPS receivers	NovAtel RT2 millennium c/w VHF Telemetry	4
	NovAtel RT20 c/w VHF Telemetry	3
Computers	Dell Inspiron 5150	2
	Fujitsu Tablets	3
	GRiD 386 Field PCs	3
Software	GravNav / GravNet GPS post-processing - Waypoint Consultancy	Ver 7.50
	Nav05 field software - DSS	Ver 1.0
	Nav98 field software - DSS	Ver 5.5
	MIB for Windows - DSS	Ver 6.02
	TransIt 5.0 - DSS	Ver 5.0
	MapInfo Professional	Ver 7.8
Printers	Canon i6100	1
REM	Rapid Elevation Meter	1
Miscellaneous	Kodak Digital camera	1
	Accommodation and office caravans	2
	Dual axle trailer	1
	Necessary standard surveying equipment	
	Sundry office and transport equipment	

	Description	Qty
	Field and Office Consumables	

3

SURVEY REFERENCE SYSTEMS

3.1 Geodetic Datum

This project was based on the Geocentric Datum of Australia 1994 (GDA94) which is based on the Geodetic Reference System 1980 (GRS80) model defined by the following parameters:

Datum:	GDA94(Geocentric Datum of Australia 1994)
Spheroid:	GRS80
Reference Frame:	ITRF92 (International Terrestrial Reference Frame)
Semi-Major Axis Length:	6 378 137.0
Inverse Flattening:	298.257222101
The Unit of Measure:	International Metre

3.2 Map Projection

Final rectangular coordinates were based on the Map Grid of Australia 1994 (MGA94). Parameters for this projection are as follows:

Projection:	Universal Transverse Mercator (MGA Zone 54)
Latitude of Origin:	0°
Central Meridian (CM):	141° E
Scale Factor at CM:	0.9996
False Easting:	500 000
False Northing:	10 000 000
The Unit of Measure:	International Metre

3.3 Height Datum

All elevations obtained relative to GDA94 have been reduced to the Australian Height Datum (AHD) using the AUSGEOID98 Geoid - Spheroid separation model to determine the geoid-ellipsoid separation (N) for the particular area.

GPS observations are made on the GDA94 datum. The height associated with this datum is an ellipsoidal height (h). The Australian Height Datum (AHD), the height datum associated with MGA94, is 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 = GDA94 - (Geoid / Ellipsoid Separation)

The value for the geoid/spheroid separation is interpolated from a national model called Ausgeoid98.

AUSGEOID98 is the third in a series of national geoid models produced for Australia by the Australian Surveying and Land Information Group (AUSLIG). The geoid-ellipsoid data is prepared for the Australian region from:

- EGM96 Global Geopotential Model;
- 1996 Australian Gravity DataBase, from the Australian Geological Survey Organisation (AGSO);
- AUSLIG / AGSO GEODATA nine-second digital elevation model;
- Satellite altimeter - derived free air gravity anomalies offshore;
- Theories, techniques and software developed by Associate Professor Will Featherstone, Curtin University of Technology[1].

[1] Johnston, G.M., Featherstone, W.E. (1998) AUSGEOID98: A New Gravimetric Model for Australia

4

SURVEY CONTROL

Survey control was based on two marks installed on earlier DSS seismic surveys in the area. These were Station 704 Line BC02-40 from the 2002 Nautilus 2D survey for Beach Petroleum and MI02 from the 2005 Mirage 3D for Victoria Petroleum. These marks by DSS are linked to original survey marks coordinated by AUSPOS - a method of data reduction by Geoscience Australia, a federal government geodetic service.

A new control point, DI01, was surveyed by static GPS methods from these two original control points. Another temporary base station, TMP01, was surveyed from this new point using RT2 methods.

Check observations were made from each of the base stations during the real-time survey to several old PMs in the area and the results of these ties can also be seen in **Appendix A - Survey Control, Miscloses and Ties.**

5

MONUMENTATION

All lines were pegged at a 37.5 metre station interval.

The now accepted standard pegging convention was used for all lines which was a peg at every fifth station and coloured pin flags at all other points. A pink pin flag denoted an even numbered point and blue for odd. The pegs were fully marked with line and station number.

There was one Environmental Monitoring Point placed and coordinated on the job and this doubled as a Permanent Marker. The star picket had two tags fixed to it with the relevant information punched into each one. The point was at station 436 on line BC05-50.

The permanent marker is listed at **Appendix C - Permanent Markers**.

A total of 39 upholes were marked during the survey. These were marked at the planned coordinates unless the location was unsuitable due to terrain or other obstructions such as pipelines or wells. The convention for marking these upholes was to have a fully numbered blue peg, with yellow flagging attached, placed on the opposite side of the line to the other seismic pegs and pin flags.

6

METHOD OF SURVEY

6.1 Line Ranging

All lines were cleared by Terrex Contracting earthmoving contractors. The equipment supplied to perform the clearing were two Komatsu bulldozers and a John Deere Grader.

The operators were experienced in preparation of seismic lines with regards to environmental issues, and did not encounter any difficulties with the GPS guidance system.

DSS GPS receiver units were mounted in the dozer cabins to supply real time positions when cutting the seismic lines. The set out parameters of all the lines were loaded on to the GrID computers of each machine and these were used in conjunction with the GPS to prepare the lines.

The operator had few problems using the system and little time was lost due to GPS equipment down time during the seismic program.

There were several previously identified cultural heritage sites to be avoided on the lines and the details were included in the line preparation parameters loaded on the GrID computers in the dozers. No sites were disturbed and no previously unlisted sites were discovered during line prep.

6.2 Surveying and Chaining

The lines were surveyed using DSS' RT2 real-time kinematic surveying technique.

RT2 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 while other receivers were used as remote rovers.

To obtain real-time capabilities, VHF telemetry is required between the base and the remote GPS receiver. Numerous remote receivers can be used at any given time with any base station.

NovAtel Millennium real-time kinematic methods can achieve accuracies of better than +/-0.02m in position and elevation, depending on base line length. The expected precision for locating pegged positions is generally better than 0.1 metres.

Initialisation of the RT2 rover GPS usually takes as little as 1-2 minutes, although this is greatly dependant on satellite geometry, availability and base line length.

DSS's latest software package Nav05 is a complete field seismic surveying program. This program enables each field surveyor to have a completed picture of the prospect in relation to programmed lines, previous days recordings, elevation profiling, quality control of data, proposed location of upholes and other information useful for field operations.

All lines were chained at 37.5 metre station intervals. A numbered wooden peg was placed at every fifth station and coloured pin flags at the other stations. Pink pin flags were used to denote an even numbered station and blue pin flag for the odd stations.

There were 39 proposed upholes surveyed and marked during the survey. The points were marked at the location described unless the point was unsuitable for an uphole due to terrain or an obstruction. The proposed location coordinates for the upholes were supplied by the client.

6.3 GPS Processing and Quality Control

When using RT2, all data is recorded internally in the screen mounted Fujitsu tablet computers and downloaded to the office computer each evening.

For RT2 real-time kinematic surveying the quality of the satellite data is monitored by continual examination of the various on-screen quality control statistics produced by the software. These checks on data integrity are in the form of standard deviation (or sigma) values for Easting, Northing and Height and are generally better than 0.1 metre for position and 0.05m for elevation.

Any recording of positions when the standard deviation values are in excess of 0.1 m is highlighted to the surveyor at the time of recording, and the GPS may be re-initialised until a more accurate solution is calculated.

Numerous checks on pre-recorded marks were observed during each days survey. These observations confirm the integrity of the GPS base receiver and the placed markers. A file listing all the checked points is generated on the office computer at the time of post processing.

Line data is post processed in the office each evening using DSS's "MIB" seismic processing software version 6.02. Any position which fell outside the required tolerances is flagged for further investigation and re-recording if necessary.

The coordinates are checked by determining point to point direction and distance. Any pair of points that exceed the acceptable limits are flagged to allow easy identification and checking. Profile plots are examined to identify any elevation anomalies.

The recorded point data is also plotted over the design location in Mapinfo. This gives a further visual check of absolute location of the newly surveyed points.

7

DATA PRESENTATION

All line files were checked and finalised before the survey crew demobilised from the prospect.

All final data was in UTM grid coordinate format on the MGA94 datum on the GDA94 reference spheroid. All elevations were on the Australian Height Datum (AHD71).

Files produced were:

BC05-XX.uka	Line data in UKOOA format.
BC05-XX.seg	Line data in SEGP1 format.
EMP-PM.txt	EMP coordinates in txt file.
intersec.crd	All new line intersections in .crd format.
upholes.txt	All surveyed proposed upholes.
Discus PEL95.jpg	Digital images of the prospect.
PEL95 Shoot Order.jpg	
PEL95 Upholes.jpg	

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

No hard copy data was provided.

8

SAFETY

DSS personnel are aware of safety conditions concerning all exploration seismic surveys. The DSS “Quality Policy Statement” and “Health, Safety and Environment Policy” were adhered to at all times.

Each vehicle was fitted with a UHF radio, shovel, fire extinguisher, first-aid kit, vehicle recovery equipment, and weekly vehicle maintenance check lists.

UHF radio contact was always available between surveyors and with the line clearing contractors. Regular contact was made throughout each day which helped ensure trouble free operations. It was standard procedure for personnel to contact others before leaving the field.

Daily toolbox meetings were a venue for any safety concerns which personnel encountered during the previous day and ensured everyone was informed about planned lines and progress.

9

OPERATIONAL ASPECTS

The total line distance on this job was 66.375km and the terrain was generally easy rolling land with little obstructive vegetation.

The work was completed in two line clearing and pegging days which was a good effort considering there was a major buried pipeline through the area that three of the lines had to cross.

There was a single fence through the area that required three drop gates to be installed.

Following standard practice by DSS working in the Cooper Basin now several Mapinfo plots were produced of the work area to assist the crew and drilling contractors in doing the work required.

Camp was established by Terrex Contracting just north of the Moomba to Sydney gas pipeline. Access from here to most of the lines was short and along established station tracks.

10

CONCLUSIONS AND RECOMMENDATIONS

The project generally ran smoothly for line clearing and survey. It is believed this is due in large part to the people involved being experienced at their relevant tasks.

Good liaison between DSS, Terrex Seismic and Bruce Beer, for the client, ensured contact with the operators of the Moomba to Sydney pipeline. This meant they were aware of the intention to undertake this seismic survey and their representative was met on site prior to the commencement of the job. This enabled all parties to negotiate the obstacle efficiently.

The GPS equipment functioned well with no down time for line clearing or survey.

There were no safety incidents on the project.

Signed,

Ron Weekes

Senior Surveyor

11

APPENDICES

Survey Control, Miscloses and Ties

Survey Control, Miscloses and Ties

All values are MGA 94 (Zone 54), AHD71

Control Stations Used

Station	Easting	Northing	Height	Comments
704	485249.01	6830036.25	75.90	2002 Nautilus 2D
MI01	470475.26	6843037.70	59.97	2005 Mirage 3D
DI01	485072.81	6837210.82	87.82	New station

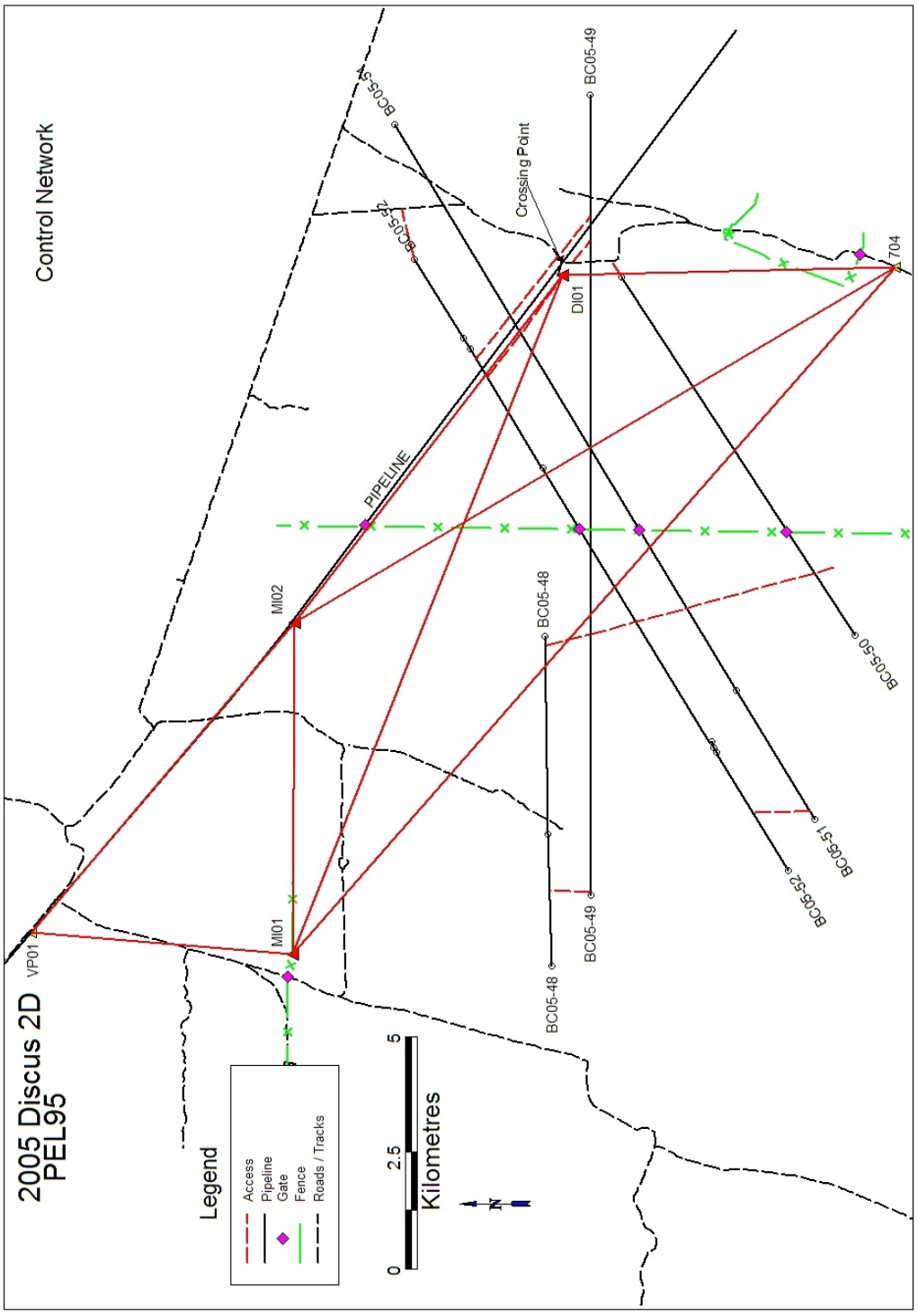
Survey Control, Miscloses and Ties

Coordinates are MGA94 (Zone 54) and AHD71

Checks to old/existing PMs

Line	Easting	Northing	Elev	Stn	Day
92-DJC	484176.1	6835407.4	75.21	228	271MB1
	Not listed				
84-SWJ	482547.7	6838651.4	76.47	200	271BA11
	482545.4	6838652.1	77.58	200	
	-2.3	0.7	1.11		
BC04-09	486059.5	6837957.2	77.90	545	271RW491
	486059.8	6837957.2	77.60		
	0.3	0.0	-0.30		
85-XTT	485941.9	6837879.0	77.04	258	271RW491
	485939.4	6837884.1	77.82	258	
	-2.5	5.1	0.78		

Network Diagram



Permanent Markers

Permanent Marker Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Station	Easting	Northing	Height	Comments
BC05-50 436	484723.96	6835749.68	75.38	EMP1/PM1

Line Length Summary

Line Length Summary

2005 PEL95 Discus 2D Seismic Survey

Station Interval = 37.5 m

Line	SOL Station	EOL Station	Line Km's
BC05-48	200	389	7.0875
BC05-49	200	659	17.2125
BC05-50	200	445	9.1875
BC05-51	200	666	17.4750
BC05-52	200	611	15.4125
		TOTAL =	**66.3750**

Line Intersection Listing

Line Intersection Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Line / Station	X Line / Station	Easting	Northing	Height
BC05-52 /417+06	BC05-49 /399+05	479200.46	6836607.37	68.26
BC05-49 /457+06	BC05-51 /449+26	481376.02	6836618.57	69.29

Mud Maps

Dynamic Satellite Surveys

TRACE DIAGRAM

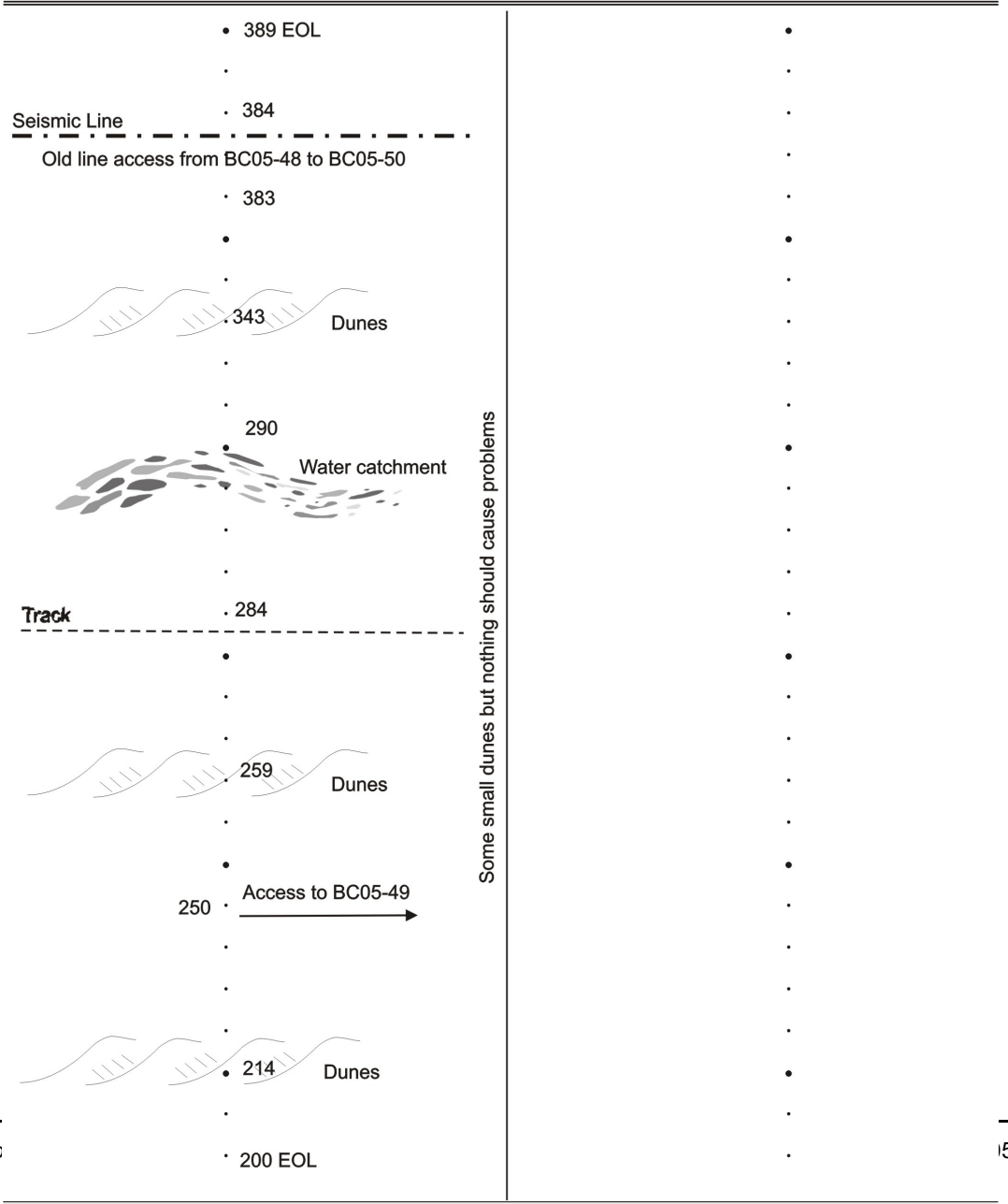
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-48

PROJECT/JOB # 05048 CLIENT Terrex / Beach Pertroleum

PAGE 1 OF 1 AREA: Pel 95 Discus 2D STN INTERVAL: 37.5 m SHOT INTERVAL: 37.5 m

FROM STN 200 TO STN 389 SHOOTING DIRECTION: High to Low BEARING: °



Dynamic Satellite Surveys

TRACE DIAGRAM

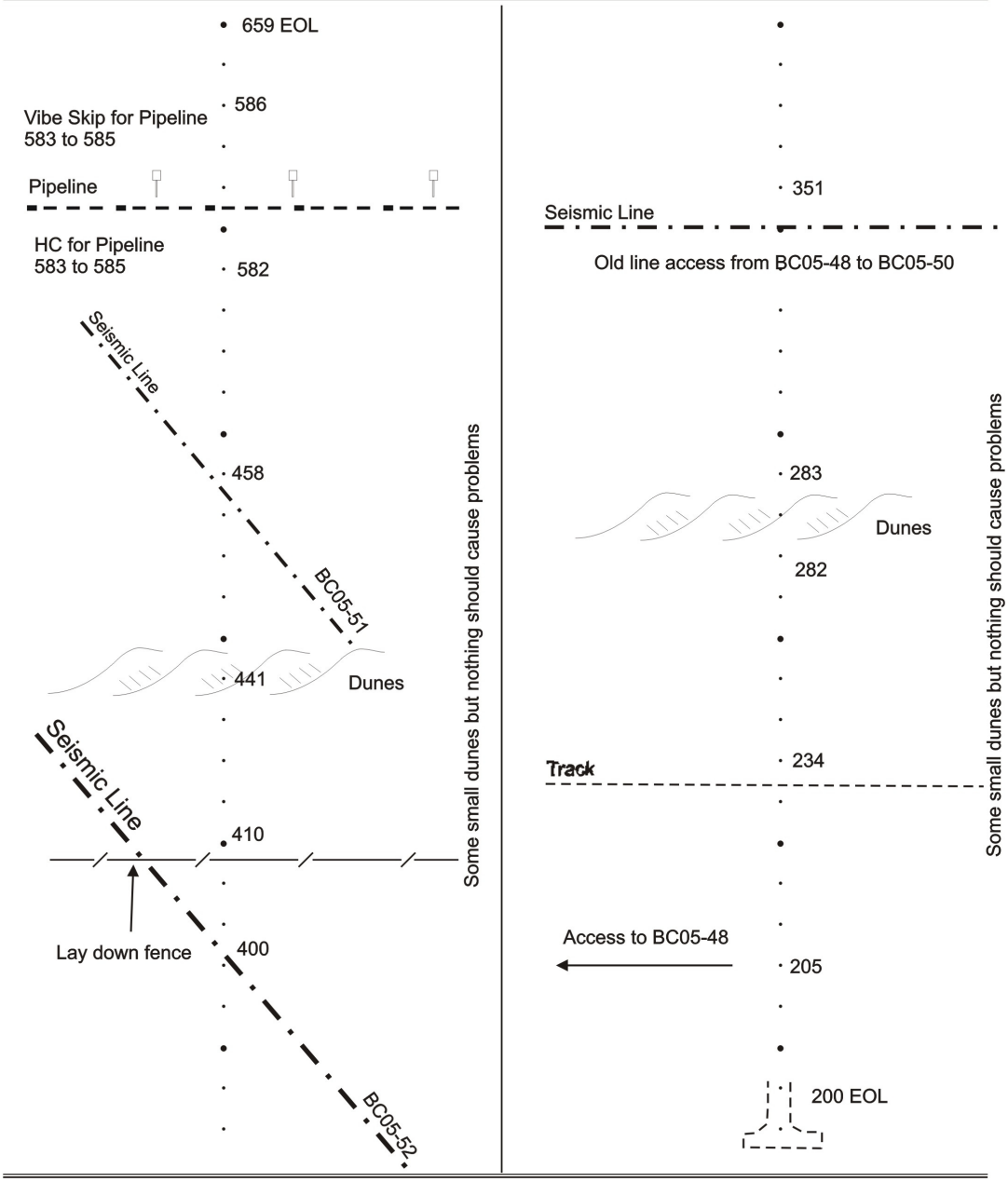
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-49

PROJECT/JOB # 05048 CLIENT Terrex / Beach Pertroleum

PAGE 1 OF # AREA: Tanami STN INTERVAL: 37.5 m SHOT INTERVAL: 37.5 m

FROM STN 200 TO STN 659 SHOOTING DIRECTION: High to Low BEARING: °



Dynamic Satellite Surveys

TRACE DIAGRAM

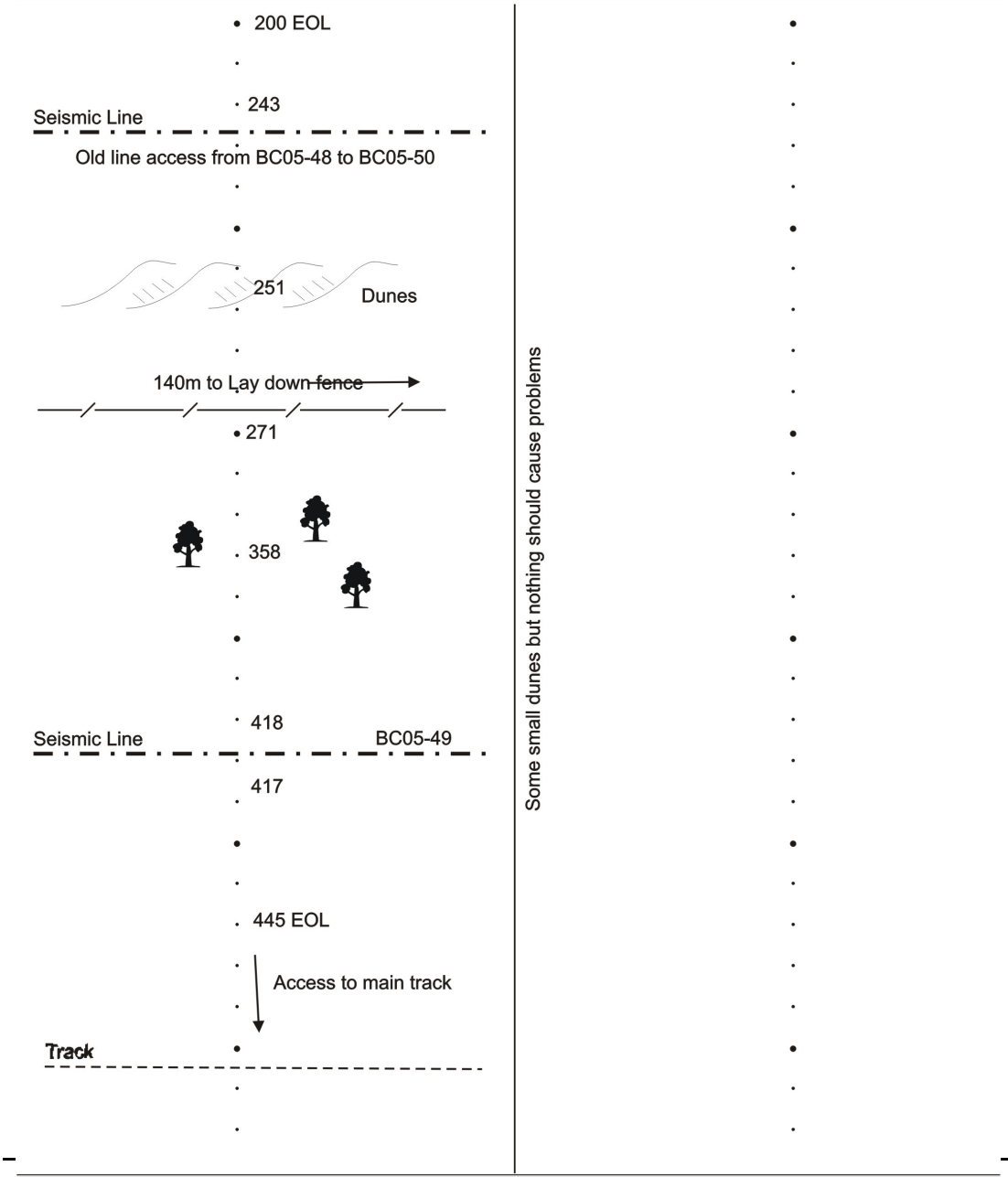
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-50

PROJECT/JOB # 05048 CLIENT Terrex / Beach Pertroleum

PAGE 1 OF 1 AREA: Pel 95 Discus 2D STN INTERVAL: 37.5 m SHOT INTERVAL: 37.5 m

FROM STN 200 TO STN 445 SHOOTING DIRECTION: Low to High BEARING: °



Dynamic Satellite Surveys

TRACE DIAGRAM

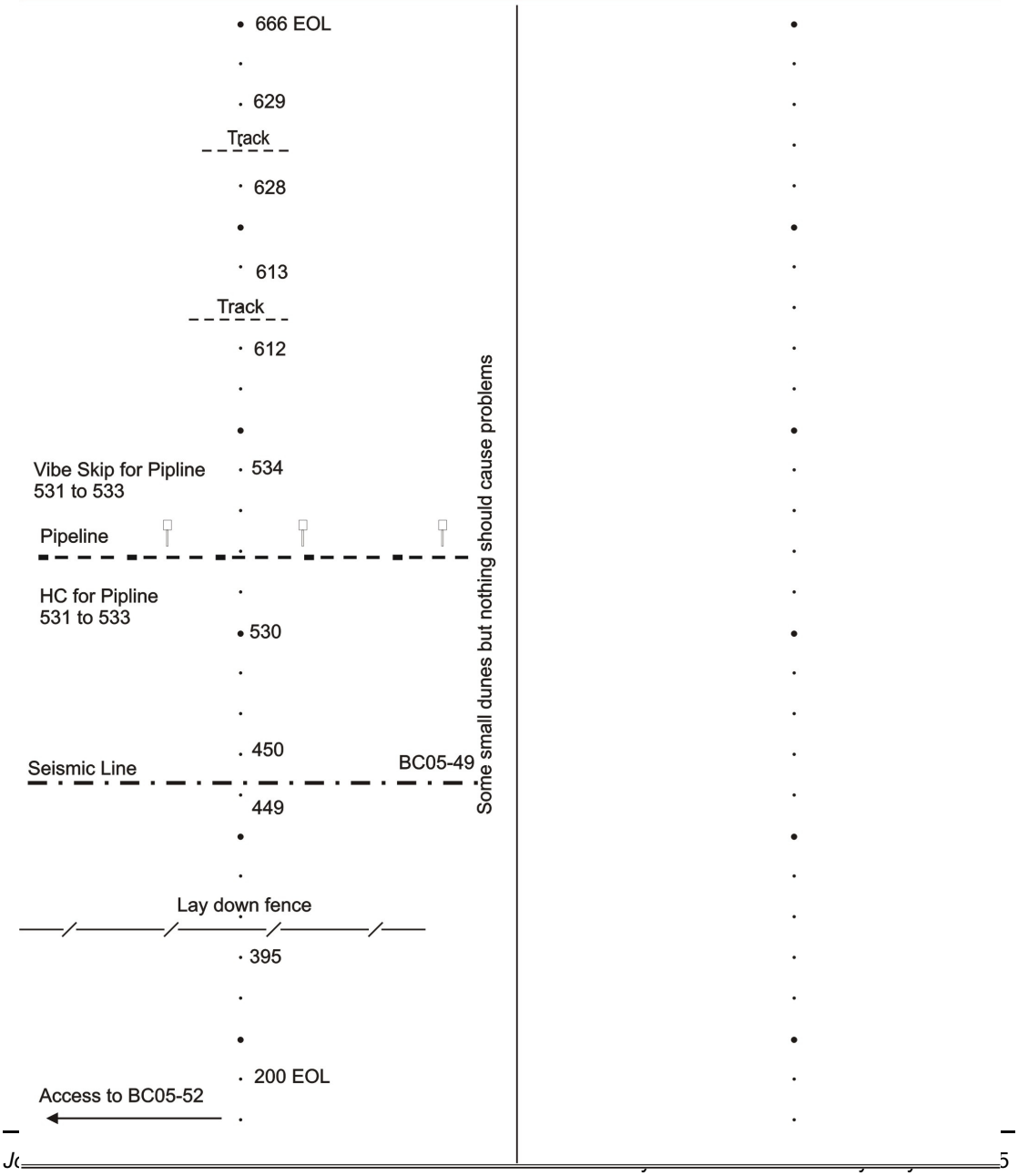
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-51

PROJECT/JOB # 05048 CLIENT Terrex / Beach Pertroleum

PAGE 1 OF 1 AREA: Pel 95 Discus 2D STN INTERVAL: 37.5 m SHOT INTERVAL: 37.5 m

FROM STN 200 TO STN 666 SHOOTING DIRECTION: High to Low BEARING: °



Dynamic Satellite Surveys

TRACE DIAGRAM

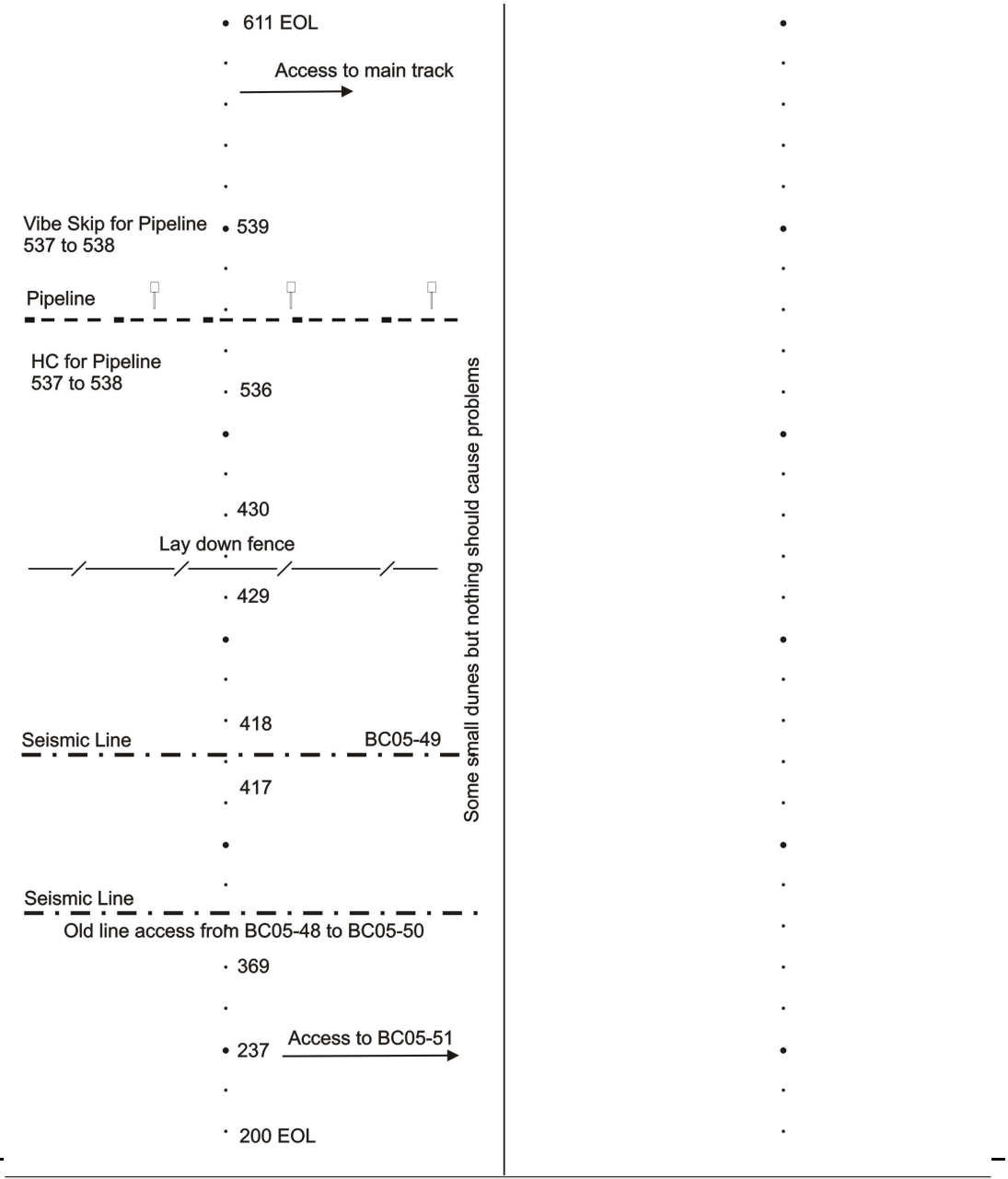
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-52

PROJECT/JOB # 05048 CLIENT Terrex / Beach Pertroleum

PAGE 1 OF 1 AREA: Pel 95 Discus 2D STN INTERVAL: 37.5 m SHOT INTERVAL: 37.5 m

FROM STN 200 TO STN 611 SHOOTING DIRECTION: Low to High BEARING: °



Chronological Summary

Chronological Summary

DATE	OPERATIONS
27th September	Mobilise to site from Mert-Merty via Dullingari. Control network extended by static GPS. Pre-job induction and discussion in the evening.
28th September	Line prep and survey commenced. Grader initially on standby awaiting line clearing. **Chain and Survey: 30.8250km** **Line Clearing: 30.8625km**
29th September	Line prep and survey completed. **Chain and Survey: 35.5500km** **Line Clearing: 35.5125km**
30th September	Grader finalised lines on PEL95. Camp move to PEL107.

Upholes Listing

Upholes Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Number	Line	Station	Easting	Northing	Elev.
DHBC05-397	BC05-48	359+34	476208.7	6837588.4	61.83
DHBC05-398	BC05-48	306+25	474213.0	6837535.5	61.26
DHBC05-399	BC05-48	277+17	473117.3	6837529.1	48.81
DHBC05-400	BC05-48	230+28	471366.9	6837476.5	60.18
DHBC05-401	BC05-49	215+6	472302.0	6836610.2	52.40
DHBC05-402	BC05-49	237+21	473141.8	6836594.9	48.56
DHBC05-403	BC05-49	266+6	474213.6	6836600.9	53.57
DHBC05-404	BC05-49	319+13	476208.2	6836609.3	63.48
DHBC05-405	BC05-49	351+9	477404.9	6836607.7	65.43
DHBC05-406	BC05-49	373	478220.2	6836611.3	67.52
DHBC05-407	BC05-49	399+7	479202.8	6836606.7	68.37
DBHC05-408	BC05-49	425+23	480193.7	6836598.4	67.71
DHBC05-409	BC05-49	457+5	481375.1	6836618.8	69.37
DHBC05-410	BC05-49	502+2	483060.5	6836615.2	71.92
DHBC05-411	BC05-49	524+19	483901.7	6836611.7	73.82
DHBC05-412	BC05-49	536	484333.2	6836608.8	74.20
DHBC05-413	BC05-49	580	485983.0	6836627.8	82.74

Number	Line	Station	Easting	Northing	Elev.
DHBC05-414	BC05-49	602+3	486811.1	6836618.5	78.76
DHBC05-415	BC05-50	396+28	483497.8	6834934.9	70.85
DHBC05-416	BC05-50	352	482086.0	6834028.3	73.08
DHBC05-417	BC05-50	318+3	481029.2	6833319.5	73.87
DHBC05-418	BC05-50	276+18	479718.1	6832475.0	73.62
DHBC05-419	BC05-50	243	478672.4	6831779.8	65.77
DHBC05-420	BC05-50	213	477733.5	6831160.1	60.75
DHBC05-421	BC05-51	211+2	473716.8	6831990.4	62.11
DHBC05-422	BC05-51	320+29	477244.5	6834107.2	65.75
DHBC05-423	BC05-51	397+21	479696.3	6835617.5	66.51
DHBC05-424	BC05-51	417+26	480340.0	6836013.1	70.29
DHBC05-425	BC05-51	495	482813.2	6837525.1	68.94
DHBC05-426	BC05-51	549+29	484581.1	6838571.0	78.10
DHBC05-427	BC05-51	612+3	486568.9	6839798.4	79.87
DHBC05-428	BC05-51	639+20	487464.0	6840308.0	87.14
DHBC05-429	BC05-52	591	484765.9	6840001.8	79.28
DHBC05-430	BC05-52	556+33	483684.5	6839318.1	68.75
DHBC05-431	BC05-52	497	481759.5	6838161.3	71.63
DHBC05-432	BC05-52	443+19	480057.7	6837099.4	68.73
DHBC05-433	BC05-52	355+18	477241.6	6835377.2	67.06
DHBC05-434	BC05-52	260+34	474211.2	6833535.5	60.36
DHBC05-435	BC05-52	206+34	472477.4	6832488.9	64.76

Dynamic
Satellite
Surveys

05049

Final Operations Report
on the

2005 PEL107 Discus 2D Seismic Survey

for

Beach Petroleum NL

and

Terrex Seismic Pty Ltd

October 2005

The Director
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Table of Contents

1

INTRODUCTION

The following report covers the **2005 PEL107 Discus 2D Seismic Survey**, performed by **Dynamic Satellite Surveys Pty Ltd** (DSS) whilst contracted to **Terrex Seismic Pty Ltd** for **Beach Petroleum NL**.

The survey operation was located approximately 50km east of Moomba within the exploration lease PEL 107 near the track running north to Carrickalinga #1 well. Some of the lines crossed the boundary fence between Mulka and Mungaranie stations.

A total of nine 2D seismic lines were surveyed totalling 72.000 kilometres at 37.5m station intervals. All lines were covered in 4 days giving an average of 18.0 kms per day.

The survey operations were carried out between the 1st and the 4th of October 2005.

2

INSTRUMENTATION AND PERSONNEL

2.1 Personnel and Logistics

DSS personnel involved in the survey were:

Name	Qualifications	Task
Ben Allsopp	Bachelor of Surveying, Curtin University of Technology, WA	Survey, Data Processing
Ron Weekes	Bachelor of Applied Science (Surveying and Mapping) W.A. Institute of Technology	Line Pointing, Data Processing, Mapping, Report

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

Survey operations were based at the fly camp established by the line clearing contractors, Terrex Contracting.

2.2 Equipment

Equipment provided by DSS and used on this project:

	Description	Qty
Vehicles	Toyota Landcruiser Trayback - DSS	2
GPS receivers	NovAtel RT2 millennium c/w VHF Telemetry	3
	NovAtel RT20 c/w VHF Telemetry	3
Computers	Dell Inspiron 5150	2
	Fujitsu Tablets	2
	GRiD 386 Field PCs	3
Software	GravNav / GravNet GPS post-processing - Waypoint Consultancy	Ver 7.50
	Nav05 field software - DSS	Ver 1.0
	Nav98 field software - DSS	Ver 5.5
	MIB for Windows - DSS	Ver 6.02
	TransIt 5.0 - DSS	Ver 5.0
	MapInfo Professional	Ver 7.8
Printers	Canon i6100	1
REM	Rapid Elevation Meter	1
Miscellaneous	Kodak Digital camera	1
	Accommodation and office caravans	1
	Dual axle trailer	1
	Necessary standard surveying equipment	
	Sundry office and transport equipment	
	Field and Office Consumables	

3

SURVEY REFERENCE SYSTEMS

3.1 Geodetic Datum

This project was based on the Geocentric Datum of Australia 1994 (GDA94) which is based on the Geodetic Reference System 1980 (GRS80) model defined by the following parameters:

Datum:	GDA94(Geocentric Datum of Australia 1994)
Spheroid:	GRS80
Reference Frame:	ITRF92 (International Terrestrial Reference Frame)
Semi-Major Axis Length:	6 378 137.0
Inverse Flattening:	298.257222101
The Unit of Measure:	International Metre

3.2 Map Projection

Final rectangular coordinates were based on the Map Grid of Australia 1994 (MGA94). Parameters for this projection are as follows:

Projection:	Universal Transverse Mercator (MGA Zone 54)
Latitude of Origin:	0°
Central Meridian (CM):	141° E
Scale Factor at CM:	0.9996
False Easting:	500 000
False Northing:	10 000 000
The Unit of Measure:	International Metre

3.3 Height Datum

All elevations obtained relative to GDA94 have been reduced to the Australian Height Datum (AHD) using the AUSGEOID98 Geoid - Spheroid separation model to determine the geoid-ellipsoid separation (N) for the particular area.

GPS observations are made on the GDA94 datum. The height associated with this datum is an ellipsoidal height (h). The Australian Height Datum (AHD), the height datum associated with MGA94, is 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 = GDA94 - (Geoid / Ellipsoid Separation)

The value for the geoid/spheroid separation is interpolated from a national model called Ausgeoid98.

AUSGEOID98 is the third in a series of national geoid models produced for Australia by the Australian Surveying and Land Information Group (AUSLIG). The geoid-ellipsoid data is prepared for the Australian region from:

- EGM96 Global Geopotential Model;
- 1996 Australian Gravity DataBase, from the Australian Geological Survey Organisation (AGSO);
- AUSLIG / AGSO GEODATA nine-second digital elevation model;
- Satellite altimeter - derived free air gravity anomalies offshore;
- Theories, techniques and software developed by Associate Professor Will Featherstone, Curtin University of Technology[1].

[1] Johnston, G.M., Featherstone, W.E. (1998) AUSGEOID98: A New Gravimetric Model for Australia

4

SURVEY CONTROL

Survey control was based on two marks installed on earlier DSS seismic surveys in the area. These were Stations BAS1 from the 2003 Albus 2D survey for Beach Petroleum and 89-CHJ Stn 284, and an old PM re-coordinated by DSS during the 2002 Nautilus 2D survey for Beach petroleum. These marks, surveyed by DSS, are linked to original survey marks coordinated by AUSPOS - a method of data reduction by Geoscience Australia, a federal government geodetic service.

Two new control points, BM01 and DI02, were surveyed by static GPS methods from these two original control points. Another temporary base station, TMP01, was surveyed from the new point DI02 using RT2 methods.

Check observations were made from each of the base stations during the real-time survey to several old PMs in the area and the results of these ties can also be seen in **Appendix A - Survey Control, Miscloses and Ties.**

5

MONUMENTATION

All lines were pegged at a 37.5 metre station interval.

The now accepted standard pegging convention was used for all lines which was a peg at every fifth station and coloured pin flags at all other points. A pink pin flag denoted an even numbered point and blue for odd. The pegs were fully marked with line and station number.

There were two Environmental Monitoring Points placed and coordinated on the job and these, as usual, doubled as Permanent Markers. The star pickets had two tags fixed to them with the relevant information stamped into each one. The points were at BC05-56 Stn 433 and at BC05-59 Stn 429+24. This second point is not at an even station to take advantage of the crest of a dune to maximise line visibility.

The permanent markers are listed at **Appendix C - Permanent Markers**.

A total of 63 upholes were marked during the survey. These were marked at the planned coordinates unless the location was unsuitable due to terrain or other obstructions such as pipelines or wells. The convention for marking these upholes was to have a fully numbered blue peg, with yellow flagging attached, placed on the opposite side of the line to the other seismic pegs and pin flags.

6

METHOD OF SURVEY

6.1 Line Ranging

All lines were cleared by Terrex Contracting earthmoving contractors. The equipment supplied to perform the clearing were two Komatsu bulldozers and a John Deere Grader.

The operators were experienced in preparation of seismic lines with regards to environmental issues, and did not encounter any difficulties with the GPS guidance system.

DSS GPS receiver units were mounted in the dozer cabins to supply real time positions when cutting the seismic lines. The set out parameters of all the lines were loaded on to the GrID computers of each machine and these were used in conjunction with the GPS to prepare the lines.

The operators had few problems using the system and little time was lost due to GPS equipment down time during the seismic program.

There were two previously identified cultural heritage sites to be avoided on the lines and the details were included in the line preparation parameters loaded on the GrID computers in the dozers. No sites were disturbed and no previously unlisted sites were discovered during line prep.

6.2 Surveying and Chaining

The lines were surveyed using DSS' RT2 real-time kinematic surveying technique.

RT2 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 while other receivers were used as remote rovers.

To obtain real-time capabilities, VHF telemetry is required between the base and the remote GPS receiver. Numerous remote receivers can be used at any given time with any base station.

NovAtel Millennium real-time kinematic methods can achieve accuracies of better than +/-0.02m in position and elevation, depending on base line length. The expected precision for locating pegged positions is generally better than 0.1 metres.

Initialisation of the RT2 rover GPS usually takes as little as 1-2 minutes, although this is greatly dependant on satellite geometry, availability and base line length.

DSS's latest software package Nav05 is a complete field seismic surveying program. This program enables each field surveyor to have a complete picture of the prospect in relation to programmed lines, previous days recordings, elevation profiling, quality control of data, proposed location of upholes and other information useful for field operations.

All lines were chained at 37.5 metre station intervals. A numbered wooden peg was placed at every fifth station and coloured pin flags at the other stations. Pink pin flags were used to denote an even numbered station and blue pin flags for the odd stations.

There were 63 proposed upholes surveyed and marked during the survey. The points were marked at the location described unless the point was unsuitable for an uphole due to terrain or an obstruction. The proposed location coordinates for the upholes were supplied by the client.

6.3 GPS Processing and Quality Control

When using RT2, all data is recorded internally in the screen mounted Fujitsu tablet computers and downloaded to the office computer each evening.

For RT2 real-time kinematic surveying the quality of the satellite data is monitored by continual examination of the various on-screen quality control statistics produced by the software. These checks on data integrity are in the form of standard deviation (or sigma) values for Easting, Northing and Height and are generally better than 0.1 metre for position and 0.05m for elevation.

Any recording of positions when the standard deviation values are in excess of 0.1 m was highlighted to the surveyor at the time of recording, and the GPS may be re-initialised until a more accurate solution is calculated.

Numerous checks on pre-recorded marks were observed during each days survey. These observations confirm the integrity of the GPS base receiver and the placed markers. A file listing all the checked points is generated on the office computer at the time of post processing.

Line data was post processed in the office each evening using DSS's "MIB" seismic processing software version 6.02. Any position which fell outside the required tolerances was flagged for further investigation and re-recording if necessary.

The coordinates are checked by determining point to point direction and distance. Any pair of points that exceed the acceptable limits are flagged to allow easy identification and checking. Profile plots are examined to identify any elevation anomalies.

The recorded point data is also plotted over the design location in Mapinfo. This gives a further visual check of absolute location of the newly surveyed points.

7

DATA PRESENTATION

All line files were checked and finalised before the survey crew demobilised from the prospect.

All final data was in UTM grid coordinate format on the MGA94 datum on the GDA94 reference spheroid. All elevations were on the Australian Height Datum (AHD71).

Files produced were:

BC05-XX.uka	Line data in UKOOA format.
BC05-XX.seg	Line data in SEGP1 format.
EMP-PM.txt	EMP coordinates in txt file.
intersec.crd	All new line intersections in .crd format.
upholes.txt	All surveyed proposed upholes.
PEL107.jpg	Digital images of the prospect.
PEL107 Shooting Order.jpg	
PEL107 East.jpg	
PEL107 West.jpg	
PEL107 East Upholes.jpg	
PEL107 West Upholes.jpg	

All files are backed up on digital disks in the Yeppoon office for future reference.
No hard copy data was provided.

8

SAFETY

DSS personnel are aware of safety conditions concerning all exploration seismic surveys. The DSS “Quality Policy Statement” and “Health, Safety and Environment Policy” were adhered to at all times.

Each vehicle was fitted with a UHF radio, shovel, fire extinguisher, first-aid kit, vehicle recovery equipment, and weekly vehicle maintenance check lists.

UHF radio contact was always available between surveyors and with the line clearing contractors. Regular contact was made throughout each day, which helped ensure trouble-free operations. It was standard procedure for personnel to contact others before leaving the field.

Daily toolbox meetings were a venue for any safety concerns which personnel encountered during the previous day and ensured everyone was informed about planned lines and progress.

9

OPERATIONAL ASPECTS

The total line distance on this job was 72.000km and the terrain was rolling sand dunes.

The work was completed in four line clearing and pegging days. The daily average was significantly lower than that achieved on PEL 95 for two main reasons. There was a fence and a surface pipeline to cross in one area and the lines were in two distinct areas that required a float to transport the dozers between them.

The fence required six separate drop gates to be installed. The pipeline had to have a crossing constructed at a convenient location so all vehicles could cross with a minimum detour. The crossing was constructed on line BC05-54 after consultation and inspection by Santos field personnel from Tantanna satellite.

Following standard practice by DSS working in the Cooper Basin, now several Mapinfo plots are produced of the work area to assist the seismic main crew and the drilling contractors in doing the work required.

Camp was established by Terrex Contracting at a previously cleared camp site on the north side of the main road between Spencer West and Tantanna. The driving times to access the eastern lines were short but the western lines were approximately 20km away.

There were no delays to the survey as a result of crossing the pipeline and Santos personnel at Tantanna were helpful.

10

CONCLUSIONS AND RECOMMENDATIONS

The project generally ran smoothly for line clearing and survey. It is believed this was due in large part to the people involved being experienced at their relevant tasks.

Again, good liaison between DSS, Terrex Seismic and Bruce Beer for the client, ensured contact with Santos was timely and effective for crossing the pipeline. This meant they were aware of the intention to undertake this seismic survey and their representative was met on-site prior to the commencement of the job. This enabled all parties to negotiate the obstacle efficiently.

The GPS equipment functioned well with no down time for line clearing or survey.

There were no safety incidents on the project.

Signed,

Ron Weekes

Senior Surveyor

11

APPENDICES

Survey Control, Miscloses and Ties

Survey Control, Miscloses and Ties

All values are MGA 94 (Zone 54), AHD71

Control Stations Used

Station	Easting	Northing	Height	Comments
89-CHJ Stn 284	366793.82	6883151.11	32.51	2002 Nautilus 2D
BAS1	375055.19	6885286.61	34.39	2003 Albus 2D
BM01	379763.84	6889252.92	36.87	New
DI02	366272.84	6891363.61	22.51	New

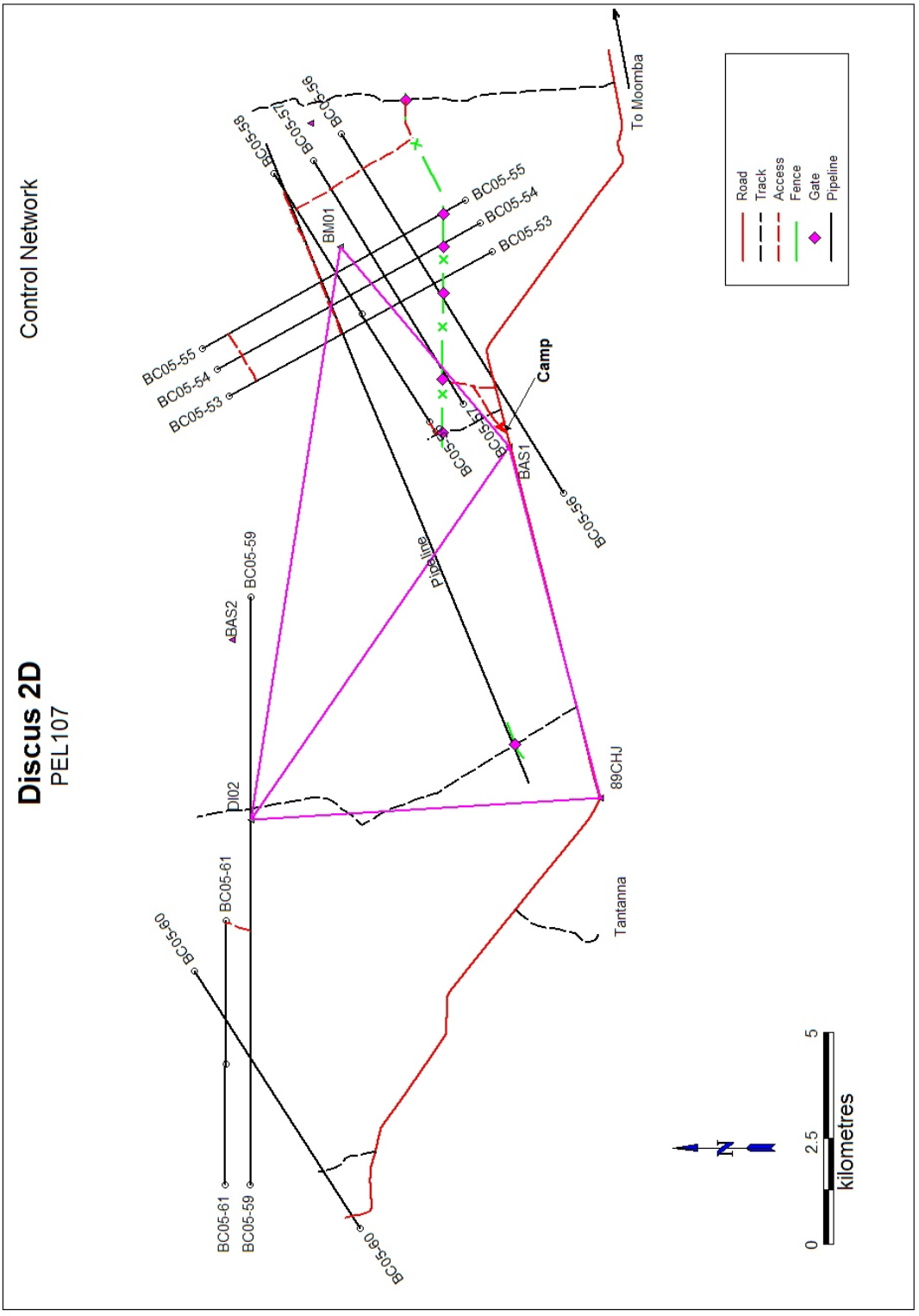
Survey Control, Miscloses and Ties

Coordinates are MGA94 (Zone 54) and AHD71

Checks to old/existing PMs

Line	Easting	Northing	Elev	Stn	Day
90-CRP	383183.6	6888272.5	22.61	250	274RW1
90-CRP	383179.6	6888276.1	23.50		
	4.0	-3.5	-0.89		
90-CRP	383050.9	6890142.6	25.11	200	274RW1
90-CRP	383047.6	6890146.1	25.91		
	3.3	-3.5	-0.80		
BC03-24	382674.1	6889951.9	41.38	596	274RW1
BC03-24	382674.2	6889951.8	40.85		
	-0.1	0.1	0.53		
95-FQE	381742.0	6889445.7	27.08	200	274RW1
95-FQE	381743.6	6889447.1	27.22		
	-1.6	-1.4	-0.14		
90-CRQ	379251.3	6887823.8	23.93	200	275BA1
	379247.6	6887827.1	24.92		
	3.8	-3.3	-1.00		
95-FQG	378582.5	6887588.8	21.85	200	275RW1
	378584.6	6887590.1	22.03		
	-2.1	-1.3	-0.18		

Network Diagram



Permanent Markers

Permanent Marker Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Station	Easting	Northing	Height	Comments
BC05-56 Stn 433	381386.33	6888615.88	25.14	EMP02/PM2
BC05-59 Stn 429+24	366272.84	6891363.61	22.51	EMP03/PM3

Line Length Summary

Line Length Summary

2005 PEL107 Discus 2D Seismic Survey

Station Interval = 37.5 m

Line	SOL Station	EOL Station	Line Km's
BC05-53	200	388	7.0500
BC05-54	200	389	7.0875
BC05-55	200	389	7.0875
BC05-56	200	465	9.9375
BC05-57	200	379	6.7125
BC05-58	200	384	6.9000
BC05-59	200	569	13.8375
BC05-60	200	391	7.1625
BC05-61	200	366	6.2250
		TOTAL =	**72.0000**

Line Intersection Listing

Line Intersection Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Line / Station	X Line / Station	Easting	Northing	Height
BC05-53/346+23	BC05-56/354+23	378894.77	6887054.09	26.98
BC05-53/322+25	BC05-57/275+17	378465.37	6887842.99	21.87
BC05-53/297+29	BC05-58/275+10	378018.61	6888662.10	28.86
BC05-54/344+10	BC05-56/373+08	379489.02	6887420.91	34.60
BC05-54/320+27	BC05-57/294+05	379069.18	6888198.43	25.31
BC05-54/295+21	BC05-58/293+25	378607.76	6889020.28	27.56
BC05-55/345+06	BC05-56/390+22	380044.25	6887760.66	30.93
BC05-55/321+05	BC05-57/311+06	379603.47	6888547.67	39.80
BC05-55/296+03	BC05-58/310+31	379148.69	6889368.73	29.54
BC05-59/280+15	BC05-60/327+33	360676.31	6891384.73	20.04
BC05-61/304+06	BC05-60/356+20	361581.84	6891963.23	18.45

Mud Maps

Dynamic Satellite Surveys

TRACE DIAGRAM

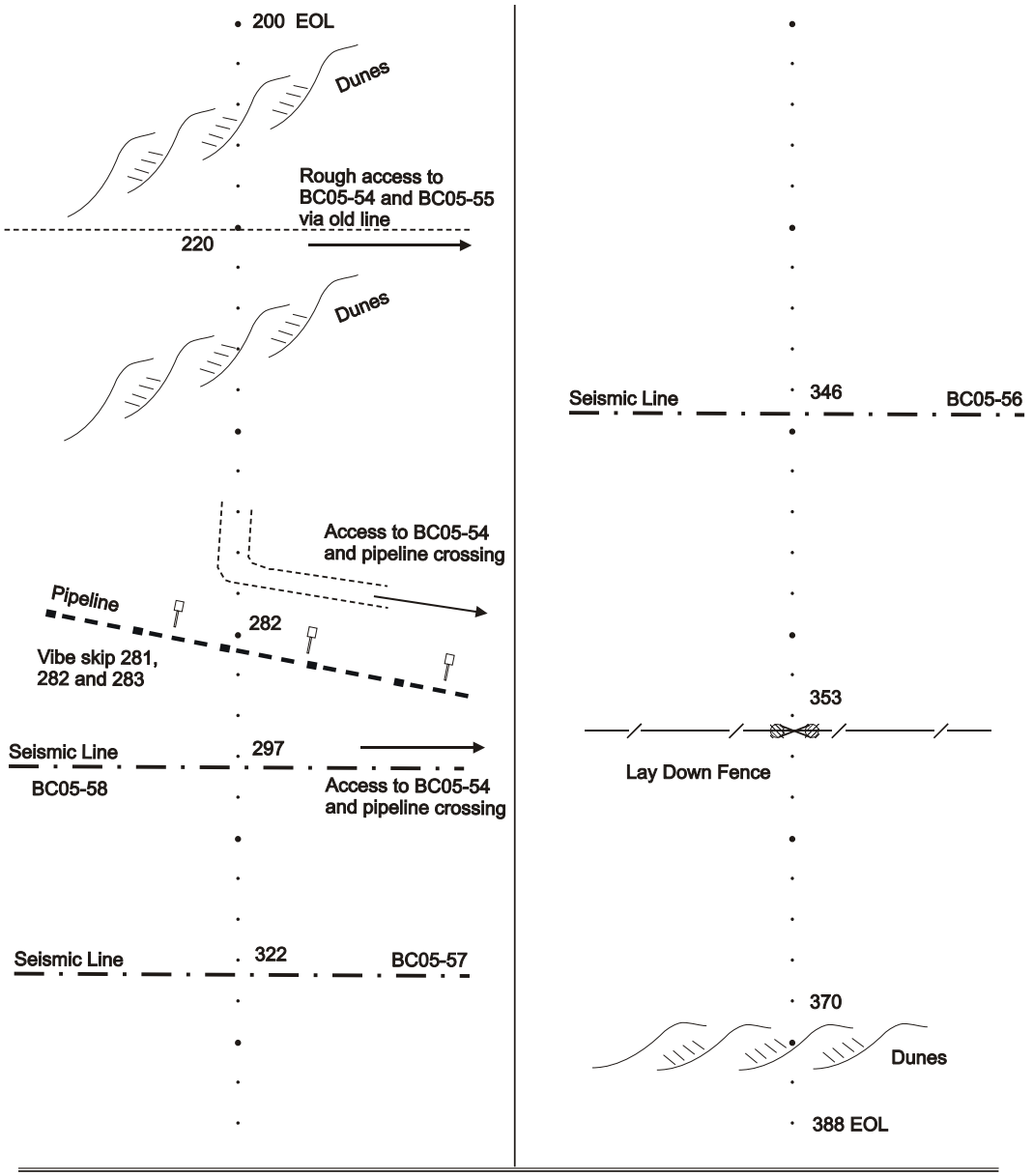
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-53

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

FROM STN 200 TO STN 388 SHOOTING DIRECTION: Low to High BEARING: ____ °



Dynamic Satellite Surveys

TRACE DIAGRAM

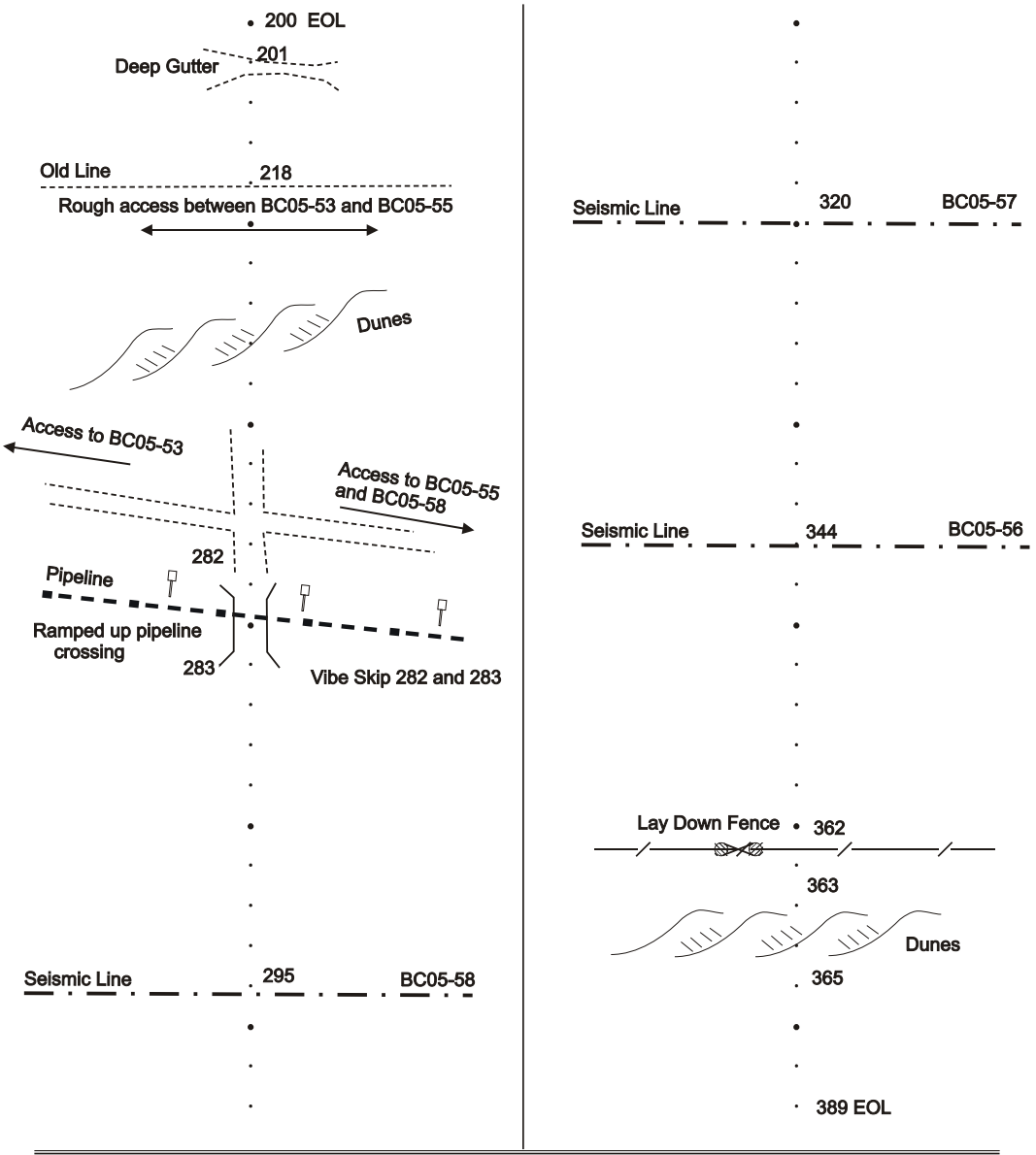
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-54

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

FROM STN 200 TO STN 389 SHOOTING DIRECTION: High to Low BEARING: ____ °



Dynamic Satellite Surveys

TRACE DIAGRAM

DSS-FF-07
REV 8.0
August 2004

LINE: BC05-55

PROJECT/JOB # 05049 CLIENT Terrex

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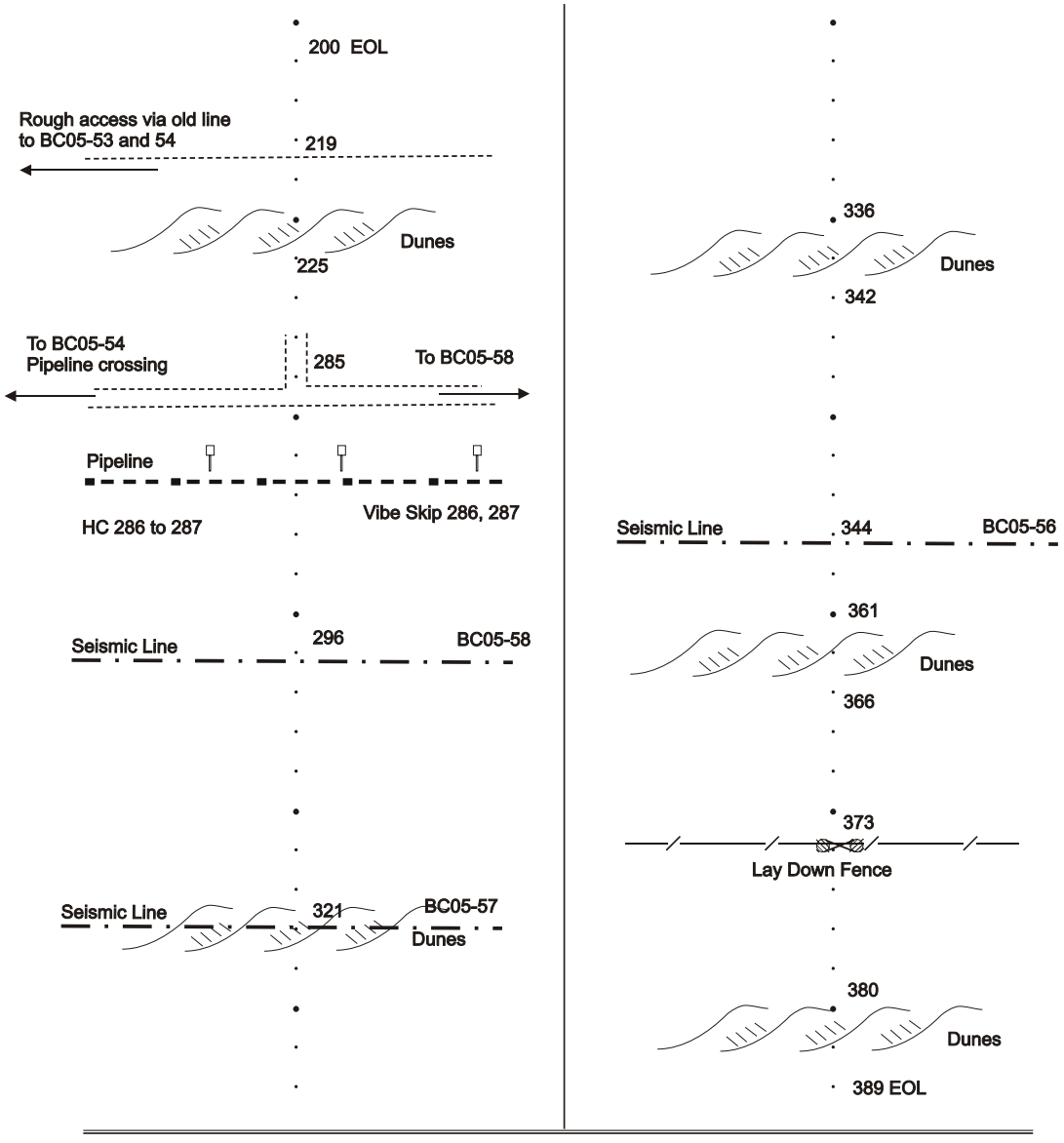


Dynamic Satellite Surveys

TRACE DIAGRAM

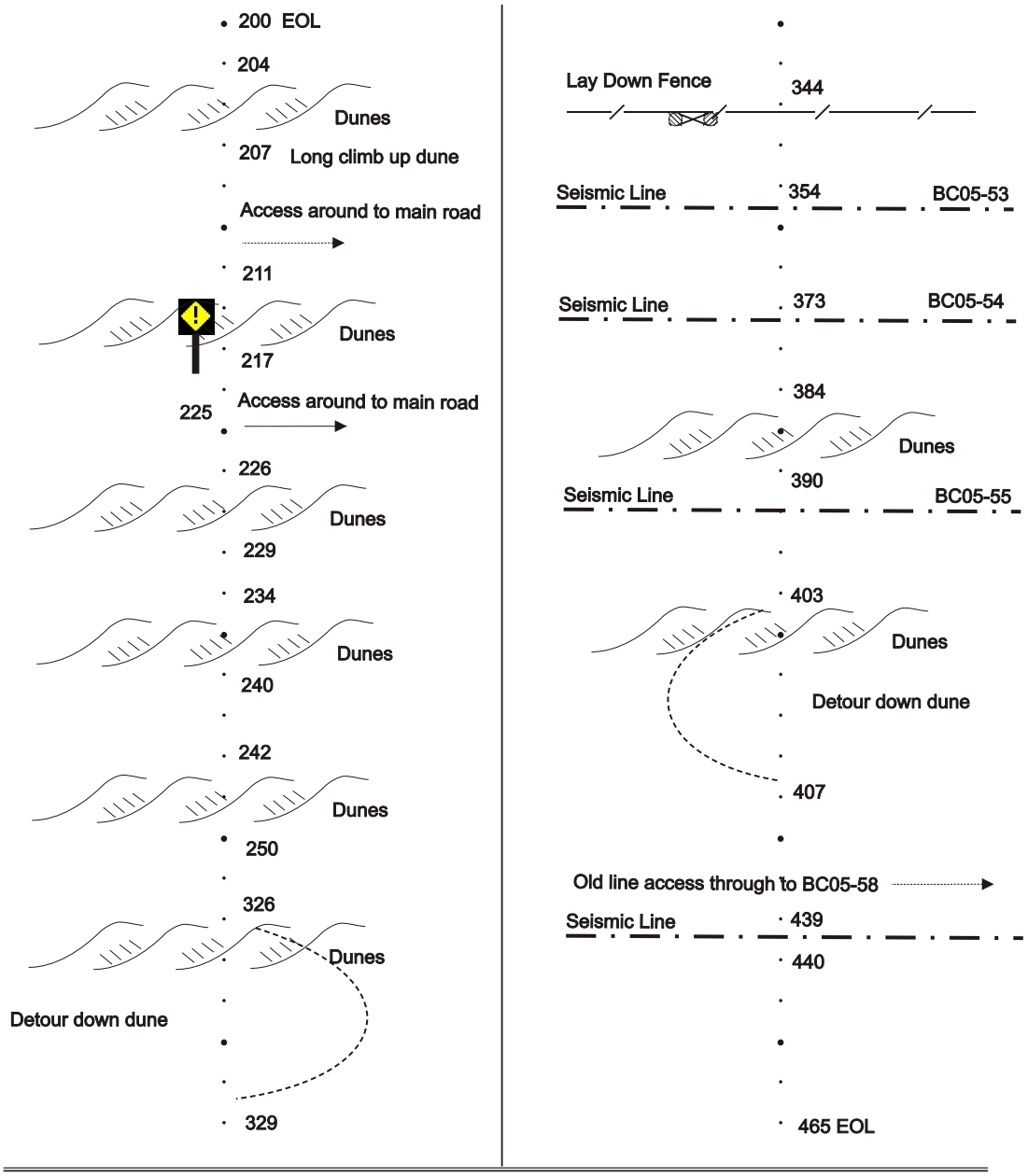
LINE: BC05-56

DSS-FF-07
REV 8.0
August 2004

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

FROM STN 200 TO STN 465 SHOOTING DIRECTION: Low to High BEARING: ____ °



Dynamic Satellite Surveys

TRACE DIAGRAM

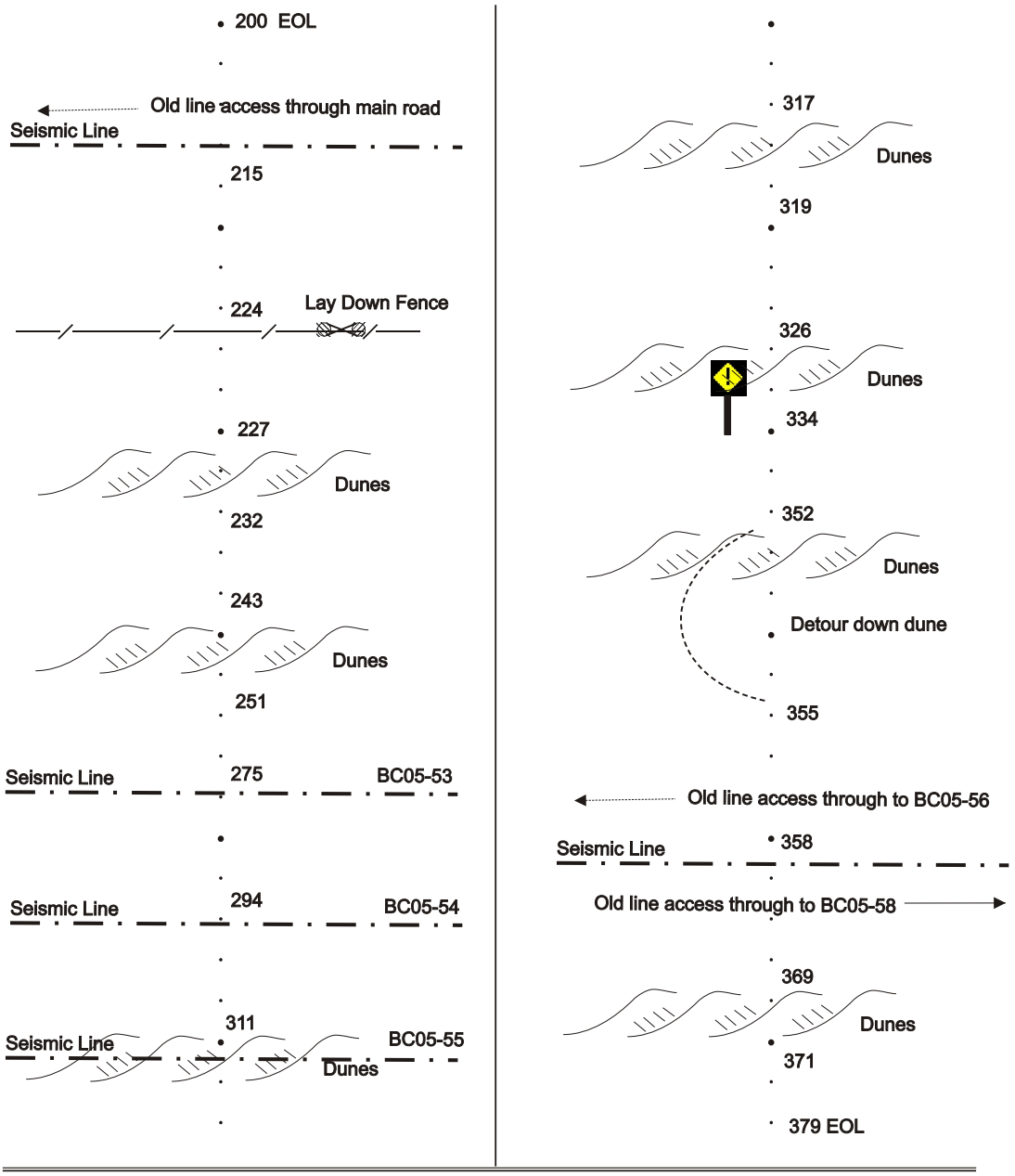
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-57

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

FROM STN 200 TO STN 379 SHOOTING DIRECTION: High to Low BEARING: ____ °



Dynamic Satellite Surveys

TRACE DIAGRAM

DSS-FF-07
REV 8.0
August 2004

LINE: BC05-58

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

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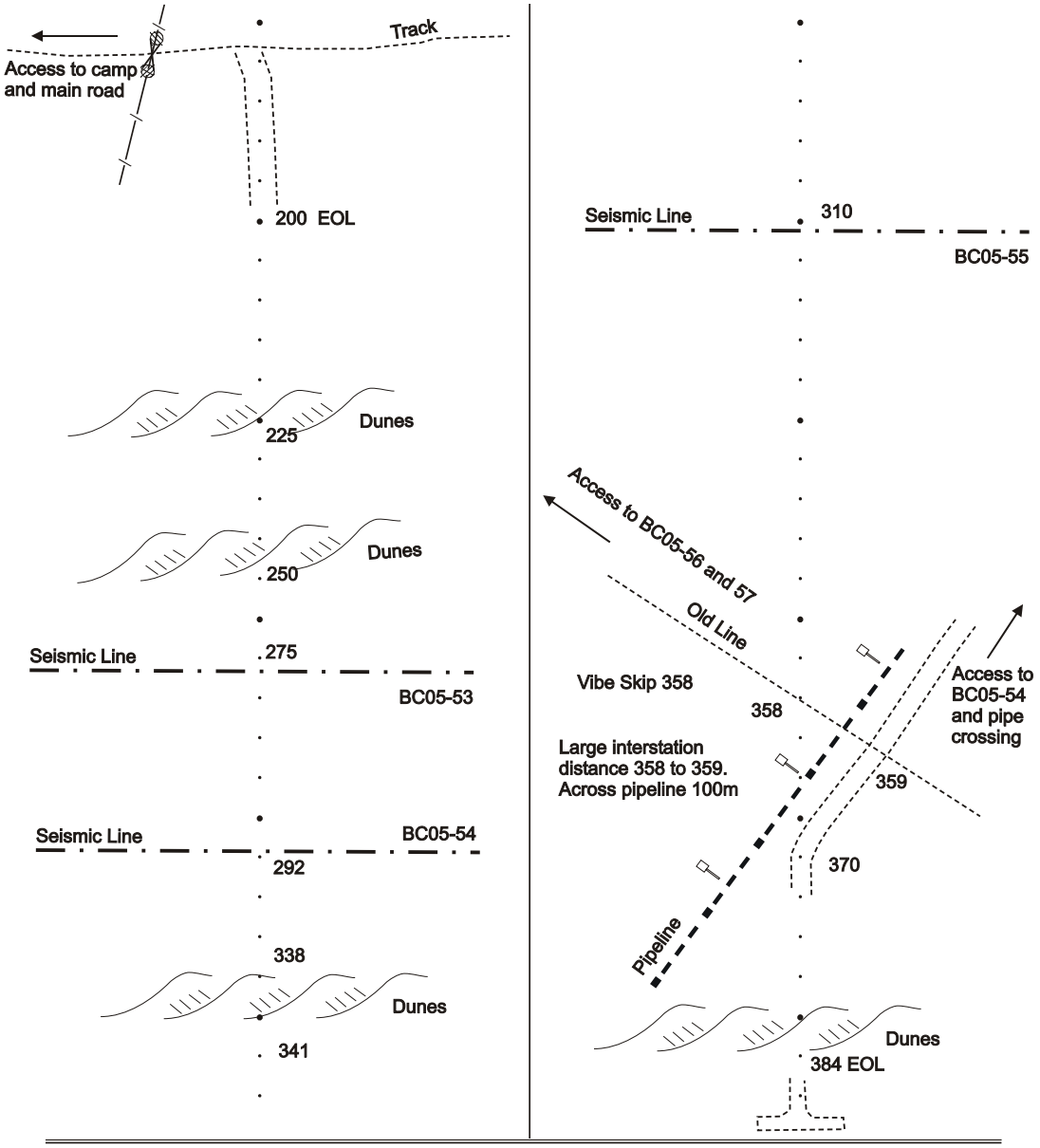


Dynamic Satellite Surveys

TRACE DIAGRAM

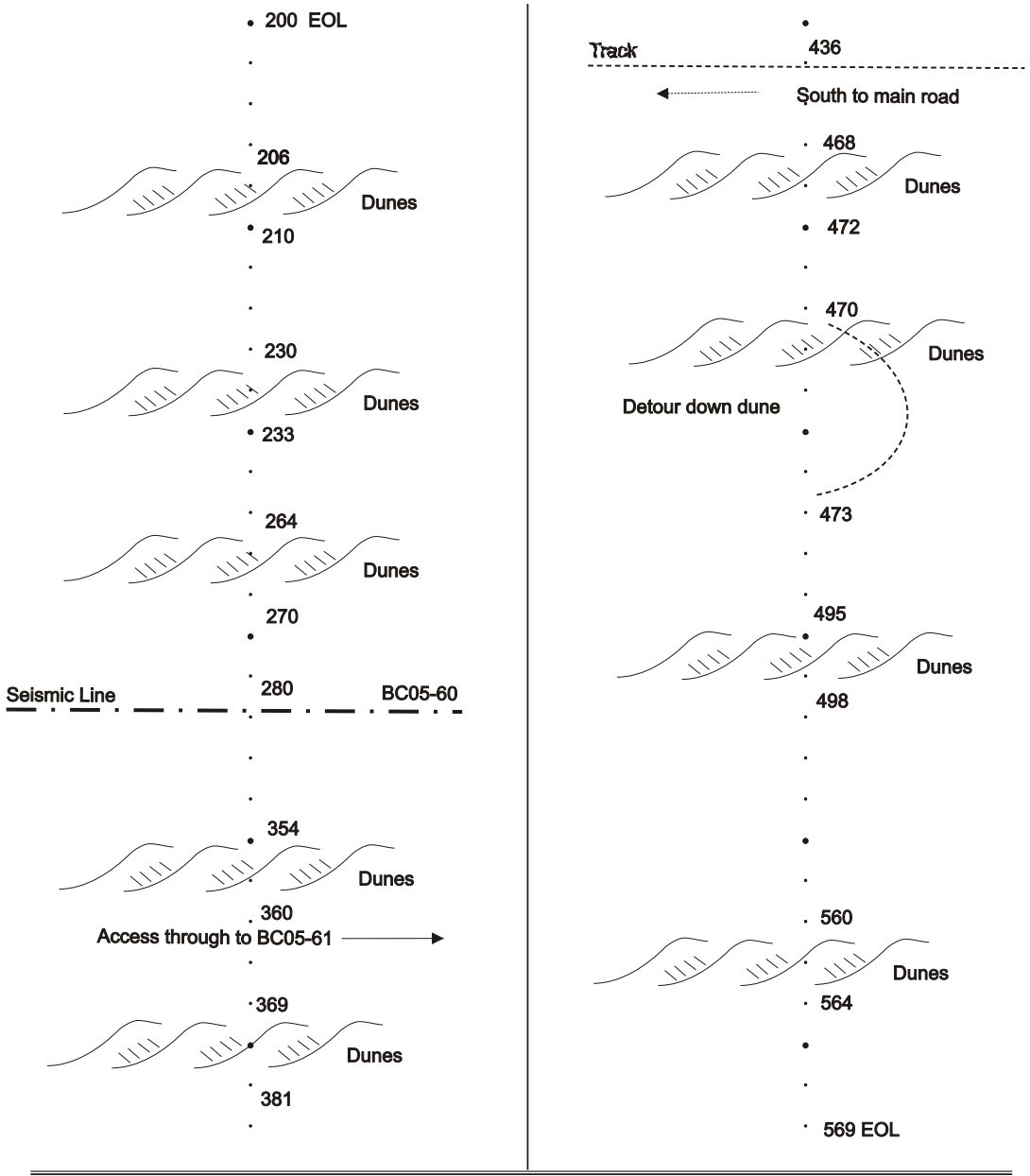
DSS-FF-07
REV 8.0
August 2004

LINE: BC05-59

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

FROM STN 200 TO STN 569 SHOOTING DIRECTION: High to Low BEARING: ____ °



Dynamic Satellite Surveys

TRACE DIAGRAM

DSS-FF-07
REV 8.0
August 2004

LINE: BC05-60

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

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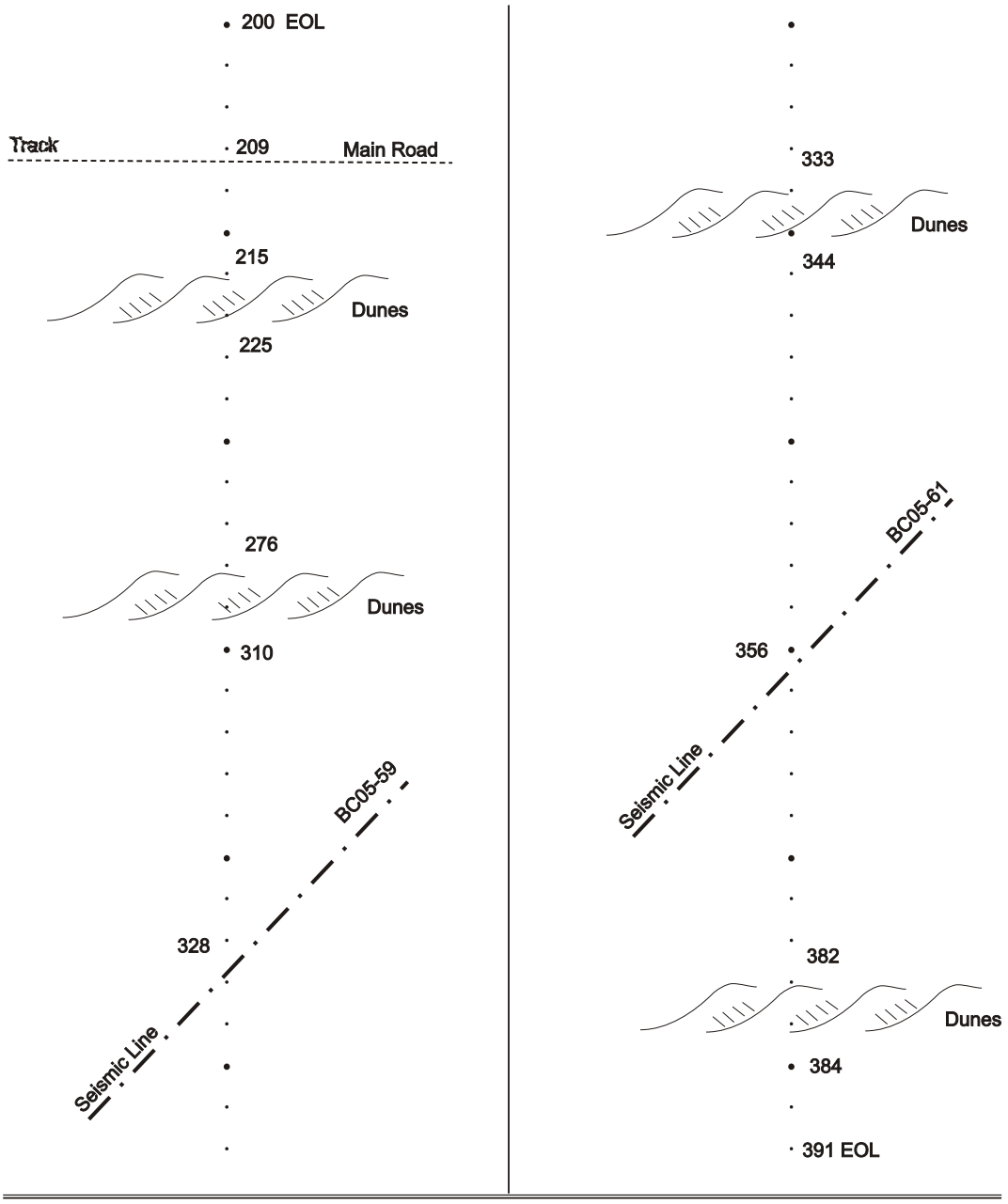

Dynamic Satellite Surveys

TRACE DIAGRAM

LINE: BC05-61

DSS-FF-07
REV 8.0
August 2004

PROJECT/JOB # 05049 CLIENT Terrex

PAGE 1 OF 1 AREA: PEL 107 STN INTERVAL: 37.5 m SHOT INTERVAL: ____ m

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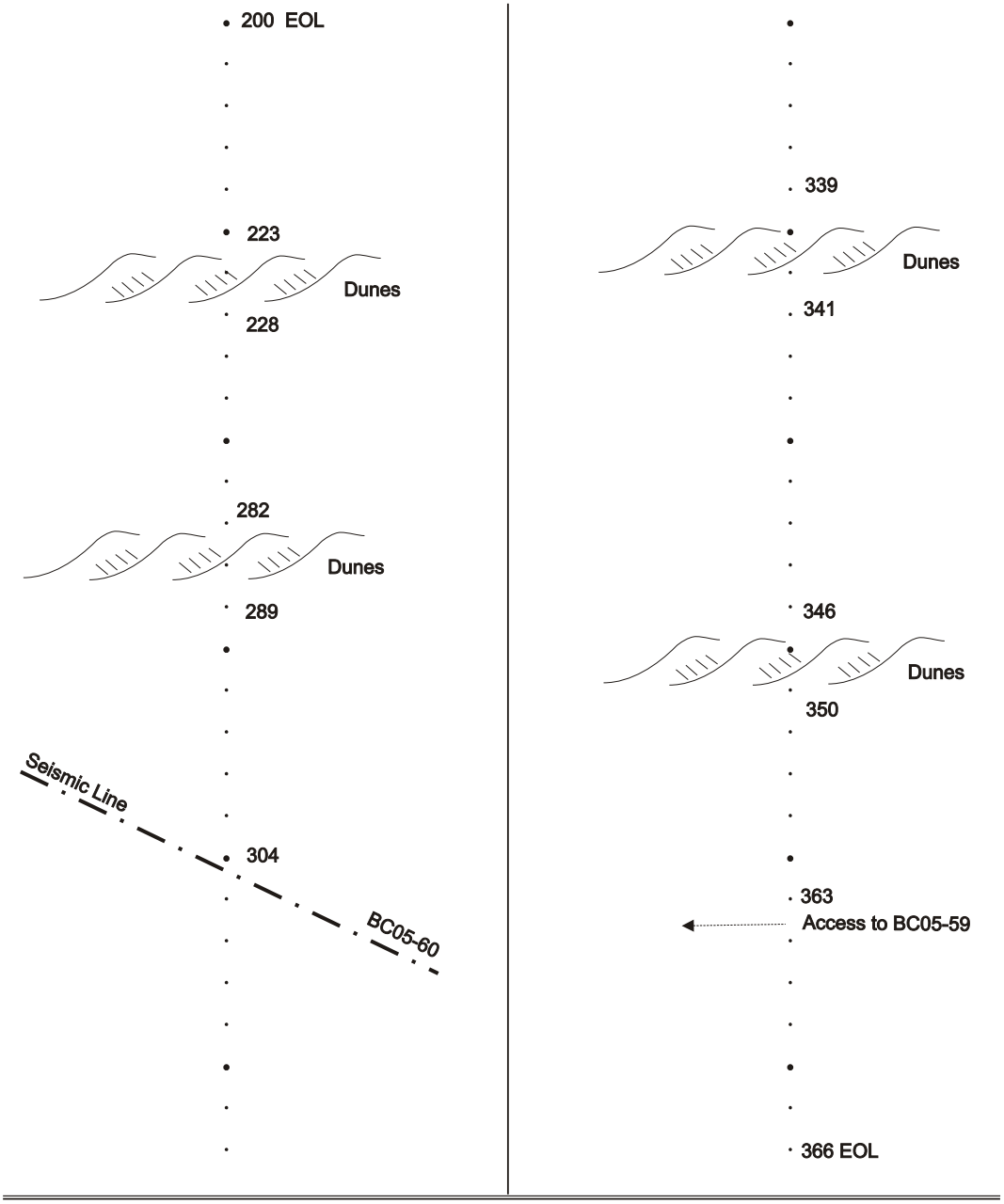

Photographs

Static Control Old PM 89-CHJ Stn 284

Example of Line Weaving by Dozers

Start of Pipeline Crossing Construction

Pipeline Crossing During Construction

Completed Pipeline Crossing

Chronological Summary

Chronological Summary

DATE	OPERATIONS
30th September	Mobilise to site from Bollards Lagoon via Moomba. Pre-job induction and discussion in the evening.
1st October	Line prep and survey commenced. Survey using base station from previous survey. Ramp constructed over Tantanna - Gidgealpa oil pipeline after approval and work permit obtained from Santos. **Chain and Survey: 22.0125km** **Line Clearing: 23.4000km**
2nd October	Line prep and survey continues. **Chain and Survey: 21.4125km** **Line Clearing: 20.5000km**
3rd October	Line prep and survey continues. Both dozers floated to western section of prospect. **Chain and Survey: 17.6250km** **Line Clearing: 20.7375km**
4th October	Line prep and survey for PEL107 completed. **Chain and Survey: 10.9500km** **Line Clearing: 7.7625km**

Upholes Listing

Upholes Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Uphole #	Line	Station	Easting	Northing	Elev.
DHBC05-436	BC05-53	219+29	376601.1	6891221.1	31.85
DHBC05-437	BC05-53	238+4	376938.1	6890621.6	44.21
DHBC05-438	BC05-53	265+1	377425.6	6889737.1	38.06
DHBC05-439	BC05-53	284+30	377787.9	6889090.5	29.89
DHBC05-440	BC05-53	297+29	378018.6	6888661.7	28.93
DHBC05-441	BC05-53	309+19	378237.6	6888281.0	23.50
DHBC05-442	BC05-53	322+19	378456.2	6887844.2	21.85
DHBC05-443	BC05-53	346+24	378891.3	6887051.2	27.68
DHBC05-444	BC05-53	356+31	379094.8	6886727.0	21.82
DHBC05-445	BC05-53	376+31	379459.3	6886071.8	28.22
DHBC05-446	BC05-54	344+9	379487.8	6887421.0	34.73
DHBC05-447	BC05-54	331+13	379253.5	6887844.0	23.99
DHBC05-448	BC05-54	320+23	379066.2	6888201.0	25.40
DHBC05-449	BC05-54	307+5	378820.7	6888642.8	29.32
DHBC05-450	BC05-58	293+29	378616.2	6889015.8	27.73
DHBC05-451	BC05-54	262+27	378004.4	6890094.0	31.86
DHBC05-452	BC05-54	217+34	377192.0	6891565.6	23.72
DHBC05-453	BC05-55	218+34	377719.7	6891884.6	25.00
DHBC05-454	BC05-55	263+20	378541.8	6890427.9	27.27
DHBC05-455	BC05-55	296+8	379152.7	6889364.6	29.61
DHBC05-456	BC05-55	307+11	379351.8	6889000.6	29.22
DHBC05-457	BC05-57	311	379599.0	6888543.7	40.28
DHBC05-458	BC05-55	345+13	380042.9	6887752.1	31.03
DHBC05-459	BC05-55	375+18	380586.8	6886760.7	28.51
DHBC05-460	BC05-56	448+30	381902.2	6888907.0	26.96
DHBC05-461	BC05-56	439+19	381602.1	6888730.7	23.92
DHBC05-462	BC05-56	408+17	380606.4	6888125.7	24.74
DHBC05-463	BC05-56	335+34	378300.9	6886682.4	19.78
DHBC05-464	BC05-56	298+1	377090.2	6885938.6	36.74
DHBC05-465	BC05-56	265+19	376052.9	6885297.2	23.94
DHBC05-466	BC05-56	244+15	375374.8	6884889.8	27.33
DHBC05-467	BC05-56	224+24	374743.1	6884501.8	23.78

Upholes Listing

Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71

Uphole #	Line	Station	Easting	Northing	Elev.
DHBC05-468	BC05-57	218+26	376661.8	6886713.2	20.38
DHBC05-469	BC05-57	251+18	377706.7	6887361.4	24.24
DHBC05-470	BC05-57	328+12	380149.3	6888890.4	33.19
DHBC05-471	BC05-57	358+25	381127.1	6889471.2	24.68
DHBC05-472	BC05-58	357+24	380629.2	6890313.5	34.07
DHBC05-473	BC05-58	327+14	379681.2	6889689.1	37.66
DHBC05-474	BC05-58	251+1	377249.8	6888177.6	47.70
DHBC05-475	BC05-58	218+5	376207.3	6887517.9	25.87
DHBC05-476	BC05-59	555+20	370994.2	6891355.5	25.97
DHBC05-477	BC05-59	523+32	369814.5	6891345.2	23.92
DHBC05-478	BC05-59	505+83	69107.56	891349.32	0.28
DHBC05-479	BC05-59	479+34	368158.6	6891364.0	22.71
DHBC05-480	BC05-59	455+32	367256.1	6891359.1	43.34
DHBC05-481	BC05-59	422+32	366018.5	6891359.1	19.78
DHBC05-482	BC05-59	391+27	364851.7	6891359.9	26.83
DHBC05-483	BC05-59	360+21	363683.2	6891356.6	20.57
DHBC05-484	BC05-59	344	363062.2	6891370.4	20.10
DHBC05-485	BC05-59	303+8	361532.9	6891372.6	18.67
DHBC05-486	BC05-60	328	360679.7	6891388.0	20.22
DHBC05-487	BC05-59	254	359687.2	6891382.6	19.12
DHBC05-488	BC05-59	215+9	358233.6	6891384.3	38.51
DHBC05-489	BC05-60	222+16	357356.8	6889234.7	29.67
DHBC05-490	BC05-60	272+28	358947.2	6890251.3	40.64
DHBC05-491	BC05-60	310+30	360141.9	6891030.3	29.12
DHBC05-492	BC05-60	356+8	361571.2	6891957.5	18.31
DHBC05-493	BC05-60	387+21	362572.4	6892573.0	21.11
DHBC05-494	BC05-61	357+22	363585.4	6891943.0	21.88
DHBC05-495	BC05-61	327+16	362454.0	6891940.6	31.87
DHBC05-496	BC05-61	277+26	360589.5	6891937.1	19.25
DHBC05-497	BC05-61	265+15	360128.6	6891972.1	20.12
DHBC05-498	BC05-61	222	358501.2	6891954.0	22.53

FUGRO SEISMIC IMAGING PTY LTD

SEISMIC DATA PROCESSING REPORT

FOR

BEACH PETROLEUM LIMITED

Location : Cooper Basin, South Australia
Permit : PELS 95 and 107
Surveys : 2005 Discus 2D Seismic Survey

Date : July 2006

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TABLE OF CONTENTS

1 INTRODUCTION

The 2005 Discus 2D Seismic Survey reprocessing in Pel's 95 and 107, Cooper Basin, South Australia was processed by Fugro Seismic Imaging at its Perth office from May 2005 to April 2006.

A total of 47 new acquisition lines were combined with 32 reprocessing lines from 8 different vintages spanning 1984 through 1995. A further 9 reprocessing lines were added at a later date. The total length of the survey was approximately 1430 km.

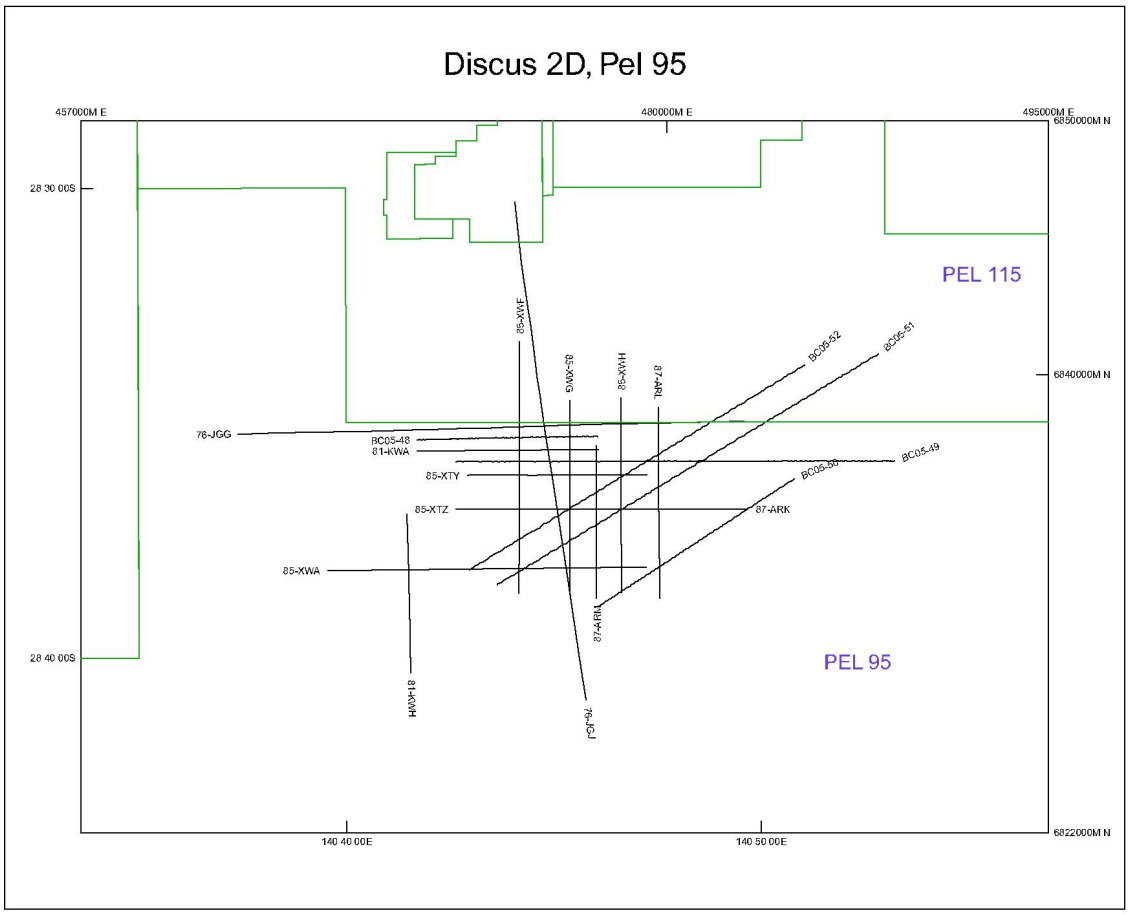
A line summary is given in section 3.0.

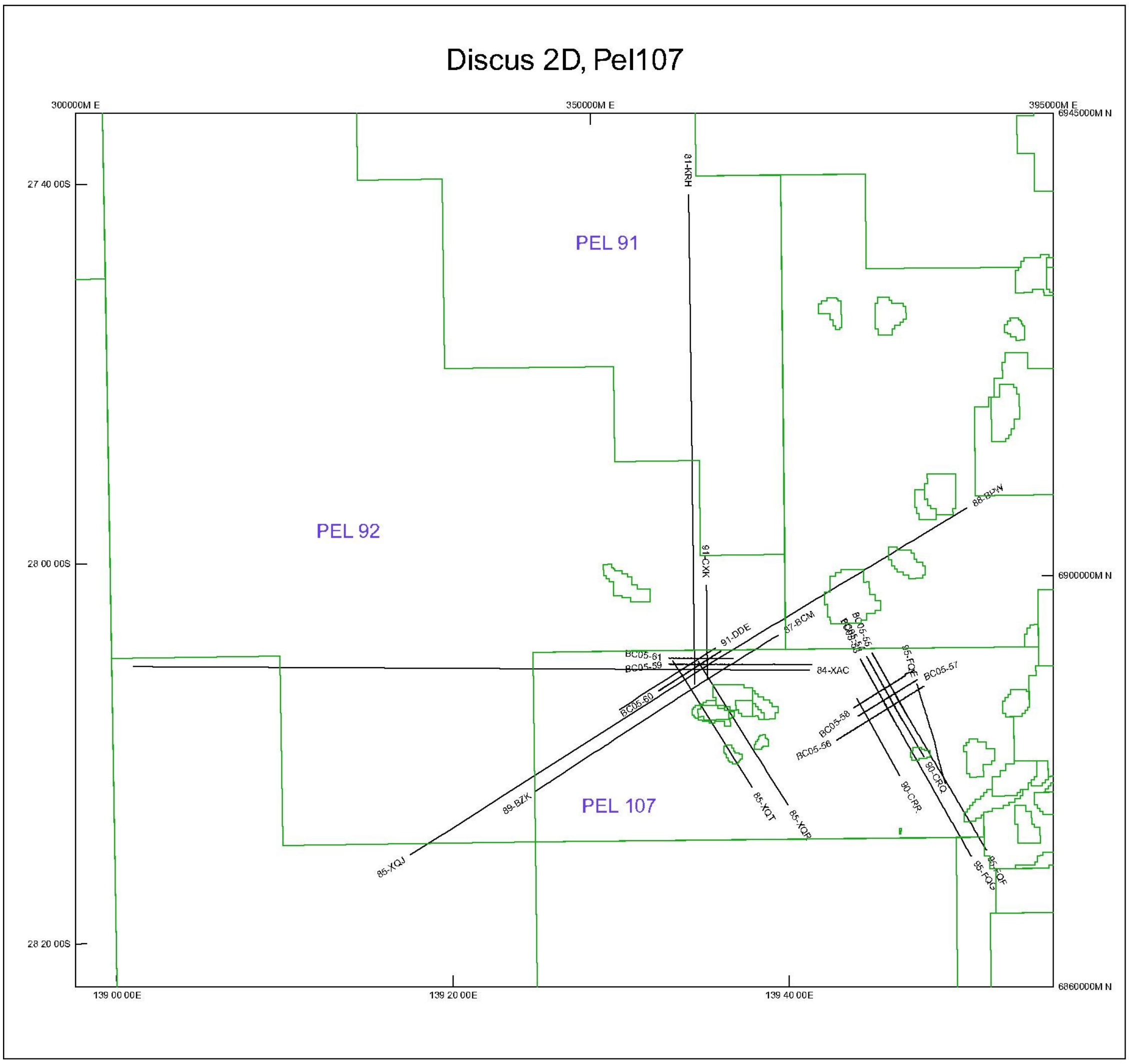
Field data was acquired by Terrex seismic crew 402 in May 2005.

2 ACQUISITION PARAMETERS

2005 Discus 2D Seismic Survey	
Data recorded by:	Terrex seismic crew 402
Date recorded:	PEL 95 107 May 2005
Seismic source:	4 vibrators in line
Source type:	Paystar Hemi 44
Vibe spacing:	12.5 m pad to pad
Vibe move up:	Standing sweeps
Sweeps per vp:	2
Sweep frequency:	5-90 Hz
Sweep type:	Linear 200 ms taper
Vp interval:	37.5 m
Recording system:	Sercels sn 388
Record length:	3 sec sweep + 4 sec listen
Sample rate:	2 milliseconds
Tape format:	SEG-D 3490 zero phase
Field filters:	3-125 Hz
Data channels:	124
Coverage:	62 fold
Geophone type:	SM4 10 Hz
Geophone array:	12 in line over 34.375 m
Element spacing:	3.125 m
Group interval:	37.5 m
Split spread:	2306.25-18.75-vp-18.75-2306.25m

3 SURVEY MAP


Discus 2D, Pel 95
457000M E
480000M E
495000M E
6850000M N
6840000M N
6822000M N
28 30 00S
28 40 00S
140 40 00E
140 50 00E
PEL 115
PEL 95
85-XWE
85-XWG
85-XWH
87-ARH
BC05-52
BC05-51
BC05-49
BC05-50
76-JGG
BC05-48
81-KWA
85-XTY
85-XTZ
87-ARK
85-XWA
87-ARH
81-KWH
76-JGJ


Discus 2D, Pel107
300000M E
350000M E
395000M E
6945000M N
6900000M N
6860000M N
27 40 00S
28 00 00S
28 20 00S
139 00 00E
139 20 00E
139 40 00E
PEL 91
PEL 92
PEL 107

4 LINE SUMMARY

2005 Discus 2D Seismic Survey:

PEL 95

Line	SP Range	Length
76-JGG	100-233	20.1
76-JGJ	100-232	19.95
81-KWA	100-195	7.2
81-KWH	100-183	6.3
85-XTY	200-388	7.09
85-XTZ	200-398	7.46
85-XWA	200-538	12.71
85-XWF	299-464	9.94
85-XWG	200-402	7.61
85-XWH	200-404	7.69
87-ARK	200-360	6.04
87-ARL	200-400	7.54
87-ARM	200-360	6.04
88-BKA	200-516	11.89
BC05-48	200-389	7.13
BC05-49	200-659	17.25
BC05-50	200-445	9.23
BC05-51	200-666	17.51
BC05-52	200-611	15.45

PEL 107

Line	SP Range	Length
81-KRH	100-250	7.54
84-XAC	1400-1956	22.76
85-XQJ	950-1126	8.51
85-XQR	200-400	9.41
87-BCM	200-440	9.04
88-BPW	200-340	7.16
89-BZK	540-708	8.21
90-CRQ	200-368	6.34
90-CRR	200-428	8.59
91-CXK	200-330	7.16
91-DDE	200-496	11.14
95-FQE	200-468	10.09
95-FQF	200-415	10.43
95-FQG	200-415	10.43
BC05-53	200-388	7.09
BC05-54	200-389	7.13
BC05-55	200-389	7.13
BC05-56	200-465	9.98
BC05-57	200-379	6.75
BC05-58	200-384	6.94
BC05-59	200-569	13.88
BC05-60	200-391	7.2
BC05-61	200-366	6.26

5 PARAMETER TESTING

The acquisition was the same for recent surveys in this area and therefore testing was not required as it was decided to use the same flow as previously used. Some fine tuning was required especially with the reprocessed lines and they are listed below.

The processing test sequence included review of the following processing phases and parameter choices:

1. Initial gain correction to compensate for spherical divergence and absorption losses.

2. Predictive Deconvolution

   Comparison of stack sections with varying design windows, operator lengths, gap lengths in the X-T domain.
   operator length 120 ms and gap length 2 ms
   operator length 120 ms and gap length 8 ms
   operator length 120 ms and gap length 12 ms
   operator length 120 ms and gap length 16 ms
   operator length 120 ms and gap length 20 ms
   operator length 200 ms and gap length 2 ms
   operator length 300 ms and gap length 2 ms

   Surface consistent deconvolution
   operator length 120 ms and gap length 2 ms

3. Mute Testing.
   Mutes were selected by inspecting a series of stacked panels with increasing offsets. Selected mute was checked by displaying a range of NMO corrected cdp gathers with the mute annotated but not applied.

4. Post Stack Deconvolution tests:
   Predictive deconvolution after stack was used to attenuate any remnant short period reverberations. A variety of gaps were tested ranging from 4 to 32 ms. Stacked panels with auto-correlations were used to verify the deconvolution design.

6 PROCESSING SEQUENCE

6.1 TRANSCRIPTION

Field data were converted from SEG-D format to Fugro's internal format .

6.2 GAIN RECOVERY

Spherical divergence gain function was used.
Gain (db) = 3.0t + 10Log(t)

6.3 PHASE CONVERSION

Convert zero phase to minimum phase.

6.4 CDP GATHER

Shot records were sorted into common depth point gathers.
Nominal fold = 62 CDP interval = 18.75m

6.5 DECONVOLUTION

Surface consistent spiking deconvolution using two windows

Operator		120	120	ms
Gaps		2	2	ms
White noise		0.1	0.1	%
Design	19 m	200-2300	1800-3500	ms
	2307 m	1400-2500	2000-3500	ms

6.6 REFRACTION STATICS

Refraction first breaks were picked using Green Mountain Refraction Statics Delay Time Method which estimates the refractor velocities to model the weathering thickness. Weathering velocities were interpreted at uphole locations along the lines. These upholes were used as calibration points for the GMG statics.

6.7 SPECTRAL BALANCE

Pre-stack spectral whitening uses the SPECB module which allows equalisation of the amplitude spectrum of a trace with a given frequency range. This frequency range is divided into an equal number of trapezoidal filters, which may overlap the other. The trace is then filtered through each of these filters, AGC and summed. This technique suppresses the low frequency (ground roll) better and enhances the higher frequency. Production filter of 5-10-90-95 Hz was used.

6.8 FIRST PASS VELOCITY ANALYSIS

First pass velocities were interpreted using Fugro's interactive velocity analyses program "MGIVA". Each analysis comprised a 20 CDP stacked panel, repeated 15 times with a different NMO velocity functions. The velocity function displayed at +/-3 %, +/-6%, +/-9%, +/-12%, +/-16%, +/-20% and +25% increments from a central velocity function which was based on a regional velocity function. The MGIVA velocity analysis is a 'map driven' package, where the user can instantly see modifications to the velocity field in map or section view. Neighbouring velocity functions are superimposed on the current location for easy recognition of velocity trends. Velocity interpretation is performed on the pre-computed stack suite, or on a colour contoured semblance display. Semblance interpretation is assisted with markers illustrating the position of potential multiples, and with an interval velocity curve. Analyses were performed at 1.5 km intervals.

6.9 FIRST PASS RESIDUAL STATICS

Fugro "NEBULA" Surface-consistent Residual Statics Package computes statics based on summed cross-correlations at source and receiver locations. A pilot trace is constructed at each CDP using a weighted mix of stacked traces. Cross-correlations of the pilot trace with traces in the respective CDP gather are summed into buffers for each source and receiver station number before being resampled and picked to derive a static value.

6.10 SECOND PASS VELOCITY ANALYSIS

Second pass velocity analysis was performed on gathers with first pass residuals statics applied. The first pass velocity field was used as centre function for Fugro's interactive velocity analysis package, MGIVA. Analyses were performed at 1.0km intervals.

6.11 SECOND PASS RESIDUAL STATICS

Second pass residual statics was run using the picked second pass velocity field as input to NMO corrections.

6.12 DMO

Log stretch DMO using Hale algorithm.

6.13 THIRD PASS VELOCITY ANALYSIS

Third pass velocity analysis was performed on DMO gathers with both first and second pass residuals statics applied. The second pass velocity field was used as centre function for Fugro's interactive velocity analysis package, MGIVA. Analyses were performed at 0.5km intervals.

6.14 NMO CORRECTION

Fourth order NMO correction was performed using the third pass velocity functions.

6.15 MUTE

A post NMO outer trace mute was applied for two main reasons :

- to remove any coherent noise on the outer traces and
- to reduce contamination from the effect of NMO stretch on the far offsets.

Outer trace mute

Offset (m):	150	200	650	1330	2307
Time (ms):	0	200	500	1200	1900

6.16 PRE-STACK SCALING

The CDP gather traces were modulated to compensate for amplitude irregularities by scaling each trace using 500 ms AGC .

6.17 STATICS

Floating datum to final seismic reference component of the statics is applied prior to stack. This corrects the data from floating datum to a final datum at mean sea level. To avoid losing data above datum, data was time shifted by 200ms prior to static correction to datum and a new time origin of -200ms was established.

6.18 COMMON DEPTH POINT STACK

The traces within each common depth point gather were summed using 1/root(N) stack compensation with 62 fold coverage and CDP interval of 18.75 m.

6.19 CDP TRIM STATICS

Fugro's “PASTA” package was used to compute cdp consistent residual statics. “PASTA” is an automatic residual statics program which applies static shifts on a CDP consistent basis, using cross-correlations of NMO-corrected CDP gather traces with a CDP pilot trace for each depth point.

6.20 DECONVOLUTION AFTER STACK

Predictive deconvolution was utilised to attenuate any remnant short period reverberations.

Operator Length:	120 ms
Gap:	20 ms
Design window:	300 – 2400 ms
White noise:	0.1 %

6.21 MIGRATION

Finite Difference Migration uses the technique of downward continuation in order to map reflectors to their true time position. It is performed in the frequency – space domain. Steep dip second order solution (65 degrees) and depth step of 12m were used.

6.22 BAND PASS FILTER

Unwanted noise that lay outside the frequency range of the desired reflection and diffraction data were removed by the application of a series of time variant filters.

Time (ms)	Frequency (Hz)
500	8 / 12 - 80/90
1500	8 / 12 - 70/80
2500	8 / 12 - 60/70

6.23 POST STACK SCALING

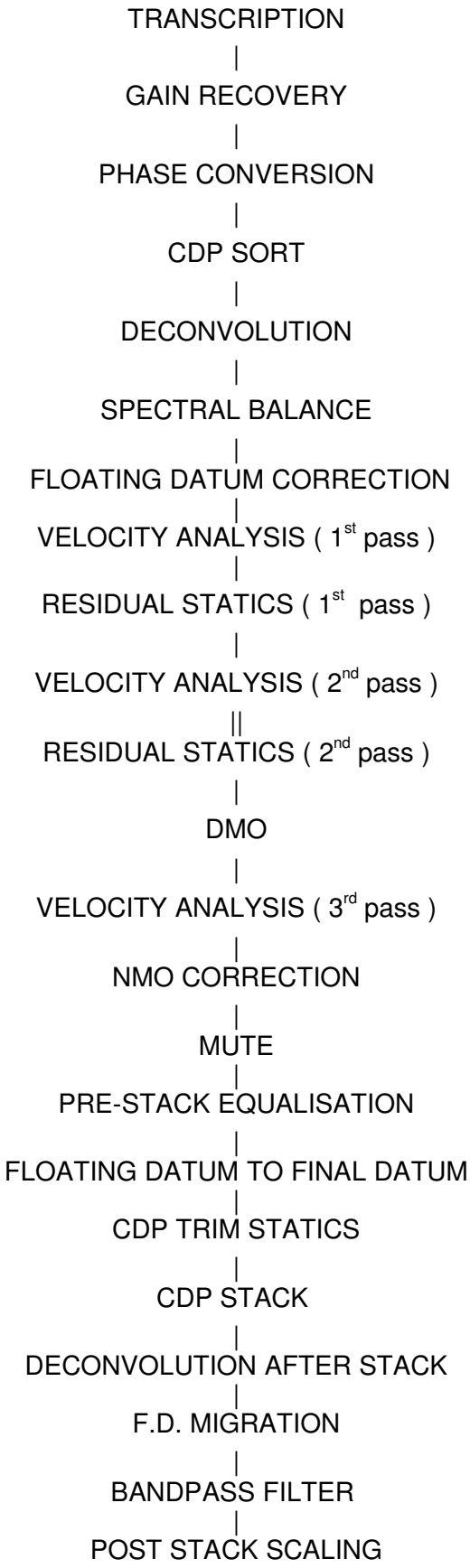
Dual window AGC with window lengths of 1000 ms and 400 ms.
Equalisation applied : 50%

6.24 PHASE ANALYSIS

Post stack phase and time shifts were applied to the following reprocessing data in order to tie with the new 2005 Discus 2D survey.

Vintage	Field Crew	Phase Shift	Time Shift
76-JGG	SSL	0 degrees	+70 ms
76-JGJ	SSL	0 degrees	+70 ms
81-KWA	SSL 327	+90 degrees	0
81-KWH	SSL 327	+90 degrees	0
81-KRN	SSL 327	+90 degrees	0
84-XAC	SSL 413	+180 degrees	+15 ms
87-BCM	SSL	-90 degrees	0
88-BPW	SSL	- 90 degrees	0

7 PROCESSING SEQUENCE DIAGRAM



8 FINAL DISPLAYS

Final displays of final & migrated stack were produced in CGM+ format

Horizontal scale: 1 : 20,000 (27 traces per inch)
Vertical scale: 10 cm/sec

9 ARCHIVES

Final migrated stacks, final stacks, raw stacks, raw migrated stacks and raw gathers of each line were written onto DVD in SEGY format for workstation interpretation and archival.

Trace headers summary

BYTE	DESCRIPTION	BYTE	DESCRIPTION
17-20 (32-bit)	SPNO	97-98 (16-bit)	source residual static
21-24 (32-bit)	CDP number	99-100 (16-bit)	receiver residual static
41-44 (32-bit)	Elevation	101-102 (16-bit)	Receiver static
81-84 (32-bit)	CDP easting	103-104 (16-bit)	Datum static applied
85-88 (32-bit)	CDP northing	109-110 (16-bit)	Time of first sample
91-92 (16-bit)	weathering vel	115-116 (16-bit)	Number of samples
93-94 (16-bit)	refractor vel	117-118 (16-bit)	Sample interval
		189-192 (32-bit)	SP number

10 DATA DISPOSITION

To Beach Petroleum Limited

The data was split to each PEL 95 and PEL 107

- 3 CD of digital prints in CGM+ format, final velocities in Western format and static listings for all lines.
- 3 DVD archive containing Migrated stack, final stack, raw stack and raw migrated stack.
- 3 DVD archive containing raw gathers
- One CD containing Processing Report.
- Returning 2005 Discus field tapes
- Returning Discus Obs logs and support data.
- Returning 2005 Discus uphole plots

11 CONCLUSION

Overall this 2005 Discus 2D processing project preceeded in a smooth and timely manner. Reprocessing data responded well to the proven Cooper Basin processing flow with higher frequency better resolved to most of the early vintages.

The upholes and statics in the area was the cause of most concerns. Initially all upholes were calculated and used in the tying of the statics. Unfortunately, not all the upholes were received and the calculations and solutions needed to be revisited again. Then there were some extraneous results discovered that questioned the validity of some of the upholes. The Beach petroleum representatives were kept busy checking and testing until they were sure that they were happy with the result.

Another area that caused concern was the phase shifting of the various vintages of reprocessing. Although there are rough rules of phase shifting depending on acquisition contractor and crew and year acquired, this proved to not always be the case.

All these things contributed to the contract taking longer than originally planned, however a satisfactory conclusion was reached in the end.

The final deliverables then had listed phase and time shifts applied.

We would like to thank Doug Roberts and Luke Gardiner for their quick response to our enquiries and their efforts in retrieving and providing precise information of the repro data where a great many upholes were involved.

Mick Curran
Processing Geophysicist

BEACH PETROLEUM LIMITED
SEISMIC SURVEY
PEL 95 and PEL 107, South Australia

ENVIRONMENTAL REPORT

2005 DISCUS 2D SEISMIC SURVEY

Recorded October 12th – 21st, 2005

REVISITS

(ABN 20 007 617 969)

Prepared by: Bruce Beer
December, 2005

CONTENTS

INTRODUCTION

The Beach Petroleum Limited 2005 Discus 2D Seismic Survey was located in PEL 95 and PEL 107. The PEL 95 program was approximately 80 km southeast of Moomba in the Cooper Basin, northeastern South Australia. It was on Merty Merty and Bollards Lagoon Stations. The PEL 107 program was approximately 40 km west of Moomba on Mulka and Mungeranie Stations. Beach Petroleum Limited operated the project.

Recording activities were conducted between October 12th and 21st, 2005. Line preparation took place between September 28th and October 4th, 2005. Uphole drilling took place between October 23rd and November 16th, 2005

A total of 138.375 km of 2D in four seismic lines was prepared. 66.375 km were in PEL 95 and 72.00 km were in PEL 107. Lines were named BC05-48 to 61.

To assess the environmental impact of this survey and to allow systematic monitoring of the natural restoration and re-vegetation rates, three environmental monitoring points (EMP's) were established (see map in Fig. #1-2 and 1-3).

Photographs were taken at the EMP locations (photo points) in the two directions of the lines following completion of recording operations. It is intended that these photographs will form the base line for ongoing monitoring.

A GAS (Goal Attainment Scaling) audit was conducted by Bruce Beer at the conclusion of recording operations. Some 42 points were considered in this audit apart from the EMPs. A score chart shows the results and photographs illustrate the reasoning behind the scores.

The PEL 95 survey was on the Merty Merty and Bollards Lagoon pastoral leases managed by Martin and Grant Rieke respectively. The PEL 107 program was on Mulka and Mungeranie Stations managed by Gary Overton and Rodney Fullarton respectively.

Fig. # 1: Cooper Basin Tenements Map showing locations of PEL 95 and PEL 107

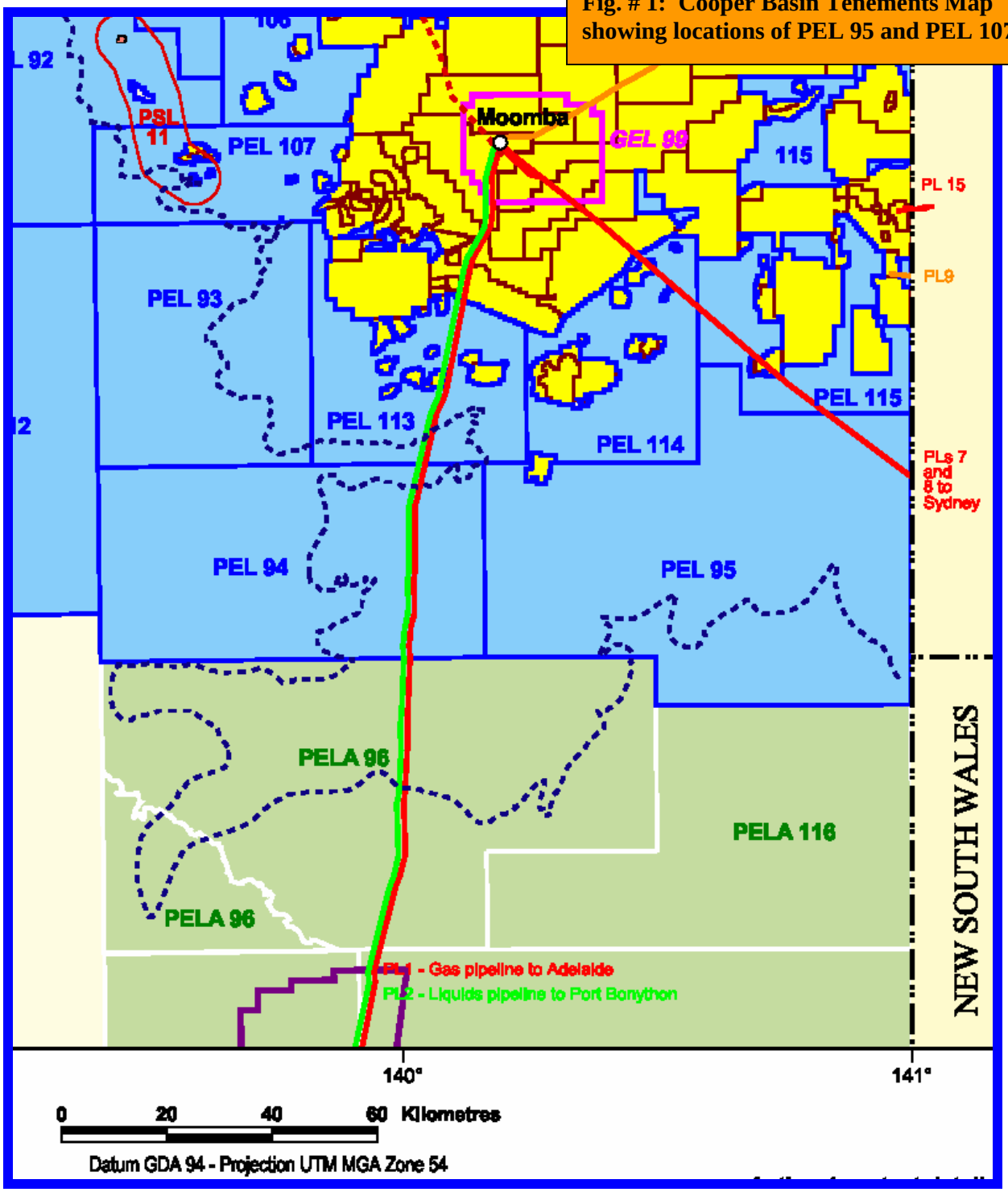


Fig. # 2: Topographic Map showing the PEL 95 Discus Seismic Survey

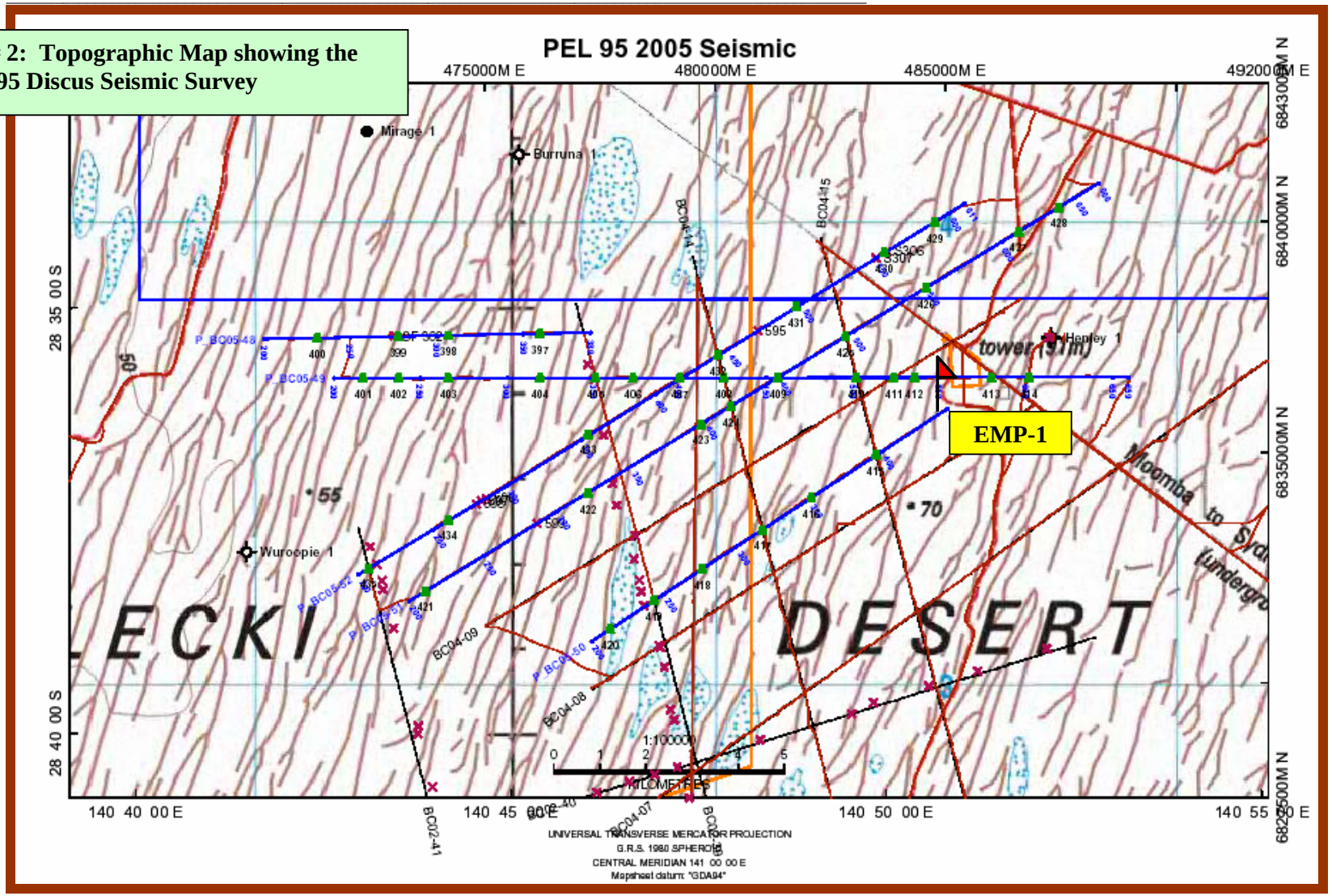


Fig. # 3: Topographic Map showing the PEL 107 Discus Seismic Survey

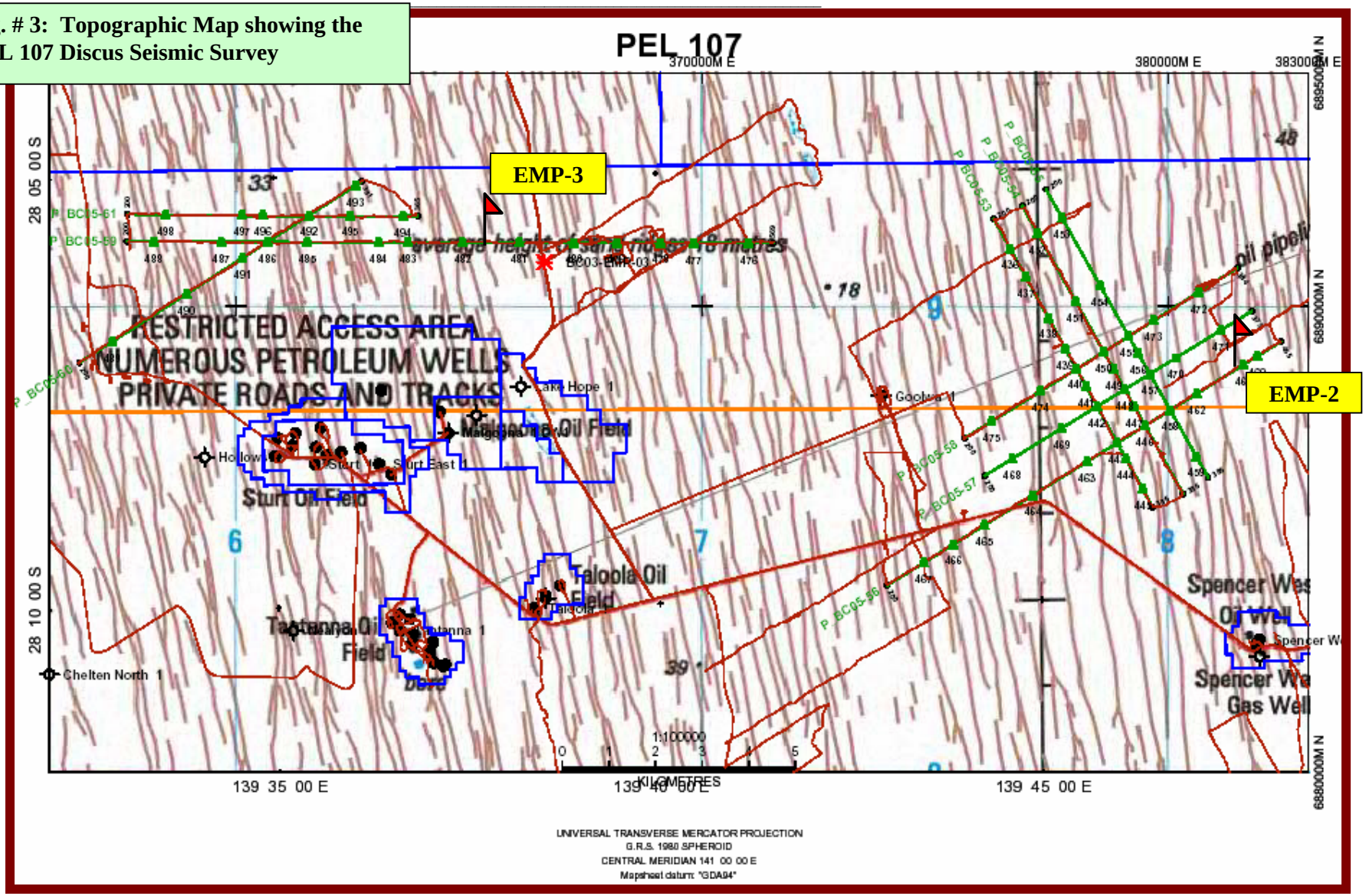


Fig. # 4: DSS Post Plot Map showing the PEL 95 Discus Seismic Survey

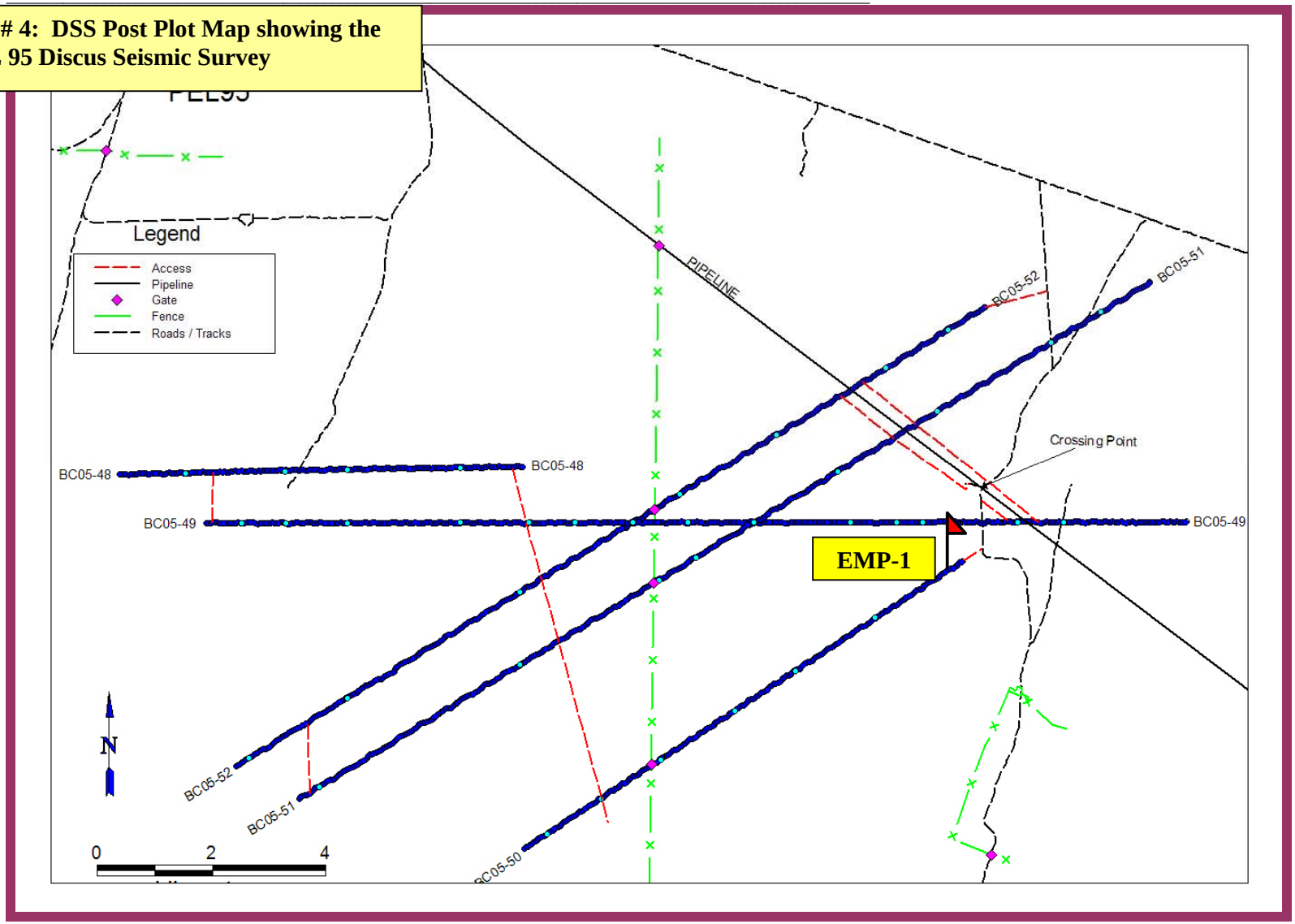
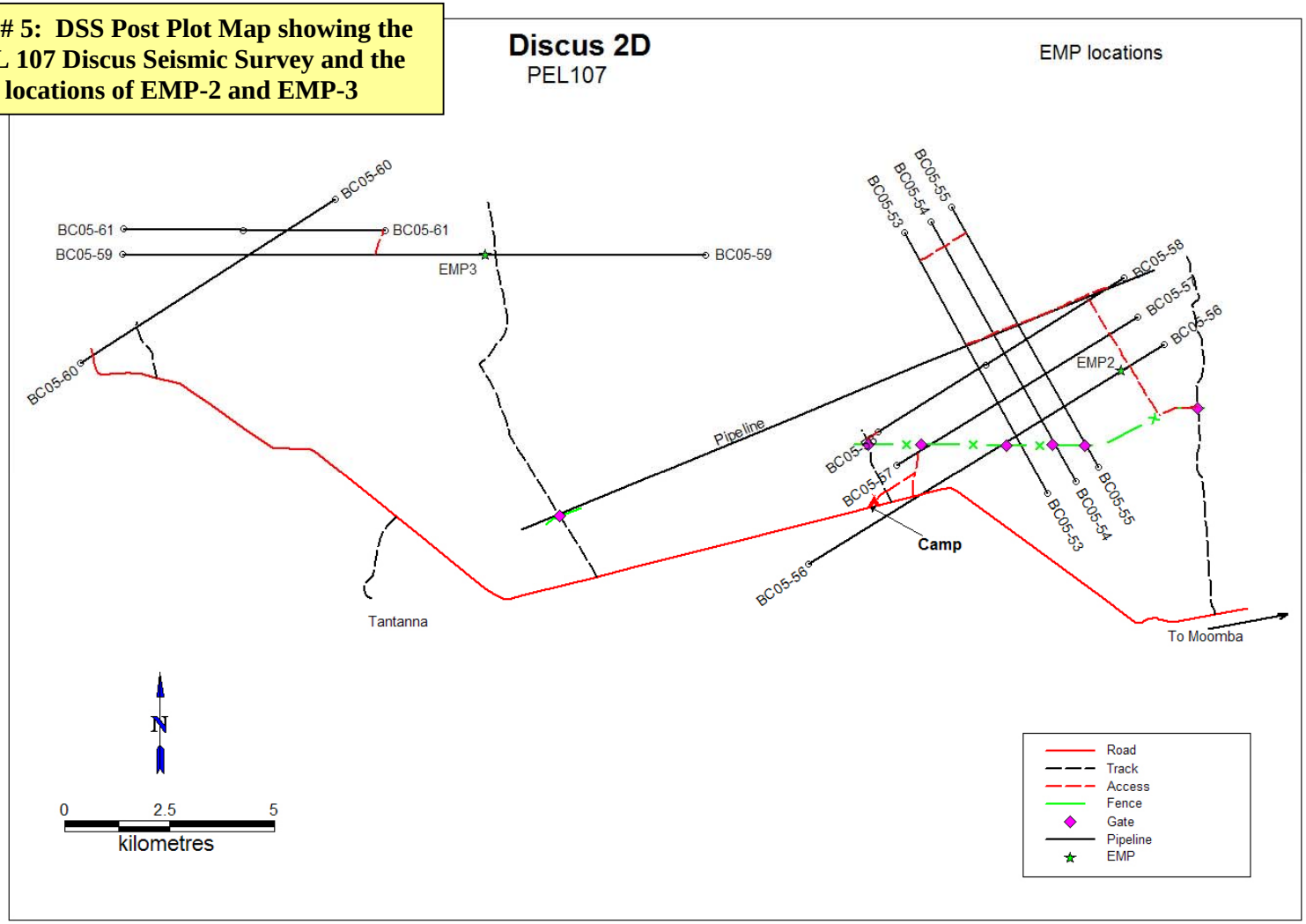


Fig. # 5: DSS Post Plot Map showing the PEL 107 Discus Seismic Survey and the locations of EMP-2 and EMP-3



2.0 Terrain, Vegetation and GAS Audits

The terrain in the 2005 Discus 2D Seismic Survey consisted predominantly of sand dunes. The dunes in PEL 95 were lower and had wider sand swales than those in PEL 107.

2.1 GAS Audits

Conducted by Bruce Beer in October 2005.
Random sections of lines were audited using the Goal Attainment Scaling (GAS) System. A GAS audit was also undertaken at the EMP locations.

The audited lines were:

Table 1: GAS Audited Areas in the 2005 Discus 2D Seismic Survey

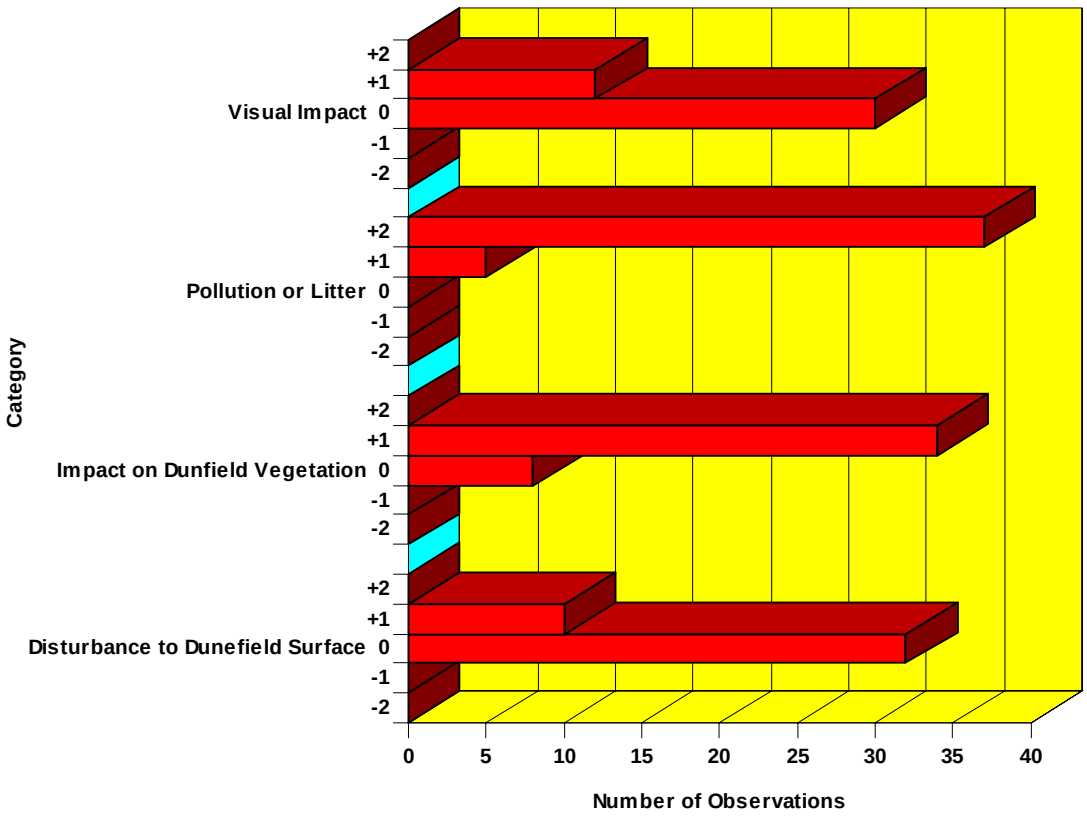
Line	Section
various	various

Lines audited were all in sand dune terrain. The codes of practice for line preparation had been followed in the majority of cases in that:

- Lines were weaved to break the line of sight;
- Blade-work was kept to a minimum in sandy areas;
- There were no windrows in swales
- No litter was in evidence;
- Offline traffic was limited vibrator passing spots and dogbox setups;
- Lines were weaved between trees and bushes;

The scores were assigned by GAS category as follows:

Fig # 3: GAS Audit of the Beach Petroeum 2005 Discus 2D Seismic Survey



Some photos illustrating the audited areas follow:

Picture # 1: weaving on line BC05-50 in PEL 95

Picture # 2: spinifex plain on line BC05-50 in PEL 95

Picture # 3: line BC05-51 PEL 95; no bladework in swale, minimal cut on dune, weaving

Picture # 4: gentle dune slope on line BC05-50 with vibrator tracks

Picture # 5: line BC05-51 stn 580 looking northeast; line weaves so mush it is hard to see

Picture # 6: line BC05-54 looking north west from intersection of line 57; shallow side cut

Picture # 7: line BC05-55 looking north west from E379801 N6887985

Picture # 8: line BC05-56 looking south west E380576 N6888101; a second dune cut was avoide at this intersection by deviating onto the cross line

Picture # 9: line BC05-56 looking south west E471031 N6846038; minimal dune cut

Picture # 10: line BC05-57 looking south west E379557 N6888499; pale coloured sand; good weaving

Picture # 11: line BC05-58 looking south west E378402 N6888901; good weaving

Picture # 12: line BC05-59 stn# 315 looking west; white sand, good weaving

Picture # 13: line BC05-59 stn # 354 looking west; high clay content in dunes; good weaving

Picture # 14: line BC05-59 stn# 365 looking west; weave through marpoo and prickly wattle bushes

Picture # 15: line BC05- 59 stn # 394 looking west; mimimal dune cut, lots of clay in dune

Picture # 16: line BC05-59 stn# 404 looking west; good weaving, minimal cuts

Picture # 17; line BC05-60 stn # 315 looking south west; the operator has deliberately deviated around thye clay features

Summary

The GAS audit showed that lines were generally well prepared in line with accepted guidelines.

TC have done a good environmental job in preparing the Discus 2D.

2.1.1 EMP –1

Line BC05-50 Stn # 436

This section of line is in low dune and sandy swale terrain with sparse vegetation and a cover of dried annual flowers.

2.1.2 EMP –2

Line BC05-56 Stn # 433

This section of line is on a sand plain with little vegetation other than spinifex and dried annual grasses.

2.1.3 EMP –3

Line BC05-59 Stn # 429+24m

This section of line is in sand dune terrain well vegetated with marpoo and prickly wattle bushes plus spinifex and sandhill canegrass.

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3. ENVIRONMENTAL MONITORING POINTS (EMPS) DESCRIPTION

Standard practice requires the establishment of EMPs wherever 2D or 3D seismic surveys are carried out. Ideally, these points are to be positioned at the intersection of 2D lines or of source and receiver lines in 3D, and where the landform and vegetation is representative of the survey area. Preference is to be given to complying intersections close to tracks or roads so that they may be readily located and accessed in the future, without any further impact the area.

Appropriately tagged monuments identifying each EMP are to be installed.

Photographs in each line direction are to be taken prior to line preparation then again following the completion of all activities. It is envisaged that these lines will be photographed at intervals in the future in order to assess the natural restoration and re-vegetation rates of prepared seismic lines.

During the preparation phase, DSS surveyors selected three locations for EMPs. They were not on intersections. "Before" line prep and "after" recording photos were taken. The DSS surveyors took the "before" photos and the Client Representative (Bruce Beer) took the "after" photos.

A steel dropper with an identifying aluminium tag attached was installed at the EMP.

3.1 After Recording

Bruce Beer, (Beach Petroleum Field Representative), undertook this initial photo monitoring and report.

EMP-1 (Line BC05-50 Stn # 436)

To the northeast the line descends a low dune into a broad sandy swale. There is good weaving and the windrows are low to non-existent. Disturbance to land surface, GAS = +1, Impact on vegetation, GAS = +1, visual impact GAS = 0.

To the southwest the line climbs a low dune on the horizon. Disturbance to land surface, GAS = +1, Impact on vegetation, GAS = +1, visual impact GAS = 0.

EMP-2 (Line BC05-56 Stn # 433)

To the northeast the line traverses a broad grassy plain. There is no weaving and the line of sight is unimpaired. Disturbance to land surface, GAS = +1, Impact on vegetation, GAS = +1, visual impact GAS = -1.

To the southwest the line traverses a hummocky sand plain and skirts several small claypans with water in them. Disturbance to land surface, GAS = +1, Impact on vegetation, GAS = +1, visual impact GAS = 0.

EMP-3 (Line BC05-59 Stn # 429+24m)

To the east the line weaves through a sandy swale of bushes including marpoo and prickly wattle. Disturbance to land surface, GAS = +1, Impact on vegetation, GAS = +1, visual impact GAS = 0.

To the west the line traverses a sandy swale with hummocky vegetation. Disturbance to land surface, GAS = +1, Impact on vegetation, GAS = +1, visual impact GAS = 0.

3.2 One Year After Recording

3.3 Two Years After Recording

3.4 Four Years After Recording

4. PHOTOGRAPHS

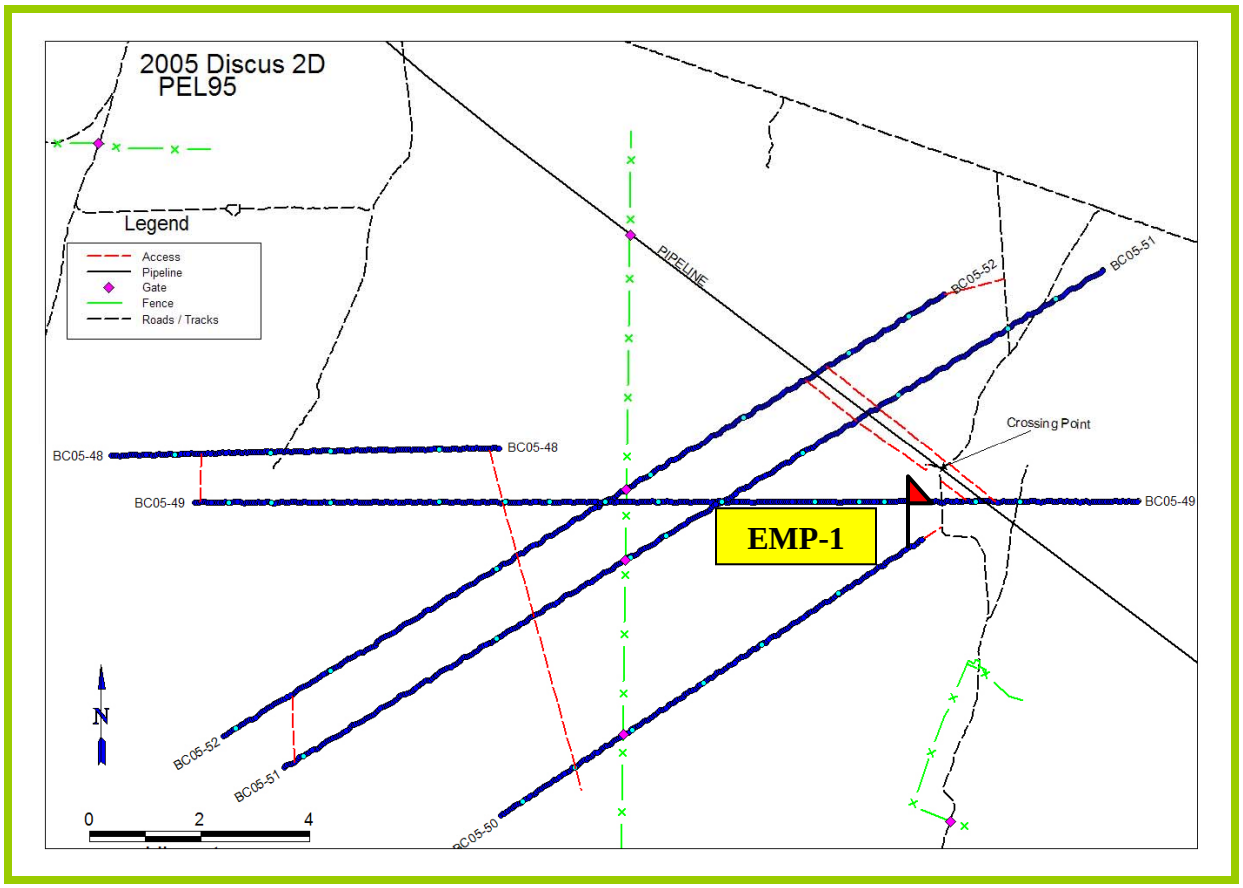
4.1 EMP-1

PM tag

Line: Line BC05-50 Stn # 436

Coordinates:
GDA Easting: 484 723.96
GDA Northing: 6 835 749.68

EMP-1 Permanent Marker on **Line BC05-50 Stn # 436** (Bollards Lagoon Station)
Star Picket tagged with an aluminium plate as in above picture.
To get to EMP-1: go to microwave tower # 83 and use the track to cross the Moomba to Sydney pipelines. Travel south of the crossing approximately 1.2 km. The access track leading into Line BC05-50 runs south west off the track. Use gps to reach EMP-1.



BEFORE LINE PREP

EMP-1: **Line BC05-50 looking northeast (magnetic bearing 55 deg)**

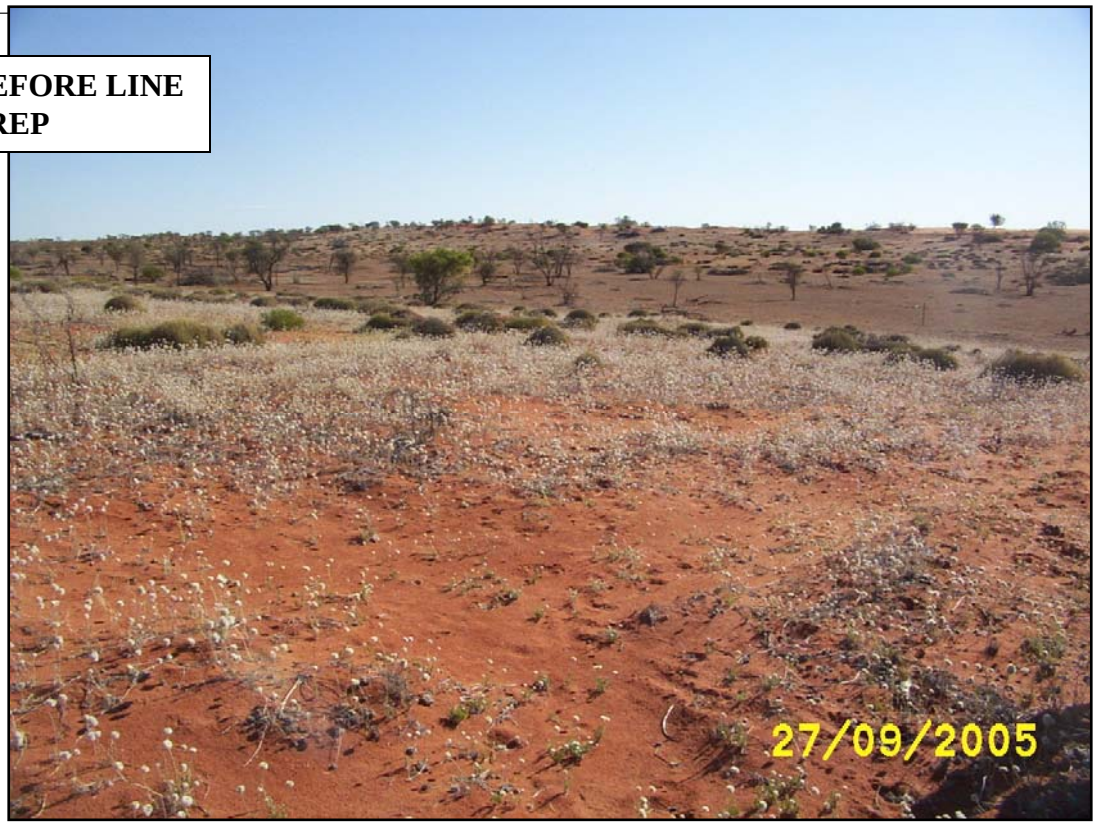
AFTER RECORDING

4 YEARS AFTER

2 YEARS AFTER

1 YEAR AFTER

BEFORE LINE PREP



EMP-1: **Line BC05-50 looking southwest (magnetic bearing 229 deg)**

AFTER RECORDING

4 YEARS AFTER

2 YEARS AFTER

1 YEAR AFTER

4. PHOTOGRAPHS

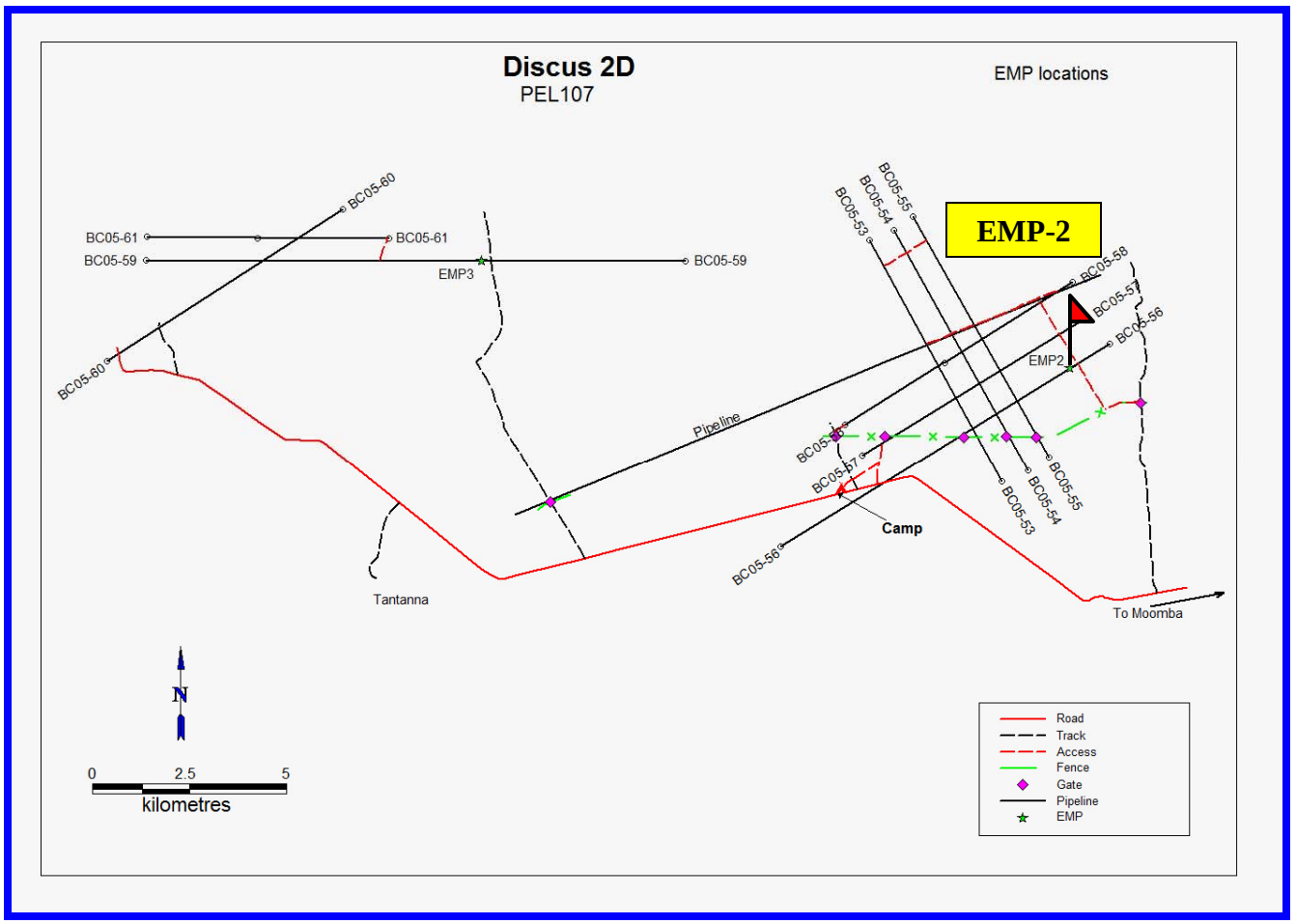
PM tag

4.2 EMP-2

Line: Line BC05-56 Stn # 433

Coordinates:
GDA Easting: 381 386.33
GDA Northing: 6 888 615.88

EMP-2 Permanent Marker on **Line Line BC05-56 Stn # 433** (Mungeranie Station)
Star Picket tagged with an aluminium plate as in above picture.
To get to EMP-2: Note: access to EMP-2 is a bit tricky. Midway between Spencer and Spencer West there is a track heading north. Take this track and head north approximately 6 km until you come to the boundary fence between Mulka and Mungeranie. Go through the gate and turn west to follow the fence line for approximately 1 km. You will come to an old line heading in a north westerly direction. Follow this old line for approximately 2 km until you cross line BC05-56. Turn left at line BC05-56 and EMP-2 is a few hundred metres south west.



BEFORE LINE PREP

EMP-2: **Line BC05-56 Stn # 433 looking northeast**

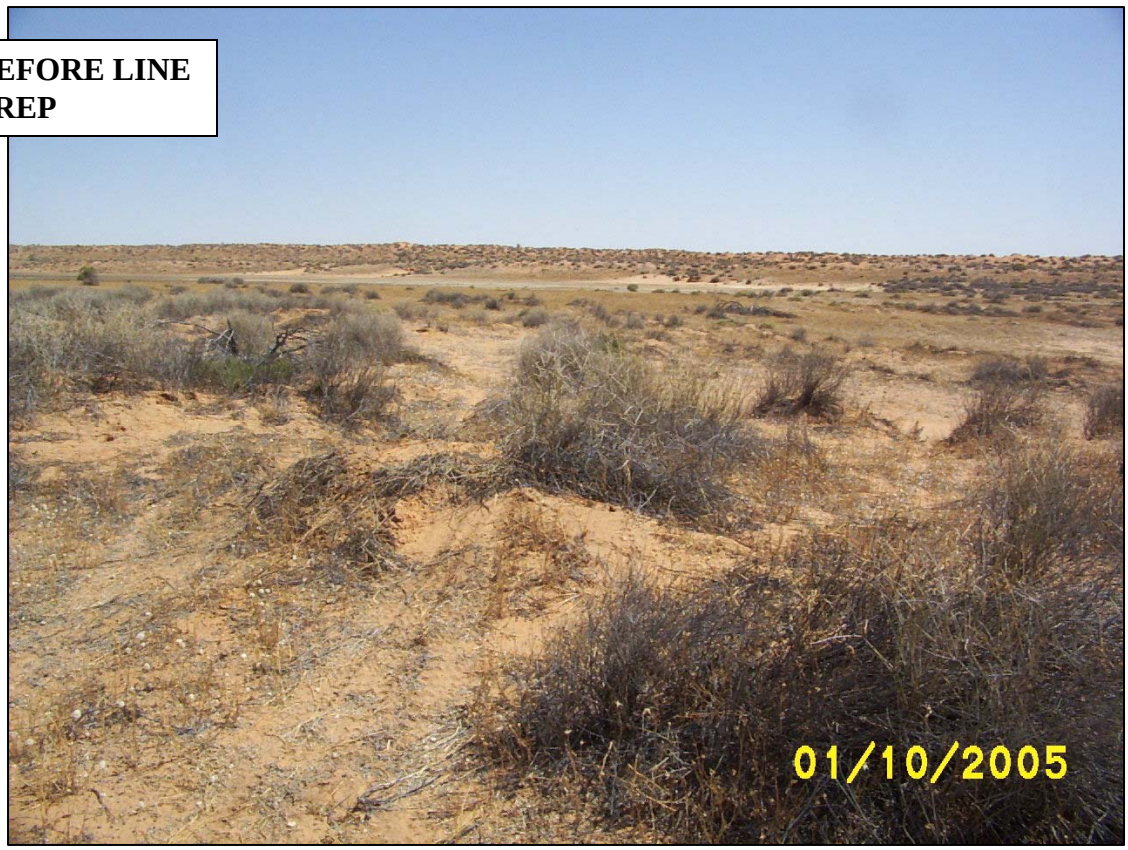
AFTER RECORDING

4 YEARS AFTER

2 YEARS AFTER

1 YEAR AFTER

BEFORE LINE PREP



EMP-2: **Line BC05-56 Stn # 433 looking southwest**

AFTER RECORDING

4 YEARS AFTER

2 YEARS AFTER

1 YEAR AFTER

4. PHOTOGRAPHS

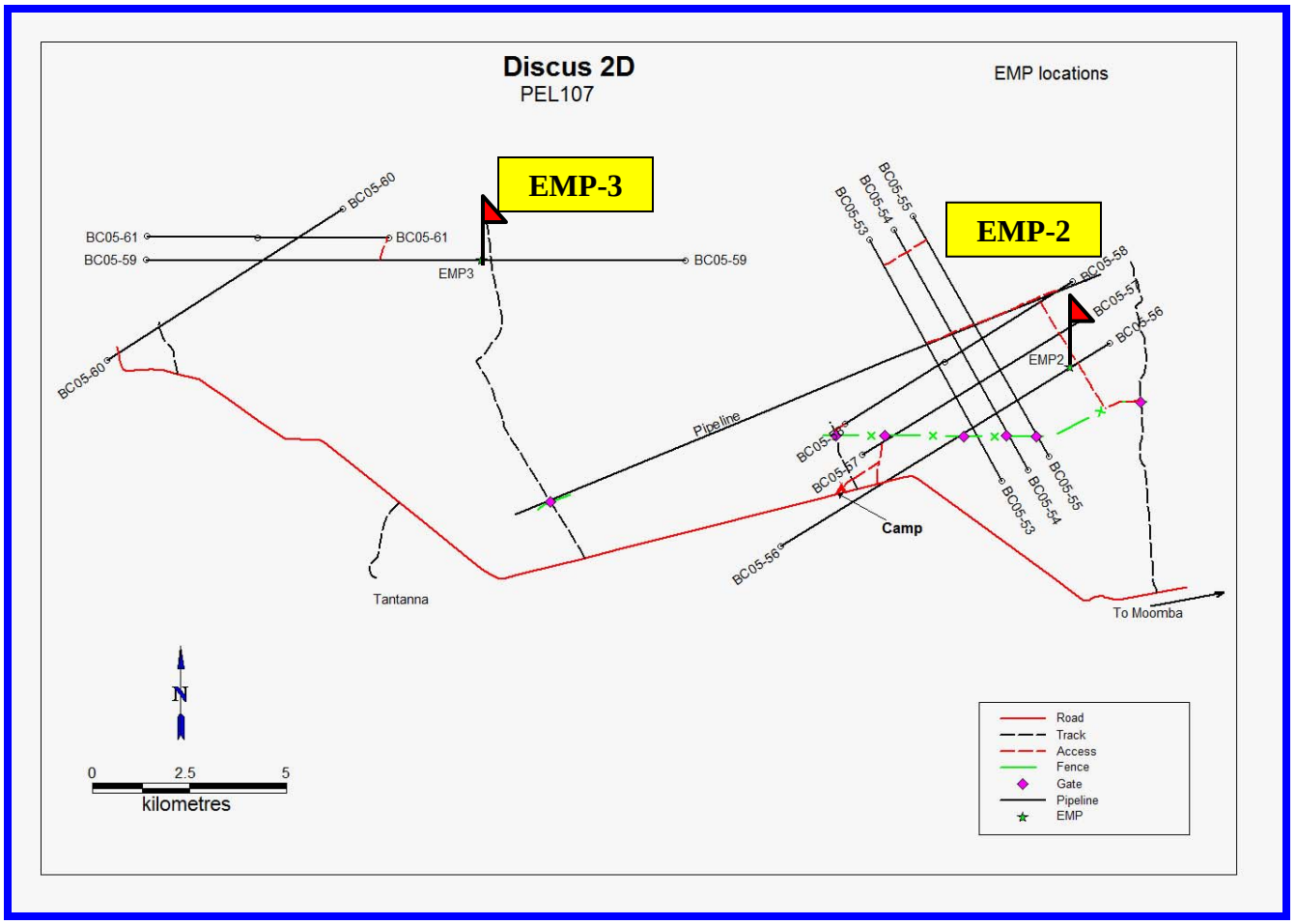
EMP tag

4.3 EMP-3

Line: Line BC05-59 Stn # 429+24m

Coordinates:
GDA Easting: 366 272.84
GDA Northing: 6 891 363.61

EMP-3 Permanent Marker on **Line BC05-59 Stn # 429+24m** (Mungeranie Station)
Star Picket tagged with an aluminium plate as in above picture.
To get to EMP-3: Take the Lake Hope # 1 and Carrickalinga turnoff from the Tantana Road. Travel north about 2 km to the gate in the boundary fence between Mulka and Mungeranie. Travel north a further approximately 8 km to the crossing of line BC05-59. Turn left (west) and go about 300m to EMP-3.



BEFORE LINE PREP

EMP-3: **Line BC05-59 Stn # 429+24m looking east**

AFTER RECORDING

4 YEARS AFTER

2 YEARS AFTER

1 YEAR AFTER

BEFORE LINE PREP

EMP-3: **Line BC05-59 Stn # 429+24m looking west**

AFTER RECORDING

4 YEARS AFTER

2 YEARS AFTER

1 YEAR AFTER

GAS criteria for assessing seismic lines on completion of survey in the Cooper and Eromanga Basins, South Australia

LAND SYSTEM	MEASURE (Associated goals) [a]	SCORE				
		+2 [b, c]	+1 [b, c]	0 [b, c]	-1	-2 [d]
Non land system specific	*Impact on infrastructure* 2.6	• No impact to any pastoral, tourist or production infrastructure.	• No observable repair or damage to infrastructure.	• Any impact to infrastructure has been reported and reinstated or repaired.	• Repair to damaged infrastructure is incomplete or inappropriate. • Damage has not been reported.	• Damage to any infrastructure has been left unrepaired and not reported.
	Visual impact 2.5, 2.7	• No evidence of seismic operations.	• Only wheel tracks are evident. • Line weaves. • Line of sight is impaired.	• Established roads and tracks have been re-shouldered. • Doglegs have been placed at established roads and tracks in vegetated areas. • Dozer or grader has been walked 40 m either side of established road or track. • Line weaves through vegetated areas. • Line of sight is impaired.	• No doglegs at established roads or tracks in vegetated areas. • No weaving through vegetated areas. • Line of sight is unimpaired.	• Line is clearly evident and dominates the landscape.
	Uphole site restoration 2.3, 2.5 [e]	• No evidence of upholes.	• No evidence of cuttings. • Some evidence of operations.	• Cuttings are evident but dispersed around hole. • No subsidence.	• Hole is plugged. • Cuttings form mound <0.5 m high. • Subsidence is evident.	• Hole is open. • Cuttings form mound >0.5 m high.
	Pollution or litter 2.1, 2.2, 2.3, 2.5	• No pollution or litter.	• No evidence of water or oil pollution. • Maximum of 1 pin flag/km. • No other litter.	• Waste water and vehicle oil spills have been managed appropriately. • Maximum of 2 pin flags/km. • Maximum of 1 item of other litter/km.	• Waste water forms ponds or extensive boggy ground. • Vehicle oil spills have not been remedied. • Maximum of 3–4 pin flags/km. • Maximum of 1–4 items of other litter/km.	• Extensive waste water ponding. • Oil spills of more than 20 L have not been remedied. • Five or more pin flags/km. • Five or more items of other litter/km.
Dunefield	*Impact on vegetation* 2.1, 2.2 [f]	• No removal of vegetation.	• No removal of Priority 3 shrubs <1 m high.	• No removal of Priority 1 and 2 vegetation. • No removal of Priority 3 shrubs >2 m high. • Less than 30% of tree branches have been removed.	• Priority 1 or 2 vegetation <2 m high have been removed, including rootstock. • Priority 3 shrubs >2 m high have been removed, including rootstock.	• Priority 1 or 2 vegetation >2 m high have been removed, including rootstock.
	Disturbance to land surface 2.2, 2.3 [e]	• No dune cuts. • No windrows.	• Dune cuts are <0.5 m deep. • Windrows in swale are <100 mm high.	• Dune crest cuts are 0.5–2 m deep. • Side cuts are <1.5 m deep. • Sand is stacked along side of cut. • Windrows in swale are <0.3 m high. • Clay-rich dune cuts are <1 m deep.	• Dune crest cuts are 2–4 m deep. • Side cuts are 1.5–3 m deep. • Minor ramping of sand onto swale. • Windrows in swale are 0.3–0.5 m high. • Clay-rich dune cuts are >1 m deep but rehabilitated. • Off line trafficking is evident.	• Dune crest cuts are >4 m deep. • Extensive ramping of sand onto swale. • Side cuts are >3 m deep. • Claypans have been cut. • Windrows in swales are >0.5 m high.

(…/cont.)

(Table A2.2 cont.)

LAND SYSTEM	MEASURE (Associated goals) [a]	SCORE				
		+2[b, c]	**+1**[b, c]	**0**[b, c]	**-1**	**-2**[d]
Floodplain and wetlands	*Impact on vegetation* 2.1, 2.2[f]	• No removal of vegetation.	• No removal of Priority 3 shrubs 1–2 m high.	• No removal of Priority 1 and 2 vegetation. • No removal of Priority 3 shrubs >2 m high. • Less than 30% of tree branches have been removed. • Rootstock is intact.	• Priority 1 and 2 vegetation <2 m high have been removed. • Priority 3 shrubs >2 m high have been removed. • Rootstock is intact.	• Trees and/or shrubs >2 m high have been removed. • Rootstock has been removed.
	Disturbance to land surface 2.2, 2.3, 2.4, 2.5[e]	• No windrows. • No interference with drainage channels.	• Windrows are <100 mm high for >50% of line. • OLimitedy creek banks <0.5 m high have been cut.	• Windrows are <100 mm high. • Creek banks 0.5–1 m high have been cut. • Creeks are not blocked. • Wheel tracks are <100 mm deep.	• Windrows are <0.3 m high. • Creek banks 1–2 m high have been cut and not restored. • Creeks are blocked by material <1 m deep.	• Windrows are >0.3 m high. • Creek banks >2 m high have been cut. • Creeks are blocked by material >1 m deep. • Wheel tracks are >0.2 m deep. • Soil compaction is evident.
Gibber plain and tableland	*Impact on vegetation* 2.1, 2.2	• No disturbance to vegetation.	• No removal of vegetation.	• Maximum of two trees 1–3 m high have been unavoidably removed at creek crossings. • Less than 30% of tree branches have been removed. • Creek crossings are doglegged.	• Vegetation has been removed unnecessarily. • Three or more trees 1–3 m high have been removed at creek crossings.	• Trees have been removed unnecessarily. • Two or more trees >3 m high have been removed at creek crossings.
	Disturbance to land surface 2.2, 2.3, 2.5[e]	• No evidence of seismic line.	• OLimitedy wheel tracks are evident.	• Line has been rolled or walked. • No blade work. • Creek banks have been cut oLimitedy where necessary. • Creeks are not blocked.	• Creek banks 1–2 m high have been cut and not restored. • Creeks are blocked by material <1 m deep. • 'Windrows'[d] exist but are <50 mm high. • Off line trafficking is evident.	• Gibber mantle has been removed. • Creek banks >2 m high have been cut and not restored. • Creeks are blocked by material >1 m deep. • 'Windrows'[g] are >50 mm high.
Salt lake	*Disturbance to land surface* 2.3, 2.5[e]	• No evidence of seismic line.	• No evidence of shotholes. • Little evidence of foot trafficking.	• OLimitedy footprints are evident. • No significant evidence of shotholes.	• Wheel tracks are <0.2 m deep. • Minor evidence of shotholes.	• Wheel tracks are >0.2 m deep. • Bog holes are evident. • Dominant evidence of shotholes (e.g. cratering, blow out, discolouration).

(a) Goals under Objective 2:

2.1 Clearing or other impacts on native vegetation are minimised.

2.2 Disturbance or other impacts on native fauna and their habitats are minimised.

2.3 Impact on soil is minimised.

2.4 Impact on surface drainage is minimised

2.5 Visual impact of operations (including litter) is minimised.

2.6 Impact on other land users is minimised.

2.7 Third party use of sites, following the completion of operations, is discouraged.

(b) If any criterion (dot point) within a -1 or -2 cell occurs, then a score of -1 or -2 will be allocated.

(c) For 0,+1 and +2 cells, all relevant criteria (dot point) within the cell must be satisfied to score at that level.

(d) Some criteria at -2 level may also be subject to defined conditions, but are included in this table to ensure that they are clearly identified.

(e) All vertical measurements to be measured from normal ground surface.

(f) Priority classification refers to Wiltshire and Schmidt (1977).

(g) 'Windrows' in this context means mounding of gibbers through the action of wheel trafficking and associated dispersal of gibbers

GAS criteria for assessing the level of rehabilitation of seismic lines in the Cooper and Eromanga Basins, South Australia

LAND SYSTEM	MEASURE (Associated goals) [a]	SCORE +2 [b,c]	+1 [b,c]	0 [b,c]	-1	-2 [d]
Non land system specific	*Vegetation regrowth* 2.1, 2.2	• Line is virtually indistinguishable from the surrounding flora. • All vegetation has approximately the same natural variability on or off line.	• Vegetation on line is well established, but is oLimitedy ~50% of the height and distribution of the surrounding flora.	• Regrowth is evident; new shoots are appearing (grasses, shrubs, annuals). • Density of new vegetation is ~50% of that of the surrounding vegetation. • No weed infestation.	• Some regrowth is evident, but at a density well below 50% of the surrounding vegetation. • Some weed infestation.	• Line is clearly distinguishable from surrounding flora. • Extensive weed infestation.
	Visual impact 2.5	• No evidence of seismic operations.	• Line is oLimitedy evident when occupying a known reference point.	• Line weaves through vegetated areas. • Line of sight is impaired.	• No doglegs in vegetated areas. • No weaving. • Line of sight is unimpaired.	• Line is clearly evident and dominates the landscape.
	Third party use 2.7	• No third party use.	• Very little evidence of third party use.	• Little evidence of third party use.	• Significant third party use.	• Line has become a major track.
	Uphole site restoration 2.3, 2.5 [e]	• No evidence of upholes.	• Evidence of upholes is difficult to discern.	• Cuttings are evident but dispersed around hole. • No subsidence.	• Hole is plugged. • Cuttings form mound <0.3 m high. • Subsidence is evident.	• Hole is open. • Cuttings form mound >0.3 m high.
	Pollution or litter 2.1, 2.2, 2.3, 2.5	• No pollution or litter.	• No water or oil pollution. • Maximum of 1 pin flag/2 km. • No other litter.	• No evidence of water or oil pollution. • Maximum of 1 pin flag/km. • No other litter.	• Minor evidence of vehicle oil spills. • Maximum of 2 pin flags/km. • Maximum of 1 item of other litter/km.	• Waste water has changed the microenvironment. • Oil spillage is clearly evident. • Three or more pin flags/km. • Two or more items of other litter/km.
	Erosion 2.3 [e]	• No evidence of erosion.	• Minor localised erosion.	• Minor erosion. • No gullies.	• Significant erosion. • Gullies <0.3 m deep have formed. • Floodwaters have been diverted along seismic lines.	• Severe erosion. • Gullies >0.3 m deep have formed. • Watercourses have been altered by seismic line; line has become a creek.
Dunefield	*Disturbance to land surface* 2.3, 2.5 [e]	• No evidence of seismic operations.	• Dune cuts <0.5 m deep are still evident. • Windrows in swales are <100 mm high and occur for <50% of line. • Disturbance to dune flanks is barely visible.	• Dune cuts <1 m deep are still evident, providing cut is not vertical. • Side cuts are <0.5 m deep. • Windrows in swales are <100 mm high.	• Dune cuts are 1–3 m deep. • Side cuts are <2 m deep. • Windrows are <0.3 m high.	• Dune cuts are >3 m deep. • Side cuts are >2 m deep. • Dune cuts are vertical. • Sand is ramped into corridor. • Windrows are >0.3 m high.

(…/cont.)

(Table A2.3 cont.)

LAND SYSTEM	MEASURE (Associated goals) [a]	SCORE				
		+2[b,c]	+1[b,c]	0[b,c]	-1	-2[d]
Floodplain and wetlands	*Disturbance to land surface* 2.2, 2.3, 2.4, 2.5[e]	• No evidence of seismic operations.	• Windrows are <50 mm high and occur for <50% of line. • OLimitedy wheel tracks are evident.	• Windrows are <50 mm high. • Creek bank cuts <1 m deep have reformed. • Creeks are not blocked.	• Windrows are consistently <100 mm high. • Creek bank cuts < 2 m deep have not reformed. • Creeks are blocked by material <1 m deep. • Wheel tracks are <100 mm deep.	• Windrows are consistently >100 mm high. • Creek bank cuts >2 m deep have not reformed. • Creeks are blocked by material >1 m deep. • Wheel tracks are >100 mm deep. • Soil compaction is evident.
Gibber plain and tableland	*Disturbance to land surface* 2.2, 2.3, 2.5[e,f]	• No evidence of seismic operations.	• Slight evidence of wheel tracks.	• Wheel tracks are evident but <50 mm deep. • Creeks are not blocked. • No 'windrows'[f].	• Wheel tracks are >50 mm deep. • Creek banks have not reformed. • 'Windrows'[f] exist but are <50 mm high.	• Creeks are blocked. • 'Windrows'[f] are >50 mm high. • Significant evidence of erosion.
Salt lake	*Disturbance to land surface* 2.3, 2.4 [e]	• No evidence of seismic operations.	• Little evidence of seismic operations. • No evidence of shotholes.	• No wheel tracks are evident. • Little evidence of foot trafficking. • No significant evidence of shotholes.	• Wheel tracks are <0.2 m deep. • Minor evidence of shotholes.	• Wheel tracks are >0.2 m deep. • Bog holes are evident. • Dominant evidence of shotholes (e.g. cratering, blow out, discolouration)

(a) Goals under Objective 2:

2.1 Clearing or other impacts on native vegetation are minimised.

2.2 Disturbance or other impacts on native fauna and their habitats are minimised.

2.3 Impact on soil is minimised.

2.4 Impact on surface drainage is minimised.

2.5 Visual impact of operations (including litter) is minimised.

2.6 Impact on other land users is minimised.

2.7 Third party use of sites, following the completion of operations, is discouraged.

(b) If any criterion (dot point) within a -1 or -2 cell occurs, then a score of -1 or -2 will be allocated.

(c) For 0,+1 and +2 cells, all relevant criteria (dot point) within the cell must be satisfied to score at that level.

(d) Some criteria at -2 level may also be subject to defined conditions, but are included in this table to ensure that they are clearly identified.

(e) All vertical measurements to be measured from normal ground surface

GAS scores for assessing seismic lines on completion of survey in the Cooper Basin, South Australia

Beach Petroleum LIMITED: 2005 Discus Seismic Survey: Recorded October 12th to 21st, 2005: Audited by: Bruce Beer

LAND SYSTEM (Locations)	MEASURE (Associated goals)[a]	SCORE				
		+2[b, c]	+1[b, c]	0[b, c]	-1	-2[d]
Non land system specific **A. EMP-1 looking northeast** **B. EMP-1 looking southwest** **C. EMP-2 looking northeast** **D. EMP-2 looking southwest**	*Impact on infrastructure* 2.6			• **N/A**	•	•
E. EMP-3 looking east **F. EMP-3 looking west**	*Visual impact* 2.5, 2.7	•	•	**A, B, D, E, F**	• **C**	•
	Uphole site restoration 2.3, 2.5[e]	•	•	**N/A**	•	•
Note: GAS scores refer to the area 500m either side of the EMP location	*Pollution or litter* 2.1, 2.2, 2.3, 2.5	**A,B,C, D,E,F**	•		•	•
Dunefield	*Impact on vegetation* 2.1, 2.2[f]	•	**A,B,C,D,E, F**		•	•
	Disturbance to land surface 2.2, 2.3[e]	•	**A,B,C,D,E, F**		•	•

(…/cont.)

LAND SYSTEM	MEASURE (Associated goals) [a]	SCORE				
		+2 [b, c]	+1 [b, c]	0 [b, c]	-1	-2 [d]
Floodplain and wetlands	*Impact on vegetation* 2.1, 2.2 [f]	•		• **N/A**	•	•
	Disturbance to land surface 2.2, 2.3, 2.4, 2.5 [e]	•		• **N/A**	•	•
Gibber plain and tableland	*Impact on vegetation* 2.1, 2.2	•	•	• **N/A**	•	•
	Disturbance to land surface 2.2, 2.3, 2.5 [e]	•	•	• **N/A**	•	•
Salt lake	*Disturbance to land surface* 2.3, 2.5 [e]	•	•	• **N/A**	•	•

(a) Goals under Objective 2:

2.1 Clearing or other impacts on native vegetation are minimised.

2.2 Disturbance or other impacts on native fauna and their habitats are minimised.

2.3 Impact on soil is minimised.

2.4 Impact on surface drainage is minimised

2.5 Visual impact of operations (including litter) is minimised.

2.6 Impact on other land users is minimised.

2.7 Third party use of sites, following the completion of operations, is discouraged.

(b) If any criterion (dot point) within a -1 or -2 cell occurs, then a score of -1 or -2 will be allocated.

(c) For 0,+1 and +2 cells, all relevant criteria (dot point) within the cell must be satisfied to score at that level.

(d) Some criteria at -2 level may also be subject to defined conditions, but are included in this table to ensure that they are clearly identified.

(e) All vertical measurements to be measured from normal ground surface.

(f) Priority classification refers to Wiltshire and Schmidt (1977).

(g) 'Windrows' in this context means mounding of gibbers through the action of wheel trafficking and associated dispersal of gibbers

GAS scores for assessing the level of rehabilitation of seismic lines in the Cooper and Eromanga Basins, South Australia

Beach Petroleum LIMITED: 2005 Discus Seismic Survey: Recorded October 12th to 21st, 2005: Audited by: ?

LAND SYSTEM	MEASURE (Associated goals) [a]	SCORE				
		+2 [b,c]	+1 [b,c]	0 [b,c]	-1	-2 [d]
Non land system specific **A. EMP-1 looking northeast** **B. EMP-1 looking southwest** **C. EMP-2 looking northeast** **D. EMP-2 looking southwest** **E. EMP-3 looking east** **F. EMP-3 looking west**	*Vegetation regrowth* 2.1, 2.2	•	•	•	•	•
	Visual impact 2.5	•	•	•	•	•
	Third party use 2.7	•	•	•	•	•
	Uphole site restoration 2.3, 2.5 [e]	•	•	•	•	•
	Pollution or litter 2.1, 2.2, 2.3, 2.5	•	•	•	•	•
	Erosion 2.3 [e]	•	•	•	•	•
Dunefield	*Disturbance to land surface* 2.3, 2.5 [e]	•	•	•		•

LAND SYSTEM	MEASURE	SCORE				
	(Associated goals) [(a)]	**+2** [(b,c)]	**+1** [(b,c)]	**0** [(b,c)]	**-1**	**-2** [(d)]
Floodplain and wetlands	*Disturbance to land surface* 2.2, 2.3, 2.4, 2.5 [(e)]		•	•	•	•
Gibber plain and tableland	*Disturbance to land surface* 2.2, 2.3, 2.5 [(e,f)]	•	•	•	•	•
Salt lake	*Disturbance to land surface* 2.3, 2.4 [(e)]	•	•	•	•	•

(a) Goals under Objective 2:

- 2.1 Clearing or other impacts on native vegetation are minimised.
- 2.2 Disturbance or other impacts on native fauna and their habitats are minimised.
- 2.3 Impact on soil is minimised.
- 2.4 Impact on surface drainage is minimised.
- 2.5 Visual impact of operations (including litter) is minimised.
- 2.6 Impact on other land users is minimised.
- 2.7 Third party use of sites, following the completion of operations, is discouraged.

(b) If any criterion (dot point) within a -1 or -2 cell occurs, then a score of -1 or -2 will be allocated.

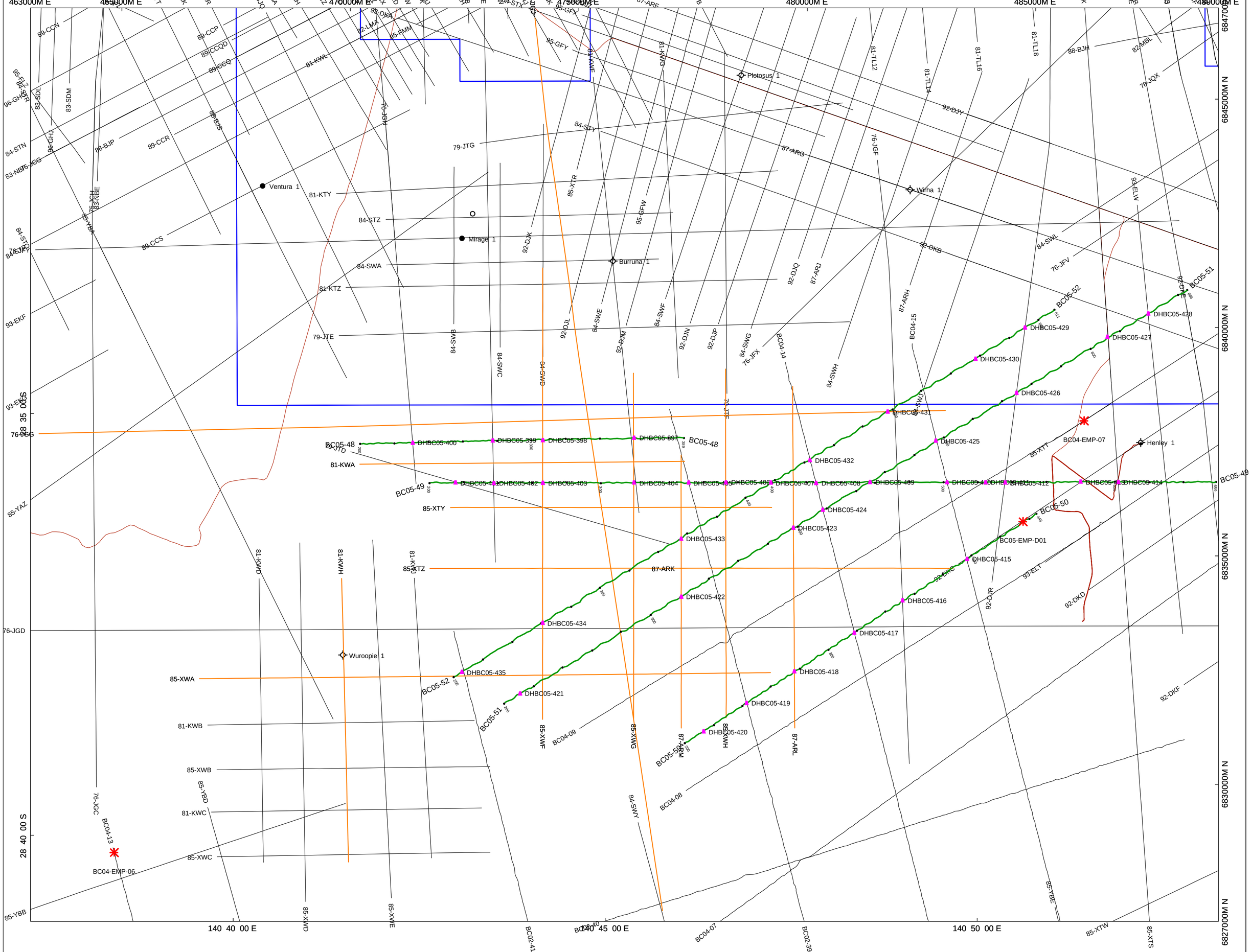
(c) For 0,+1 and +2 cells, all relevant criteria (dot point) within the cell must be satisfied to score at that level.

(d) Some criteria at -2 level may also be subject to defined conditions, but are included in this table to ensure that they are clearly identified.

(e) All vertical measurements to be measured from normal ground surface.

(f) 'Windrows' in this context means mounding of gibbers through the action of wheel trafficking and associated dispersal of gibbers away from wheel tracks.

PEL 95 2005 Seismic



Legend

- Existing Lines 84-SFW
- Reprocessed Lines 84-SXY
- 2005 Lines ..... BC05-01 (0 – 200)
- 2005 Upholes .....
- EMP Locations .....

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"

Beach Petroleum Ltd

2005 Discus Seismic Survey

PEL 95

New and Reprocessed Lines
Base Map

Scale: 1:50000	Date : January 30, 2006	Encl No: 1
Contour Interval:	Author: dcr	
Map File:		

Legend

Existing Lines	84-SFW	
Reprocessed Lines	84-SXY	
2005 Lines	BC05-01	
2005 Upholes		
EMP Locations		

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"

Beach Petroleum Ltd

2005 Discus Seismic Survey
PEL 107

New and Reprocessed Lines
Base Map

Scale: 1:50000	Date : January 30, 2006	Encl No:
Contour Interval:	Author: dcr	2
Map File:		