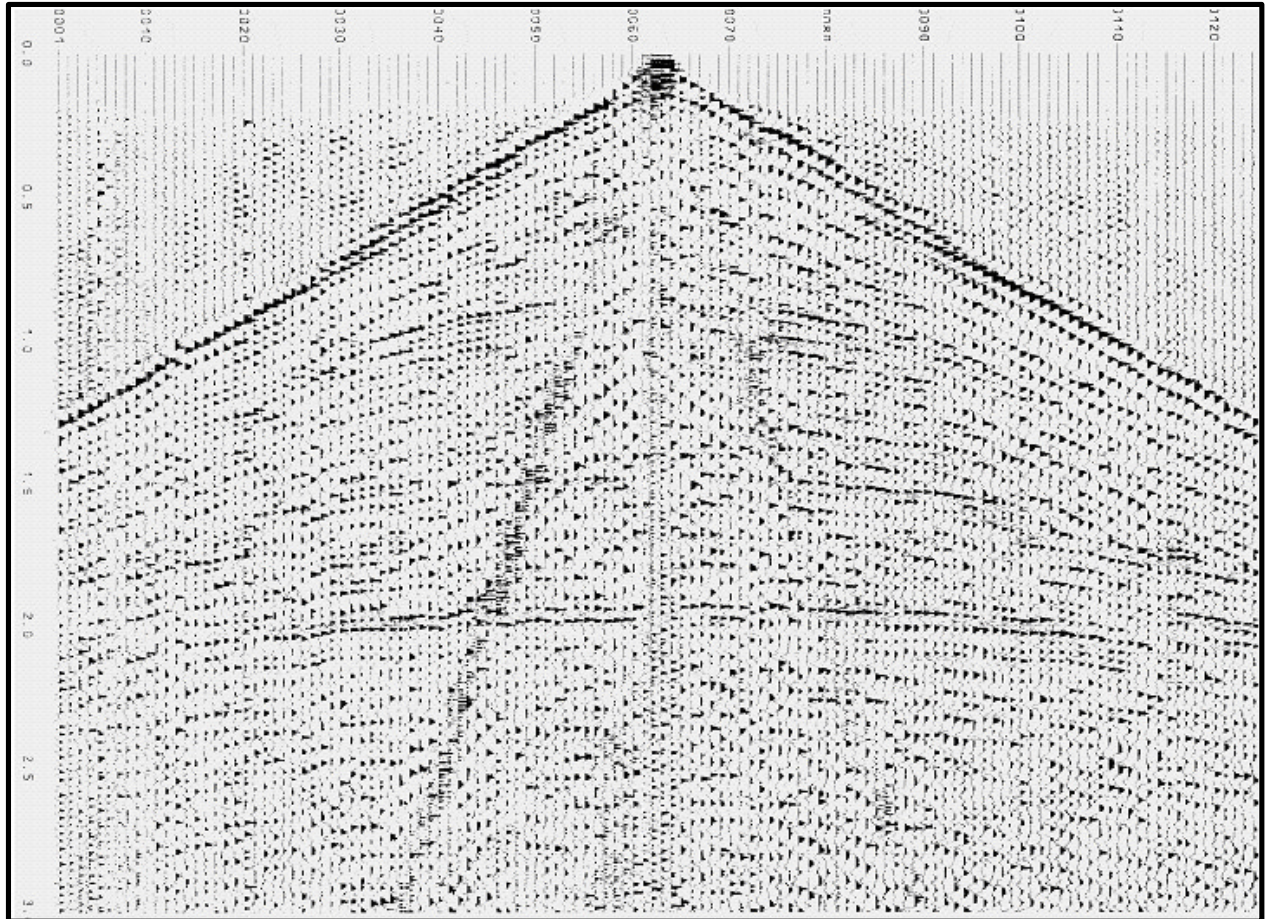


# **2003 Albus Seismic Survey**

## **BEACH PETROLEUM LIMITED**



### **Final Operations Report**

### **PEL 91, 92, 107 & 110 – South Australia**

### **Cooper Basin**

Compiled by

D C Roberts for

Beach Petroleum Ltd.

A.B.N. 20 007 617 969

Level 1, 25 Conyngham Street,

GLENSIDE S.A. 5065

GPO Box 175,

ADELAIDE S.A. 5001



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## **1.0 INTRODUCTION**

The 2003 Albus Seismic Survey recorded 39 lines totalling 360 kilometres of new seismic data commencing on 29<sup>th</sup> August 2003 and ending on 2<sup>nd</sup> October 2003 in PEL 110, PEL 107 PEL 91 & PEL 92 in the Cooper Basin in South Australia. 591 kilometres of earlier vintage seismic data (46 lines) were reprocessed with the new data. 177 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.

The program was split after recording in PEL 110 when the crew recorded two surveys for Stuart Petroleum NL from 6<sup>th</sup> to 24<sup>th</sup> September.

Associated Facilities Licences were required for the acquisition outside of Permits PEL 110 & PEL 107.

A Work Area Clearance (WAC) process preceded the survey, conducted by representatives of the Ngayana Dieri Karna (NDK) Native Title Claimant Group in PEL 107, 91 & 92. A similar process took place in PEL 110 with the Yandruwandha-Yawarrawarrka (YY) Native Title Claimant Group. Each group was 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:

<b>PEL 110</b>	<b>%</b>
Beach Petroleum Ltd	37.5
Cooper Energy NL	25
Magellan Petroleum (Southern) PL	37.5
<b>PEL 107</b>	<b>%</b>
Beach Petroleum Ltd	40
Great Artesian Oil & Gas Ltd	60
<b>PEL 91</b>	<b>%</b>
Beach Petroleum Ltd	40
Great Artesian Oil & Gas	60
<b>PEL 92</b>	<b>%</b>
Beach Petroleum Ltd	75
Cooper Energy NL	25

**Table 1 Survey Statistics**

	<b>PEL 91</b>	<b>PEL 92</b>	<b>PEL 107</b>	<b>PEL 110</b>	<b>Total</b>
No of lines	5	5	14	19	39
Line No Range	BC03-39	BC03-34 to 38	BC03-20 to 33	BC03-01 to 19	BC03-01 to 39
Line length	6.52 km	37.012 km	152.4 km	163.5 km	359.4 km
No upholes	4	21	80	72	177
Average hole depth	30.8 m	31.8 m	30.8 m	30.2	31.5 m
Holes per day	4	5.25	6	5.25	5
Reprocessing Lines	0	0	19	27	46
Reprocessing km	0 km	0 km	270.4 km	320.9 km	591.3 km
Start Date	30 <sup>th</sup> September 2003	1 <sup>st</sup> October 2003	24 <sup>th</sup> September 2003	29 <sup>th</sup> August 2003	29 <sup>th</sup> August 2003
End Date	30 <sup>th</sup> September	2 <sup>nd</sup> October	30 <sup>th</sup> September	5 <sup>th</sup> September	2 <sup>nd</sup> October
Average km/day	22.7	18.51	22.7	20.44	21.2
Average km/rec hr	3.76	3.63	3.76	3.56	3.65

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 Trace Energy Services 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. The data processing and reprocessing was awarded to Robertson Research (Australia) in Perth, Western Australia and the Data Processing Report is in Appendix 4. Expertest (Adelaide) recorded the upholes for the survey.

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

**Table 2 Contractors**

<b>Operation</b>	<b>Contractor</b>	<b>Report</b>
Field supervision	Bruce Beer	Appendix 1 3 reports a) PEL 110 b) PEL 107/91 c) PEL 92
Data acquisition	Trace Energy Services	Appendix 2
Line preparation	Denham & O'Keefe	
Survey	Dynamic Satellite Surveys	Appendix 3
Uphole drilling	Daly Drilling Co	
Uphole recording	Expertest	
Data processing	Robertson Research	Appendix 4

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



## 2.0 FIELD OPERATIONS

### 2.1 Location

The 2003 Albus seismic survey was conducted within PEL 110, PEL 107, PEL 91 and PEL 92. PEL 110 is approximately 150 km north of the Moomba oil and gas production facility operated by Santos Ltd within the Cooper Basin South Australia. PEL 107, PEL 91 & PEL 92 are approximately 60 km south and west of Moomba. Figure 1 shows the regional location of the Albus Seismic Survey and Figures 2, 3 4 & 5 shows the line location maps for each PEL. Tables 3 to 6 list the new lines and the lines selected for reprocessing.

*Table 3 New and reprocessed lines PEL 110*

NEW LINES				REPROCESSED LINES			
Line	Station		KM	Line	Station		KM
	Start	End			Start	End	
BC03-01	200	427	8.55	84-THX	215	915	26.29
BC03-02	200	406	7.62	85-ZFG	694	1007	15.37
BC03-03	200	432	8.74	85-ZFM	200	490	12.71
BC03-04	200	362	6.11	88-BWG	200	400	9.34
BC03-05	200	359	6.07	88-BWH	200	564	13.69
BC03-06	200	386	7.01	88-BWJ	200	564	13.69
BC03-07	200	519	12.0	88-BWK	200	388	7.08
BC03-08	200	370	6.41	88-BWL	400	672	12.03
BC03-09	200	522	12.11	88-BWP	200	468	10.08
BC03-10	200	720	19.54	88-BWQ	200	544	12.93
BC03-11	200	385	6.97	91-DGE	200	354	5.81
BC03-12	200	387	7.05	91-DGF	200	360	6.03
BC03-13	200	434	8.81	91-DGG	200	360	6.03
BC03-14	200	480	10.57	91-DGP	200	604	15.18
BC03-15	200	505	11.47	91-DGX	200	408	7.83
BC03-16	200	457	9.67	91-DGY	200	408	7.83
BC03-17	200	332	4.99	92-DZD	200	416	8.13
BC03-18	200	338	5.21	92-DZE	200	692	18.48
BC03-19	200	336	5.14	95-FNY	200	456	9.64
				96-GRM	200	664	19.76
				96-GRR	200	540	12.78
				96-GRS	200	428	8.58
				96-GRT	200	468	10.08
				96-GRZ	200	520	12.03
				96-GSA	200	440	9.03
				96-GSE	200	656	17.13
				96-GSF	200	490	13.24
		Total	164.2			Total	320.9

*Table 4 New and reprocessed lines PEL 107*

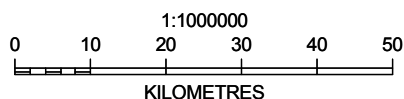
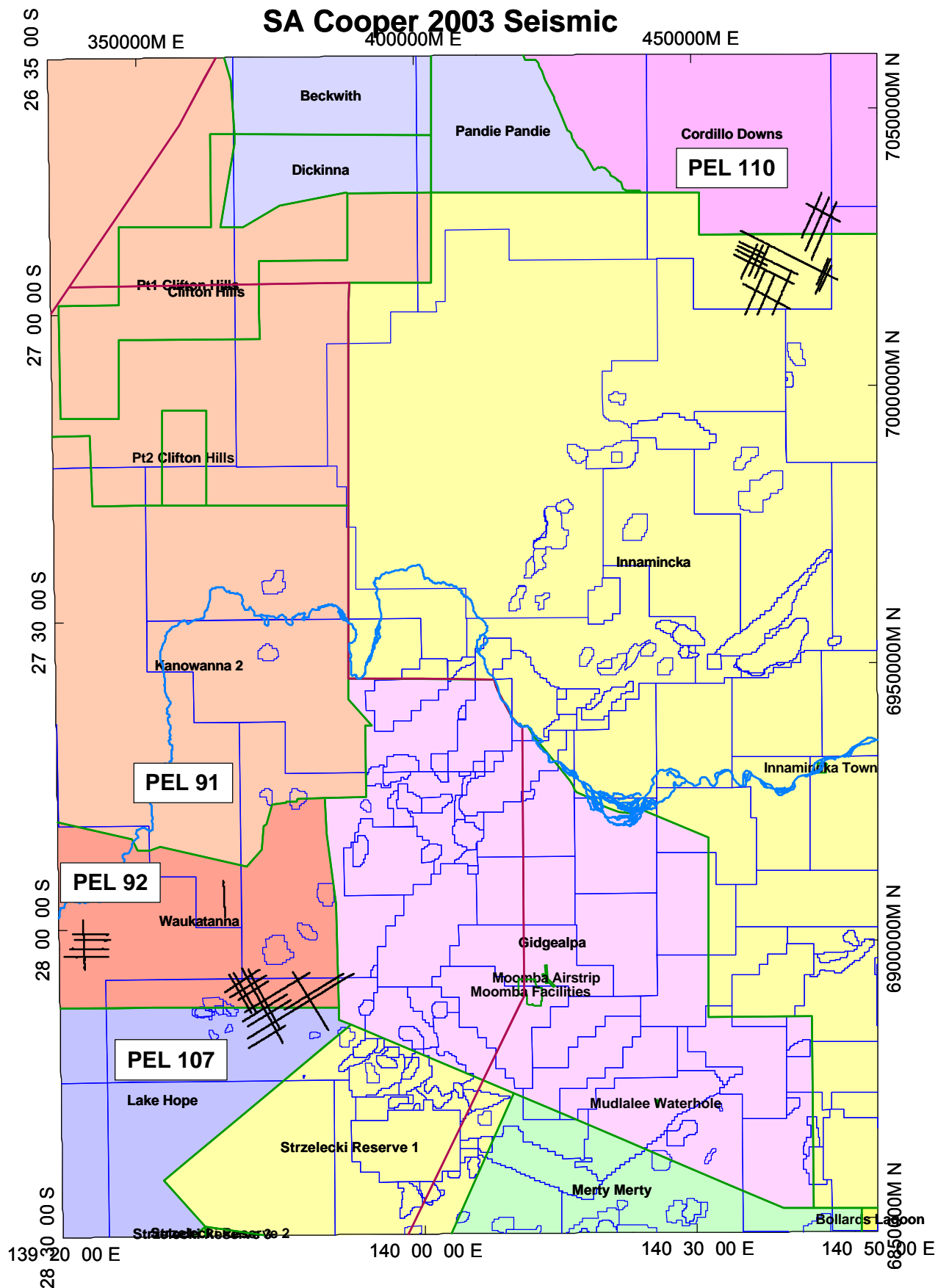
NEW LINES				REPROCESSED LINES			
Line	Station		KM	Line	Station		KM
	Start	End			Start	End	
BC03-20	200	407	7.80	87-BCN	200	609	15.41
BC03-21	200	563	13.65	87-BCP	200	505	11.51
BC03-22	200	444	9.19	87-BCQ	200	494	11.06
BC03-23	200	532	12.49	87-BCS	200	559	13.50
BC03-24	200	800	22.54	87-BCR	200	626	16.01
BC03-25	200	408	7.84	88-BNR	200	495	11.14
BC03-26	200	608	15.34	88-BNS	200	536	12.64
BC03-27	200	521	12.08	88-BNT	200	740	20.28
BC03-28	200	530	12.41	88-BNW	200	851	24.49
BC03-29	200	448	9.34	88-BNX	200	1027	31.08
BC03-30	200	399	7.50	88-BNY	200	427	8.59
BC03-31	200	373	6.53	88-BPR	200	479	10.54
BC03-32	200	417	8.18	88-BPS	220	883	24.90
BC03-33	200	413	8.03	88-BPT	550	962	15.49
				88-BPX	200	540	12.79
				90-CRP	200	399	7.53
				90-CRS	200	340	5.29
				90-CRT	200	479	10.54
				90-CSL	200	399	7.54
		Total	152.9			Total	270.4

*Table 5 New lines PEL 91*

NEW LINES			
Line	Station		KM
	Start	End	
BC03-39	200	374	6.56
		Total	6.56

*Table 6 New lines PEL 92*

NEW LINES			
Line	Station		KM
	Start	End	
BC03-34	200	414	8.06
BC03-35	200	386	7.01
BC03-36	200	371	6.45
BC03-37	200	373	6.53
BC03-38	200	442	9.11
		Total	37.16

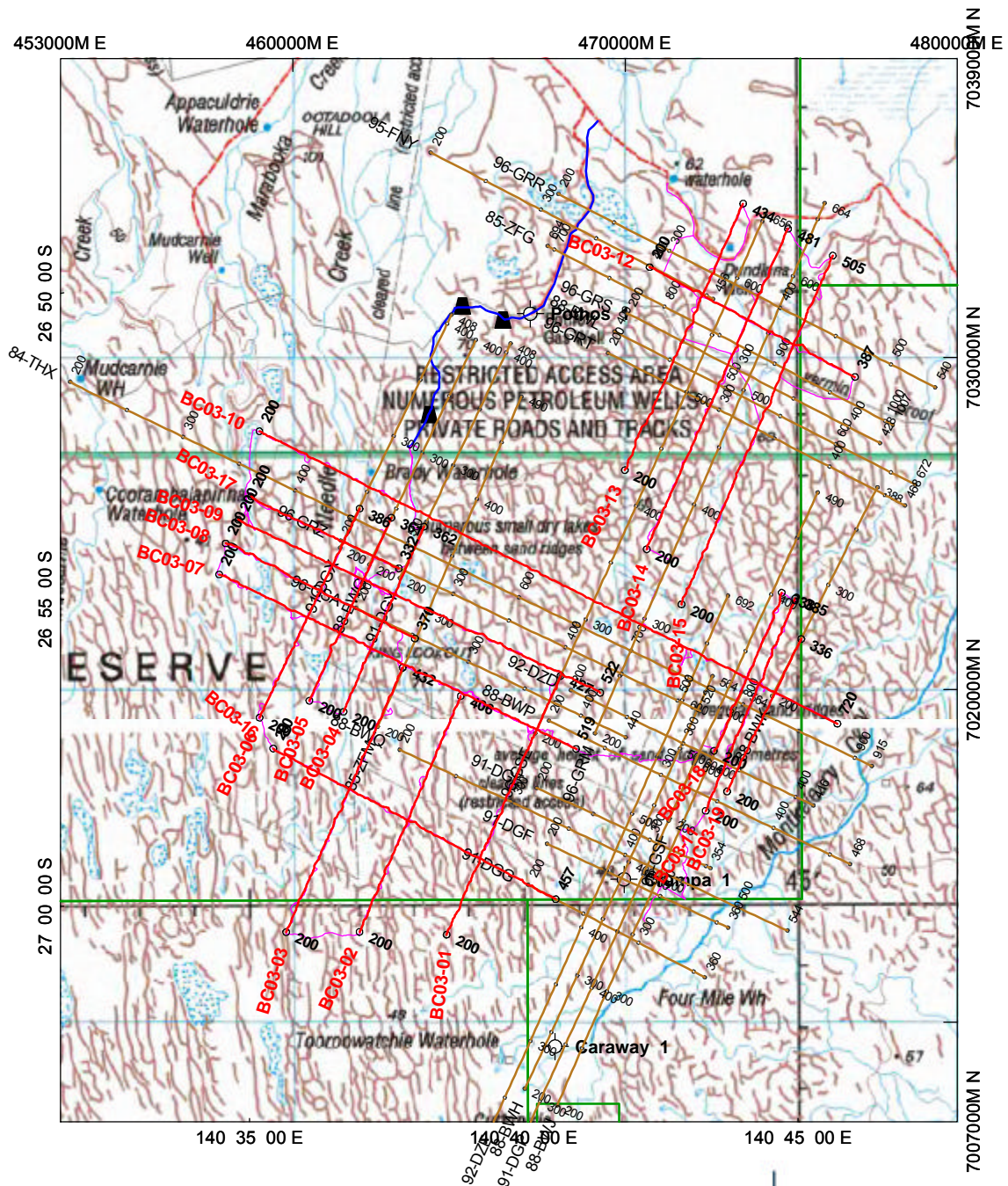


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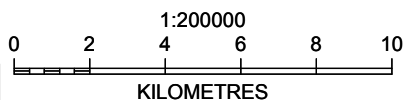
**Regional Location**  
**2003 Albus Seismic Survey**  
**PEL 110, 107, 91 & 92**  
**Figure 1**



# PEL 110



Legend	
2003 Albus Seismic Survey	
PEL 110	
2003 Seismic Line	---
2003 Reprocessing	---



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**Figure 2**



# PEL 107

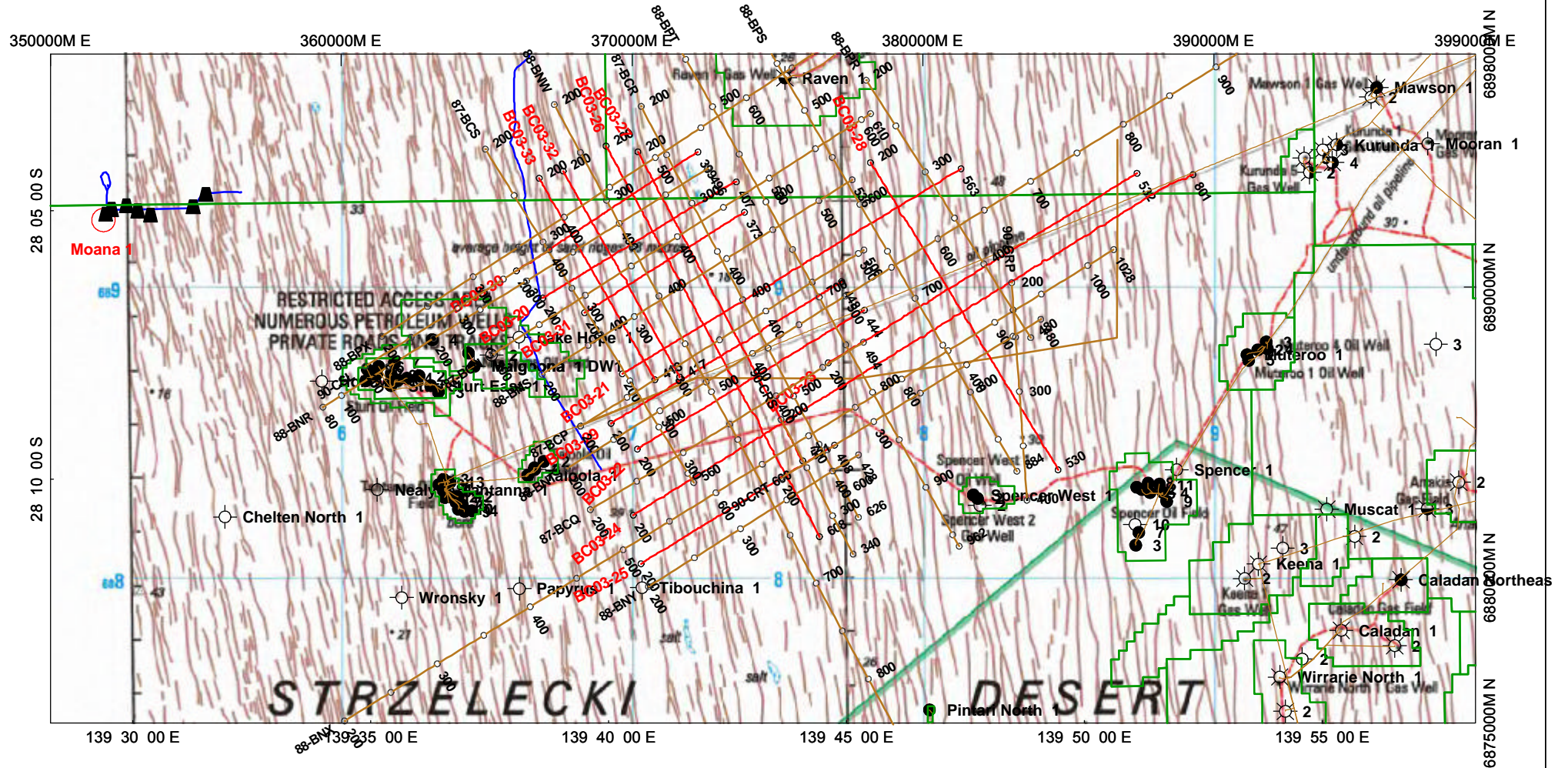
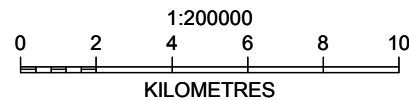


Figure 3

Legend	
2003 Albus Seismic Survey -PEL 107	
2003 Seismic Line	---
2003 Reprocessing	---

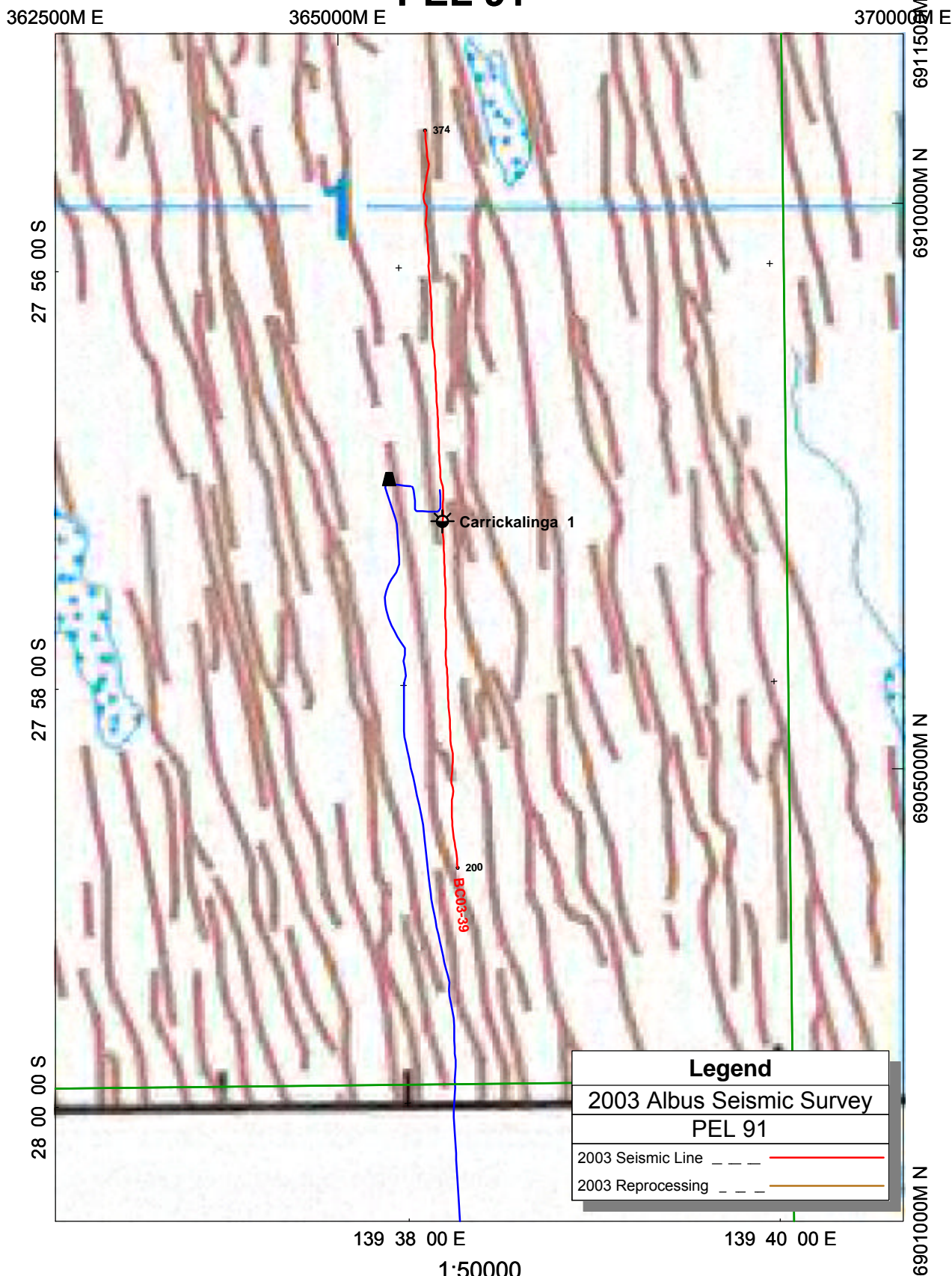


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# PEL 91

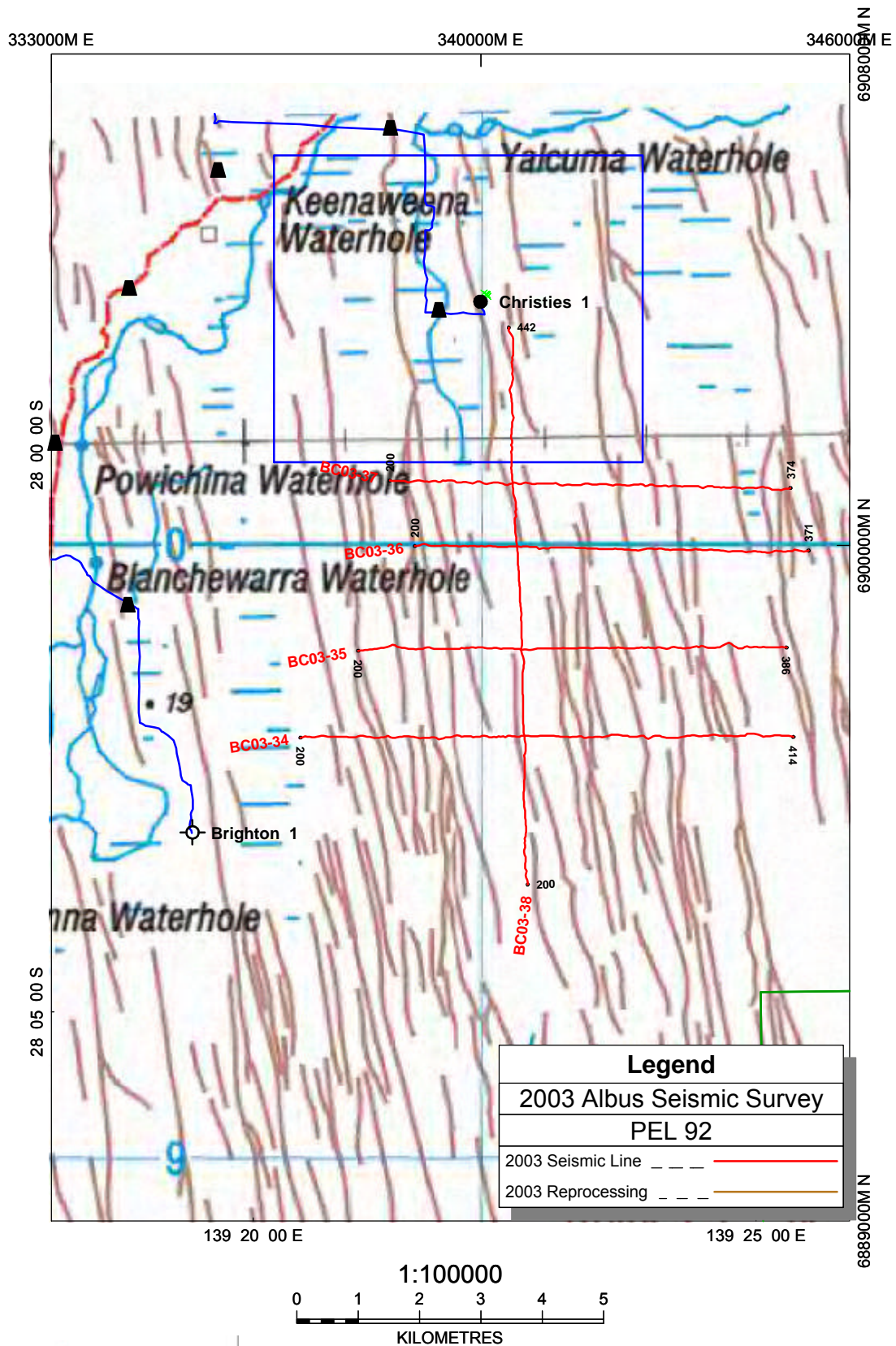


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**Figure 4**



# PEL92



UNIVERSAL TRANSVERSE MERCATOR PROJECTION  
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Mapsheet datum: "GDA94"

**Figure 5**

## 2.2 Permitting

PIRSA was sent an application for permission to conduct the survey in PEL 110 & PEL 107 on 20<sup>th</sup> June 2003. An application for PEL 92 was sent on 17<sup>th</sup> July 2003. Approval was received for these three PELs on 5<sup>th</sup> August 2003. Application for the PEL 91 line was made on 22<sup>nd</sup> August and approval received from PIRSA on 10<sup>th</sup> September 2003.

The PEL 110 lines were located over the Innamincka Station and Cordillo Downs 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 National Parks and Wildlife Service was advised of the survey as the Innamincka Regional Reserve overlies the Innamincka pastoral lease. The Yandruwandha-Yawarrawarrka People (YY) and Aboriginal Legal rights Movement were advised of the survey with a Notice of Entry. The YY were also consulted for the Cultural Heritage Clearance (next section).

PEL 107, 91 & 92 lines were located within the Mulka and the Mungeranie 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 Ngayana Dieri Karna (NDK) and Aboriginal Legal rights Movement were advised of the survey with a Notice of Entry. The Ngayana Dieri Karna (NDK) were also consulted for the Cultural Heritage Clearance (next section) in their respective areas.

## 2.3 Cultural Heritage Clearance

The PEL 110, PEL 107, PEL 91 and PEL 92 Joint Ventures have ancillary agreements with the Ngayana Dieri Karna (Aboriginal Corporation) (NDK) and the Yandruwandha-Yawarrawarrka Traditional Land Owners (Aboriginal Corporation) 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.

### 1) Yandruwandha-Yawarrawarrka Work Area Clearance

The Work Area Clearance (WAC) in PEL 110 was undertaken between 28<sup>th</sup> July and 1<sup>st</sup> August 2003 and inspected 100% of proposed seismic lines. The WAC survey team comprised six representatives of the Yandruwandha-Yawarrawarrka People and an archaeological consultant. Bill Hedditch accompanied the team as the Beach representative and assisted with logging the line locations and deviations.

### 2) Ngayana Dieri Karna Work Area Clearance

A Clearance Request (PEL 107 & PEL 92) was sent to the NDK legal representative and a field inspection was conducted between 18<sup>th</sup> July and 21<sup>st</sup> July. The Work Area Clearance (WAC) was coordinated by anthropologists from the Department of Anthropology at the University of Adelaide and the Aboriginal Legal Rights Movement, Native title Unit.

NDK Representatives –

- Male: E Landers, W Landers, K Dodd,
- Female: L Stuart, J Kennedy, B Ed
- Technical specialists – D Fergie, J Scott, A Nettlefold
- Caterer – D Herbert
- Beach Representative – Bill Hedditch

A Clearance Request for further work in PEL 92 and the PEL 91 line work was sent to the NDK legal representative and field site visits were conducted from 20<sup>th</sup> August to 28<sup>th</sup> August 2003 (PEL 91 & PEL 92) and included the clearance for the Christies 3D survey. The work area clearance party consisted of the following 10 persons

- NDK Representatives –
  - Male: E Landers, L Colson, P Stuart
  - Female: B Ed, B Warren, J Kennedy
- Technical specialists – D Fergie, A Nettlefold, J Scott
- Caterer – D Herbert
- Beach Representative – D Burns

Inspection and survey of seismic lines was carried out in two or three 4WD vehicles equipped with HF 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 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 Trace Energy Services to Denham and O'Keeffe Earthmoving (DOK) of Toowoomba, Queensland. DOK 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 11<sup>th</sup> August and was completed on 16<sup>th</sup> September 2003. A total of 359.4 km of 2D seismic line was prepared separated by a period working for Stuart Petroleum.

Table 6 lists the permanent marker locations established.

*Table 7 Permanent marker locations*

Line or Number	Stn	Easting	Northing	Elevation	Comments
<b>PEL 91</b>					
BAS3		365804.9	6907500.9	29.75	
<b>PEL 92</b>					
BC03-35	276+35	340885.0	6898322.4	17.73	
<b>PEL 107</b>					
BC03-24	596	382674.2	6889951.8	40.85	
BC03-20	312	370517.2	6891791.5	35.51	BAS2
BAS1		375055.2	6885286.6	34.39	
<b>PEL 110</b>					
BC03-04	277+22	462676.1	7022006.5	54.73	44T1
BC03-02	308	463600.8	7016428.1	49.70	44T2
BC03-10	532+18	470110.8	7022142.9	57.51	44T3
BC03-13	375+16	472672.6	7032612.4	67.49	44T4
BC03-14	301	472158.1	7027700.6	61.23	44T5



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 3)

## 2.5 Environment

The 2003 Albus 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 expert in the techniques required to meet these objectives.

### PEL 110

The terrain in PEL 110 caused some problems with the line preparation operation due to the unique quality of the dunes in this area. They are the “Marqualpie” dunes which have no definite orientation as with dunes in the rest of the Cooper Basin. They typically form “cusp-shaped” patterns. It is thus difficult to know when approaching a dune what happens on the other side. To overcome this problem, the operators were encouraged to walk the machine to the top of the dune and assess the situation before making a cut. This of course added to the time consumption.

The environmental impact of the PEL 110 Albus Seismic Survey was significant. Dune cuts were often deep due to necessity but care was taken to avoid unnecessary blade-work in the swales and on the small amount of gibber terrain in the north. A separate environmental report has been written. It contains an EMP report, a GAS audit report and ERF reports.

### PEL 107 & PEL 91

The environmental impact of the PEL 107/91 Albus Seismic Survey was typical of that in dune terrain. The standard practices were observed, i.e. dune cuts were minimised, sand was left on dune shoulders and not ramped into the swale and no windrows were left in swales. Ongoing monitoring of the EMPs will establish how well rehabilitation is taking place. A separate environmental report has been written and submitted to PIRSA. It contains an EMP report, a GAS audit report and ERF reports.

### PEL 92

The environmental impact of the PEL 92 Albus Seismic Survey was typical of that in dune and floodplain terrain. The standard practices were observed, i.e. dune cuts were minimised, sand was left on dune shoulders and not ramped into the swale and no windrows were left in swales or across clay floodplains. Ongoing monitoring of the EMP will establish how well rehabilitation is taking place. A separate environmental report has been written and submitted to PIRSA. It contains an EMP report, a GAS audit report and ERF reports.

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.

## 2.6 Health and Safety

Safety received a high priority from Beach Petroleum, Trace Energy and all sub-contractors during this survey. A joint Stuart Petroleum/Stuart Petroleum induction was held prior to the start of line preparation and again before the start of recording. Doug Roberts represented Beach and John Iredale represented Stuart. Several members of PIRSA also attended. 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 Trace Energy HSE policy were:

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

Areas suggested for improvement are:

- Improved camp setup including landings on top of steps.
- Provision of Royal Flying Doctor medical chest
- Increased training of HSE officer. (eg on manual handling)

As a result of the safety efforts there were no Lost Time Injuries on this job but the following incidents led to the preparation of Risk Identification & Accident reports which are included in an Appendix to the Field Supervision Report (Appendix 1).

PEL 110	1 Incident of skin irritation caused by washing powder
PEL 107	1 Incident of cut finger
PEL 92	1 Incident of fire inside kitchen oven

## 2.7 Recording Operations

Trace Energy Services was selected as the Vibroseis seismic data acquisition contractor for this project. The survey commenced in PEL 110 on 29<sup>th</sup> August 2003. Full details of the operation are in Appendix 1 and Appendix 2. The acquisition parameters are listed in Table 7. 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 8 Acquisition Parameters*

<b>Instruments</b>	
Model	Sercel SN388
No. Channels	124
Tape Format	SEGD rev 1 (Demux) IBM 3480 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
<b>Source Parameters</b>	
Vibrators	4 x LRS-314 on Int'l Paystar 6x6 trucks
Electronics	Pelton Advance 2 Mod 5
Sweep frequency	5-90 Hz Linear
Sweep length	3 sec
No. of sweeps	2 standing
VP interval	37.5 m
Vibrator Array	4 vibs in line, 12.5m pad to pad, centred between stn – no moveup
Phase lock	Ground Force
Drive Level	Max varied by Amplitude control (Peak to Peak)
<b>Receiver Parameters</b>	
Group interval	37.5m
Spread	Split, 2306.25 – 18.75 – 0 – 18.75 – 2306.25
Geophones	Sensor SM4 10Hz
Array	12 in line, centred on station, 3.125m spacing
Connection	Series/Parallel (6x2)
Fold	62

Data quality throughout the Albus Seismic Survey ranged from fair to good. In PEL 110 some lines extended past the Permian edge and the “P” horizon disappeared. S/N was good and a feature of the data was the almost total absence of ground roll. On most monitors the reflectors could be seen continuing through the noise cone.

The Trace Energy crew were accommodated in a mobile camp put together specifically for the Cooper Basin campaign. The crew had 31 persons on the line in addition to the camp and administrative personnel. The average recording rate for this survey was 21.2 km/per day when normalised to a 12 hour day. 3.65-km/recording hour was achieved which is a very good performance for the crew. The average cycle time for the given parameters was about 37 seconds per VP.

## **2.8 LVL Acquisition**

The uphole program for the survey consisted of 481 holes at an average spacing of 2.03 km. Daly Drilling of Perth were contracted through Trace Energy to conduct the drilling work. Daly used a Mayhew 1000 modified drilling rig mounted on a MAN 6x6 truck. Uphole logging was contracted to Expertest using of a 100kg weight drop unit mounted on a Toyota 4x4 tray back unit. The unit had a down-hole geophone tool with a 150m cable. Drilling commenced on 25<sup>th</sup> August and was completed in PEL 92 on 18<sup>th</sup> November 2003.

The average hole depth was 31.5 m and an average of 5 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 91, PEL 92 & PEL 107 licence areas. In PEL 110 the base of weathering ranged between 30 and 50m above sea level datum. The weathering thickness varies with elevation above these levels. Table 10 is a list of the uphole locations.

## **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. Environmental monitoring points were established which will enable a record to be kept over time as the lines recover.

### 3.0 DATA PROCESSING

#### 3.1 Processing tests

Robertson Research Australia Pty. Ltd of Perth WA was awarded the contract to process the data. Processing flow was based on the previous years program. The Contractor report in Appendix 4 discusses the detail and results of the processing.

#### 3.2 Processing sequence

*Table 9 Processing Sequence*

Sequence	Processing Parameters
Transcription	Transcribe SEG-D to Robertson's internal format
Phase conversion	Convert Zero to Minimum phase
Amplitude recovery	Spherical divergence correction Gain (db)=8.0t+6log(t)-98
Statics	Float datum correction Green Mountain Refraction statics calibrated to upholes
CDP sort	62 nominal fold
Deconvolution	Surface consistent spiking with 2 windows
Spectral balance	Spectral whitening using band pass filter 5-10-90-95
Velocity analysis	Prelim approx 2 km intervals
Residual statics I	Surface consistent – 9 trace pilot (max shift +/- 25ms)
Velocity analysis	2 <sup>nd</sup> round approx 1 km intervals
Residual Statics II	Surface consistent – 9 trace pilot
Dip moveout	Hales method, 62 equal offset planes
Velocity analysis	Final velocities at 1 km intervals
NMO corrections	Velocity function referenced to surface
Mute	Offset /time 150m/0ms,200/200,600/550,1330/1200,2307/1900
Scaling	500ms AGC
Statics	Float datum to sea level correction (new time origin –200ms)
CDP trim statics	CDP consistent residual statics – 7 tr pilot window 300-2200ms
Stack	CDP stack (62 fold)
DAS	Decon after Stack 120ms operator 20ms gap
Migration	FD Migration – Second Order solution 12ms step – 100% smoothed stacking velocities
Band pass filter	500 ms 13/17-85/95, 1000ms 10/14-75/85, 2200ms 10/14-65/75
Scaling	Dual window AGC 1000ms & 400ms 50% application
Phase Shift	0 deg for BC03 vintage – various for other vintages

#### 3.3 Static corrections

Refraction first breaks were picked using Green Mountain Refraction statics Delay Time method, which estimate 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 tape listing is included in the Robertson processing report (Appendix 4). A field tape summary is in Table 11. For each line both new and reprocessed the following files were archived

SEG-Y – Filtered Migration Stack, Raw Stack, Raw Migration, Final Stack

CGM+ - Final Stack, Filtered Migrated Stack

#### **4.0 CONCLUSIONS & RECOMMENDATIONS**

The 2003 Albus Seismic Survey was a technical and operational success. The data acquired was of a good standard and together with the reprocessed data provides information to further evaluate the leads and prospects within PEL 110, 107, 92 & 91. 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 very well and would all be commended for future projects in the area. A detailed list of recommendations appears in the Field Operations Report (Appendix 1)

*Table 10 Uphole listing*

Number	FBR file	Line	Station	E	N	Elevation
<b>PEL 110 Cordillo</b>						
DHBC03-01	ALB001.FBR	BC03-13	409+20	473183	7033786	58.0
DHBC03-02	ALB002.FBR	BC03-14	458+6	474559	7033084	57.3
DHBC03-03	ALB003.FBR	BC03-15	483	475922	7032305	59.8
DHBC03-04	ALB004.FBR	BC03-12	211+27	471131	7032522	58.5
DHBC03-05	ALB005.FBR	BC03-12	248+6	472333	7031873	55.3
DHBC03-06	ALB006.FBR	BC03-14	401	473685	7031127	54.7
DHBC03-07	ALB007.FBR	BC03-12	331+12	475073	7030383	58.3
DHBC03-08	ALB008.FBR	BC03-12	374	476490	7029638	59.7
DHBC03-09	ALB009.FBR	BC03-13	314+26	471752	7030530	55.0
DHBC03-10	ALB010.FBR	BC03-14	361+22	473091	7029774	54.1
DHBC03-11	ALB011.FBR	BC03-15	387+7	474499	7029005	53.6
DHBC03-12	ALB012.FBR	BC03-13	259+26	470906	7028648	50.0
DHBC03-13	ALB013.FBR	BC03-14	308+11	472277	7027949	52.8
DHBC03-14	ALB014.FBR	BC03-15	335+3	473723	7027212	52.7
DHBC03-15	ALB015.FBR	BC03-13	200+13	469994	7026618	47.4
DHBC03-16	ALB016.FBR	BC03-14	250+11	471396	7025958	46.2
DHBC03-17	ALB017.FBR	BC03-15	275+15	472820	7025164	50.2
DHBC03-18	ALB018.FBR	BC03-14	200+23	470656	7024249	51.3
DHBC03-19	ALB019.FBR	BC03-15	227+26	472110	7023523	49.7
DHBC03-20	ALB020.FBR	BC03-10	247	460555	7026971	46.3
DHBC03-21	ALB021.FBR	BC03-10	300+11	462337	7026067	45.1
DHBC03-22	ALB022.FBR	BC03-10	356+4	464205	7025122	45.5
DHBC03-23	ALB023.FBR	BC03-10	406	465881	7024290	42.8
DHBC03-24	ALB024.FBR	BC03-10	459+12	467665	7023389	46.1
DHBC03-25	ALB025.FBR	BC03-10	500	469023	7022692	47.7
DHBC03-26	ALB026.FBR	BC03-10	544	470495	7021945	47.5
DHBC03-27	ALB027.FBR	BC03-10	588+12	471980	7021201	47.5
DHBC03-28	ALB028.FBR	BC03-18	323	474502	7022394	49.2
DHBC03-29	ALB029.FBR	BC03-11	366+23	474856	7022106	50.2
DHBC03-30	ALB030.FBR	BC03-19	312+24	474906	7020739	52.0
DHBC03-31	ALB031.FBR	BC03-18	264	473665	7020345	46.3
DHBC03-32	ALB032.FBR	BC03-11	310+16	474036	7020165	50.5
DHBC03-33	ALB033.FBR	BC03-19	288+8	474514	7019911	51.5
DHBC03-34	ALB034.FBR	BC03-10	702	475787	7019283	49.5
DHBC03-35	ALB035.FBR	BC03-18	224+6	473054	7018981	45.5
DHBC03-36	ALB036.FBR	BC03-19	259	474037	7018925	47.0
DHBC03-37	ALB037.FBR	BC03-17	226+30	459615	7025324	43.1
DHBC03-38	ALB038.FBR	BC03-17	282	461491	7024449	43.8
DHBC03-39	ALB039.FBR	BC03-05	327	462417	7024021	42.8
DHBC03-40	ALB040.FBR	BC03-04	321	463326	7023497	45.7
DHBC03-41	ALB041.FBR	BC03-09	227+9	459274	7034665	45.1
DHBC03-42	ALB042.FBR	BC03-06	336+3	461198	7023758	47.3
DHBC03-43	ALB043.FBR	BC03-05	309	462164	7023394	42.8
DHBC03-44	ALB044.FBR	BC03-04	303+2	463069	7022874	41.8
DHBC03-45	ALB045.FBR	BC03-09	394+11	464926	7021964	45.1
DHBC03-46	ALB046.FBR	BC03-09	443	466584	7021195	44.2
DHBC03-47	ALB047.FBR	BC03-09	487+13	468087	7020485	43.3

Number	FBR file	Line	Station	E	N	Elevation
DHBC03-48	ALB048.FBR	BC03-11	239	472995	7017697	45.0
DHBC03-49	ALB049.FBR	BC03-08	227+17	458907	7023970	47.9
DHBC03-50	ALB050.FBR	BC03-06	313+19	460833	7022996	47.8
DHBC03-51	ALB051.FBR	BC03-05	283+4	461760	7022512	40.5
DHBC03-52	ALB052.FBR	BC03-04	279+20	462713	7022068	47.5
DHBC03-53	ALB053.FBR	BC03-07	219	458414	7023151	50.7
DHBC03-54	ALB054.FBR	BC03-06	289+9	460429	7022179	43.7
DHBC03-55	ALB055.FBR	BC03-05	259+16	461403	7021698	39.6
DHBC03-56	ALB056.FBR	BC03-04	255+21	462342	7021248	43.2
DHBC03-57	ALB057.FBR	BC03-07	416+31	465080	7019896	45.0
DHBC03-58	ALB058.FBR	BC03-07	484	467354	7018811	41.6
DHBC03-59	ALB059.FBR	BC03-03	407	462911	7019808	47.5
DHBC03-60	ALB060.FBR	BC03-02	387	464763	7019153	46.0
DHBC03-61	ALB061.FBR	BC03-06	240	459634	7020513	40.0
DHBC03-62	ALB062.FBR	BC03-03	372	462402	7018598	38.8
DHBC03-63	ALB063.FBR	BC03-02	346+30	464173	7017766	39.8
DHBC03-64	ALB064.FBR	BC03-01	318+22	466409	7016697	40.7
DHBC03-65	ALB065.FBR	BC03-16	219	460032	7017895	39.3
DHBC03-66	ALB066.FBR	BC03-03	325+14	461693	7017000	40.6
DHBC03-67	ALB067.FBR	BC03-16	322	463437	7016070	37.1
DHBC03-68	ALB068.FBR	BC03-01	266+17	465617	7014910	39.6
DHBC03-69	ALB069.FBR	BC03-03	263+12	460754	7014871	40.5
DHBC03-70	ALB070.FBR	BC03-02	238+1	462565	7014017	38.7
DHBC03-71	ALB071.FBR	BC03-01	231	465090	7013689	40.4
DHBC03-72	ALB072.FBR	BC03-03	220	460091	7013388	37.2
<b>PEL 107 Tantanna</b>						
DHBC03-73	TANT73.FBR	BC03-20	227+15	367810	6890137	36.6
DHBC03-74	TANT74.FBR	BC03-20	251+23	368580	6890619	19.2
DHBC03-75	TANT75.FBR	BC03-32	289+33	369298	6891055	18.4
DHBC03-76	TANT76.FBR	BC03-20	294+20	369951	6891462	19.3
DHBC03-77	TANT77.FBR	BC03-20	318	370707	6891913	32.2
DHBC03-78	TANT78.FBR	BC03-27	269+16	371420	6892343	19.9
DHBC03-79	TANT79.FBR	BC03-20	362	372122	6892762	18.8
DHBC03-80	TANT80.FBR	BC03-20	400	373343	6893496	20.7
DHBC03-81	TANT81.FBR	BC03-21	223+12	370410	6887460	28.1
DHBC03-82	TANT82.FBR	BC03-32	387+12	371088	6887869	30.1
DHBC03-83	TANT83.FBR	BC03-26	386+17	372453	6888706	21.1
DHBC03-84	TANT84.FBR	BC03-27	366+35	373145	6889119	19.2
DHBC03-85	TANT85.FBR	BC03-21	328	373781	6889471	29.8
DHBC03-86	TANT86.FBR	BC03-21	380	375429	6890515	33.9
DHBC03-87	TANT87.FBR	BC03-21	427	376942	6891420	30.6
DHBC03-88	TANT88.FBR	BC03-21	466+21	378210	6892191	25.2
DHBC03-89	TANT89.FBR	BC03-21	495+12	379136	6892742	27.7
DHBC03-90	TANT90.FBR	BC03-21	533+23	380360	6893493	23.9
DHBC03-91	TANT91.FBR	BC03-22	227	371040	6884958	21.6
DHBC03-92	TANT92.FBR	BC03-22	285	372897	6886091	32.1
DHBC03-93	TANT93.FBR	BC03-22	308	373637	6886534	35.8
DHBC03-94	TANT94.FBR	BC03-22	328+32	374295	6886957	20.5
DHBC03-95	TANT95.FBR	BC03-22	350	374977	6887361	20.6
DHBC03-96	TANT96.FBR	BC03-22	381	375957	6887987	21.5



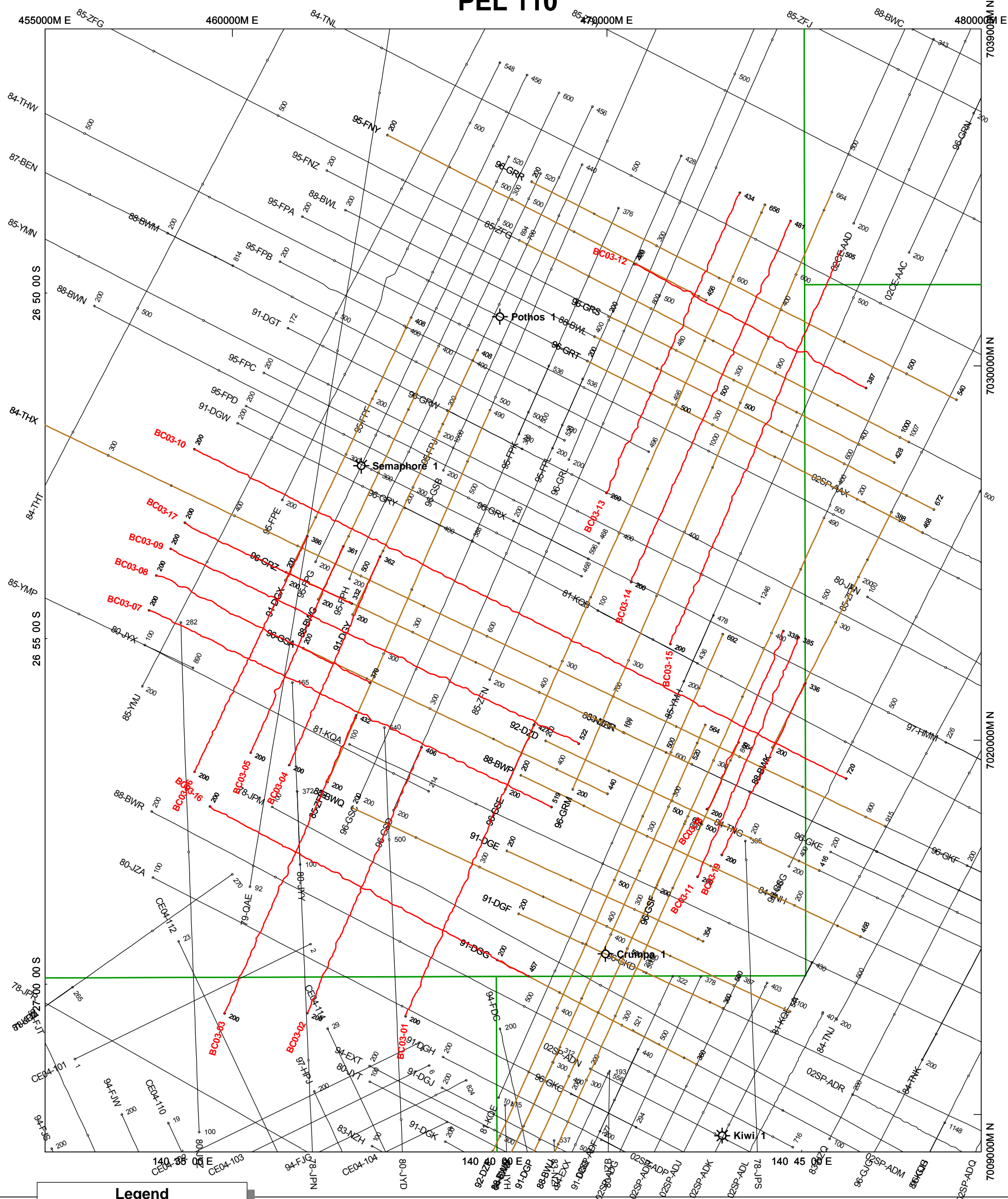
Number	FBR file	Line	Station	E	N	Elevation
DHBC03-97	TANT97.FBR	BC03-22	425	377369	6888841	32.1
DHBC03-98	TANT98.FBR	BC03-23	260	378672	6888547	27.5
DHBC03-99	TANT99.FBR	BC03-23	329+1	380864	6889923	25.7
DHBC03-100	TANT100.FBR	BC03-23	368+33	382133	6890712	35.3
DHBC03-101	TANT101.FBR	BC03-23	405	383294	6891411	21.0
DHBC03-102	TANT102.FBR	BC03-23	446	384602	6892218	25.1
DHBC03-103	TANT103.FBR	BC03-23	490	386010	6893079	22.7
DHBC03-104	TANT104.FBR	BC03-24	210	370354	6882351	27.5
DHBC03-105	TANT105.FBR	BC03-24	263	372044	6883398	22.3
DHBC03-106	TANT106.FBR	BC03-24	317	373767	6884462	41.6
DHBC03-107	TANT107.FBR	BC03-24	341	374536	6884930	24.8
DHBC03-108	TANT108.FBR	BC03-24	361	375175	6885323	27.9
DHBC03-109	TANT109.FBR	BC03-24	381	375808	6885725	20.1
DHBC03-110	TANT110.FBR	BC03-24	414	376863	6886372	23.6
DHBC03-111	TANT111.FBR	BC03-24	447	377920	6887014	20.1
DHBC03-112	TANT112.FBR	BC03-24	526	380449	6888558	25.5
DHBC03-113	TANT113.FBR	BC03-24	554+23	381348	6889144	23.6
DHBC03-114	TANT114.FBR	BC03-24	594	382604	6889921	29.9
DHBC03-115	TANT115.FBR	BC03-24	631	383780	6890658	24.1
DHBC03-116	TANT116.FBR	BC03-24	672+30	385122	6891468	25.7
DHBC03-117	TANT117.FBR	BC03-24	720	386627	6892399	21.8
DHBC03-118	TANT118.FBR	BC03-24	770+22	388246	6893389	32.2
DHBC03-119	TANT119.FBR	BC03-25	279	372828	6882034	29.3
DHBC03-120	TANT120.FBR	BC03-25	332	374521	6883073	31.9
DHBC03-121	TANT121.FBR	BC03-25	356+16	375304	6883549	37.6
DHBC03-122	TANT122.FBR	BC03-26	200	369100	6894842	20.0
DHBC03-123	TANT123.FBR	BC03-26	347	371757	6890011	27.8
DHBC03-124	TANT124.FBR	BC03-26	600	376303	6881684	32.8
DHBC03-125	TANT125.FBR	BC03-27	326	372416	6890470	33.9
DHBC03-126	TANT126.FBR	BC03-28	292	379999	6891331	29.3
DHBC03-127	TANT127.FBR	BC03-28	404	382195	6887751	28.7
DHBC03-128	TANT128.FBR	BC03-28	454	383168	6886148	23.7
DHBC03-129	TANT129.FBR	BC03-28	473+10	383555	6885537	26.7
DHBC03-130	TANT130.FBR	BC03-28	517	384405	6884135	33.0
DHBC03-131	TANT131.FBR	BC03-29	235	370391	6885999	25.5
DHBC03-132	TANT132.FBR	BC03-29	295	372310	6887175	38.0
DHBC03-133	TANT133.FBR	BC03-26	419+22	373052	6887617	27.7
DHBC03-134	TANT134.FBR	BC03-27	399+21	373729	6888043	23.6
DHBC03-135	TANT135.FBR	BC03-29	380	375027	6888841	23.1
DHBC03-136	TANT136.FBR	BC03-29	422	376370	6889664	30.7
DHBC03-137	TANT137.FBR	BC03-30	260+22	367917	6891797	27.3
DHBC03-138	TANT138.FBR	BC03-30	282+19	368603	6892250	20.2
DHBC03-139	TANT139.FBR	BC03-30	304	369280	6892688	19.9
DHBC03-140	TANT140.FBR	BC03-26	250+19	370018	6893184	24.9
DHBC03-141	TANT141.FBR	BC03-30	350+15	370730	6893649	25.0
DHBC03-142	TANT142.FBR	BC03-30	390	371974	6894460	16.9
DHBC03-143	TANT143.FBR	BC03-31	225+7	369162	6889619	34.1
DHBC03-144	TANT144.FBR	BC03-31	247	369857	6890050	20.1
DHBC03-145	TANT145.FBR	BC03-31	267+13	370498	6890464	25.9
DHBC03-146	TANT146.FBR	BC03-26	319	371242	6890926	34.5

Number	FBR file	Line	Station	E	N	Elevation
DHBC03-147	TANT147.FBR	BC03-31	312+30	371940	6891372	26.8
DHBC03-148	TANT148.FBR	BC03-31	334	372616	6891791	16.5
DHBC03-149	TANT149.FBR	BC03-32	203+17	367684	6893865	20.3
DHBC03-150	TANT150.FBR	BC03-32	307+8	369602	6890481	19.1
DHBC03-151	TANT151.FBR	BC03-33	209+17	366982	6893430	36.3
DHBC03-152	TANT152.FBR	BC03-33	354+11	369682	6888718	17.1
<b>PEL 91 Carrickalinga</b>						
DHBC03-153	CAR153.FBR	BC03-39	229+5	365997	6905218	22.1
DHBC03-154	CAR154.FBR	BC03-39	258+14	365949	6906313	23.5
DHBC03-155	CAR155.FBR	BC03-39	302+34	365890	6907982	20.8
DHBC03-156	CAR156.FBR	BC03-39	347+23	365794	6909656	24.9
<b>PEL 92</b>						
DHBC03-157	CRIS157.FBR	BC03-34	211	337474	6896889	19.2
DHBC03-158	CRIS158.FBR	BC03-34	249	338898	6896880	18.3
DHBC03-159	CRIS159.FBR	BC03-34	297	340699	6896901	19.3
DHBC03-160	CRIS160.FBR	BC03-34	343	342423	6896886	32.5
DHBC03-161	CRIS161.FBR	BC03-34	386	344036	6896901	29.6
DHBC03-162	CRIS162.FBR	BC03-35	226	338975	6898308	39.5
DHBC03-163	CRIS163.FBR	BC03-35	270+32	340657	6898319	20.0
DHBC03-164	CRIS164.FBR	BC03-35	317+21	342408	6898323	24.7
DHBC03-165	CRIS165.FBR	BC03-35	363+24	344136	6898348	18.5
DHBC03-166	CRIS166.FBR	BC03-36	205	339110	6900017	20.2
DHBC03-167	CRIS167.FBR	BC03-36	244+14	340586	6899978	18.0
DHBC03-168	CRIS168.FBR	BC03-36	292	342371	6899928	31.0
DHBC03-169	CRIS169.FBR	BC03-36	340	344171	6899903	18.4
DHBC03-170	CRIS170.FBR	BC03-37	207	338777	6901036	35.1
DHBC03-171	CRIS171.FBR	BC03-37	253+9	340512	6901014	18.6
DHBC03-172	CRIS172.FBR	BC03-37	300	342265	6900990	27.1
DHBC03-173	CRIS173.FBR	BC03-37	350	344139	6900943	24.2
DHBC03-174	CRIS174.FBR	BC03-38	206+35	340721	6894735	21.0
DHBC03-175	CRIS175.FBR	BC03-38	250	340713	6896350	25.5
DHBC03-176	CRIS176.FBR	BC03-38	410+25	340499	6902370	17.8
DHBC03-177	CRIS177.FBR	BC03-38	430+18	340525	6903112	20.6

*Table 11 Field Tape Listing*

PELA 110				
LINE	TAPE	Stn - Stn	File - File	Comment
BC03-04	8000A			
BC03-04	1A	362.5 - 200.5	1 - 161	
BC03-05	2A	200.5 - 359.5	1 - 160	
BC03-06	3A	386.5 - 200.5	1 - 186	
BC03-16	4A	200.5 - 457.5	1 - 250	
BC03-01	5A	200.5 - 427.5	1 - 220	
BC03-02	6A	406.5 - 200.5	1 - 203	
BC03-03	7A	200.5 - 432.5	1 - 233	
BC03-08	8A	370.5 - 200.5	1 - 169	
BC03-07	9A	200.5 - 519.5	1 - 310	
BC03-09	10A	522.5 - 200.5	1 - 309	
BC03-17	11A	200.5 - 332.5	1 - 129	
BC03-10	12A	200.5 - 720.5	1 - 504	
BC03-19	13A	336.5 - 200.5	1 - 118	
BC03-11	14A	200.5 - 385.5	1 - 186	
BC03-18	15A	338.5 - 200.5	1 - 135	
BC03-15	16A	200.5 - 505.5	1 - 302	
BC03-12	17A	387.5 - 200.5	1 - 186	
BC03-13	18A	434.5 - 200.5	1 - 231	
BC03-14	19A	203.5 - 480.5	1 - 262	
PEL 107				
BC03-27	22A	521.5 - 200.5	1 - 315	
BC03-26	23A	200.5 - 608.5	1 - 401	
BC03-25	24A	408.5 - 200.5	1 - 209	
BC03-24	25A	200.5 - 800.5	1 - 583	
BC03-23	26A	532.5 - 200.5	1 - 315	
BC03-22	27A	444.5 - 200.5	1 - 242	
BC03-29	28A	448.5 - 200.5	1 - 237	
	29A	-	-	Tape does not exist
BC03-30	30A	200.5 - 399.5	1 - 196	
BC03-20	31A	407.5 - 200.5	1 - 203	
BC03-31	32A	200.5 - 373.5	1 - 172	
BC03-32	33A	417.5 - 200.5	1 - 218	
BC03-33	34A	200.5 - 413.5	1 - 214	
BC03-21	35A	200.5 - 563.5	1 - 356	
BC03-28	36A	200.5 - 530.5	1 - 327	
PEL 91				
BC03-39	37A	374.5 - 200.5	1 - 172	
PEL 92				
BC03-38	38A	442.5 - 200.5	1 - 242	
BC03-34	39A	200.5 - 414.5	1 - 211	
BC03-35	40A	386.5 - 200.5	1 - 186	
BC03-36	41A	200.5 - 371.5	1 - 172	
BC03-37	42A	373.5 - 200.5	1 - 174	

# PEL 110



### Legend

2003 Albus Seismic Survey

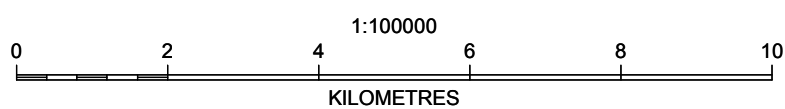
PEL 110

2003 Seismic Line \_ \_ \_ 

2003 Reprocessing \_ \_ \_ 

2003 Seismic Line \_ \_ \_ 

2003 Reprocessing \_ \_ \_ 



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



## Beach Petroleum Ltd

## 2003 Albus Seismic Survey

# PEL 110

## Cooper Basin

**Scale: 1:100000**

Date : April 20, 2004

Encl No:	
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Contour Interval:

Author: dcr

1

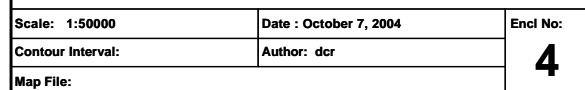
1





3

The chart, titled 'PEL92', is a nautical chart of a coastal area. It features a grid of soundings and depth contours. The horizontal axis (Easting) ranges from 334000M E to 346000M E, and the vertical axis (Northing) ranges from 850000M N to 890000M N. The chart includes labels for various locations, including 'Christies 1', 'Christies 2', 'Pr. Christies 3', and 'Brighton 1'. It also features numerous depth soundings (e.g., 200, 400, 600) and contour lines. The chart is bounded by coordinates 334000M E to 346000M E and 850000M N to 890000M N.





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## **APPENDIX 1**

### **FIELD SUPERVISION REPORT**

#### **B BEER**

**PART 1    PEL 110**

**PART 2    PEL 107 & PEL 91**

**PART 3    PEL 92**

---

# **Beach Petroleum Limited**

## **Field Operations Report**

**for the**

**2003 PEL 110 Albus Seismic Survey**

**Cooper Basin, South Australia**

**Conducted by:**

**Trace Energy Services Pty Ltd**

**From**

**August 29<sup>th</sup> – September 5<sup>th</sup>, 2003**



**(ABN 20 007 617 969)**

**Prepared by: Bruce Beer  
Beach Pet. Representative**

## **CONTENTS**

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# **CONTENTS**

## **Beach Petroleum Limited:** **2003 PEL 110 Albus Seismic Survey**

### **Section**

1.0	Introduction
	Fig. # 1-1: Program Map, 2003 PEL 110 Albus SS
2.0	Timetable of Events
3.0	Parameters
4.0	Recording
5.0	Uphole Drilling & LVL
6.0	Line Preparation, Survey, Permitting and Environment
7.0	Safety
8.0	Remarks & Recommendations

### **Appendices**

- I. Recording Statistics
- II. Drilling Statistics
- III. LVL Statistics
- IV. Line Preparation Statistics
- V. Surveying Statistics
- VI. Personnel List
- VII. Equipment List
- VIII. Risk Identification & Accident Reports
- IX. Safety Meeting Minutes

## 1.0 INTRODUCTION

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The 2003 PEL 110 Albus Seismic Survey was operated by Beach Petroleum Limited and conducted in PEL 110 of the Cooper Basin in north-east South Australia by Trace Energy Services. The crew was billeted in three separate camps that were located at the Semaphore #1 well-site. This one camp site served for the whole job.

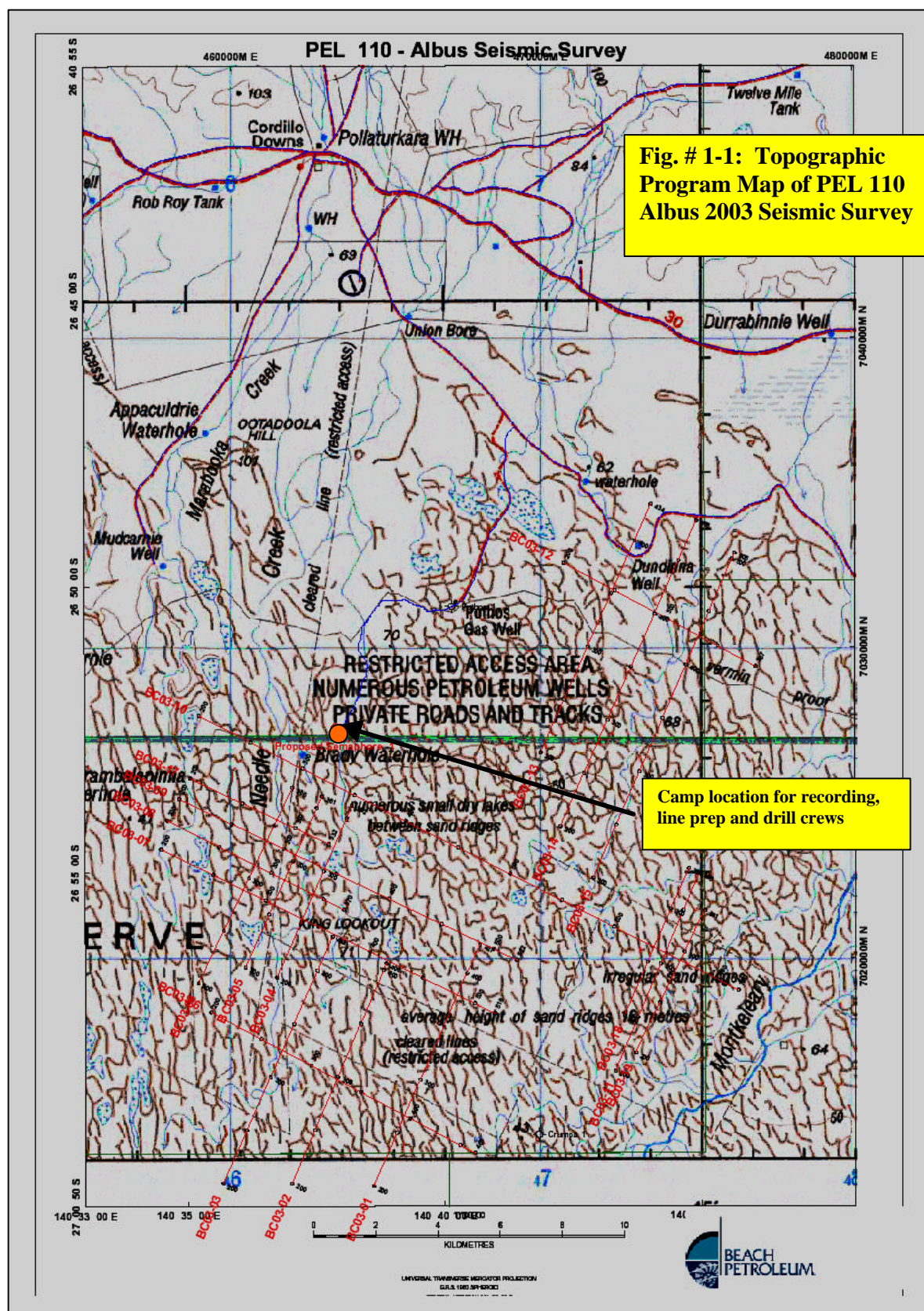
Trace was contracted on a turnkey rate basis. 163.5 km of 2D seismic data was recorded in one prospect area. Recording began on August 29<sup>th</sup> and was completed on September 5<sup>th</sup>, 2003.

Trace Energy Services subcontracted Dynamic Satellite Surveys (DSS) to do the surveying, Denham and O'Keeffe (DOK) to do the line preparation, Daly Drilling to do the uphole drilling and Expertest to do the uphole logging.

Doug Roberts was the geophysicist in charge of the project for Beach Petroleum while Bruce Beer was contracted to supervise the field operations.

There were no Lost Time Injuries during the job. Statistics for the project are included in the appendices. A map of the program appears in Fig. # 1-1.

## 1.0 INTRODUCTION



Section 1.0, Page # 1 of 2.

## **2.0 TIMETABLE of EVENTS**

---

- Aug 9 Doug Roberts, John Iredale and Bruce Beer arrive at Semaphore #1 and dozer camp.
- Aug 10 DSS surveyors arrive. Startup induction was given. Attendees included PIRSA representatives Peter Hough and Tony Rutter, Janet Brook from Cordillo Downs Station, all DOK and DSS personnel. Presentations were given by Doug Roberts, Alan Lance and John Iredale.
- Aug 11 Start line preparation at PEL 110.
- Aug 18 Complete line prep at PEL 110.
- Aug 22 Daly Drilling and Expertest mobilise to Semaphore #1 then standby due to rain.
- Aug 25 Start drilling at PEL 110.
- Aug 27 Trace Energy crew arrive at Semaphore #1 after difficulty with wet roads and several days standby at Windorah. Conduct start-up induction at night.
- Aug 28 Run tests on geophones and cables.
- Aug 29 Start recording on PEL 110 program.
- Sep 5 Complete recording on PEL 110.
- Sep 10 Complete uphole drilling on PEL 110.

### 3.0 - PARAMETERS

### 3.0 RECORDING PARAMETERS

Survey: 2003 PEL 110 Albus Seismic Survey      Block: PEL110  
Lines: BC03-01 ? BC03-19      Area: Cordillo/Innaminka

## Instrumentation

Instruments:	: Sercel 388
No. Channels	: 124
Tape Format	: SEG D Revision 1 8058IEEE Demultiplexed, Noise edited correlated summed 4 sec record
Filters	: Hi cut 125 Hz, ? dB/Octave 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	:	4 x LRS-315s on Int'l Paystar 6x6 trucks
Electronics	:	Pelton Advance 2
Sweep Frequency	:	Linear 5-90 Hz
Sweep Length	:	3 seconds
No. Sweeps	:	2 standing
VP Interval	:	37.5m
Vibrator Array	:	4 vibs in line, 12.5m pad to pad standing. No move-up.
Sweep Amplitude Taper	:	100% (none)
Drive Level	:	Maximum varied by amplitude control function
End Tapers (cosine)	:	0.2s
Phase Locking Type	:	Ground Force
Amplitude Control?	:	Peak to Peak

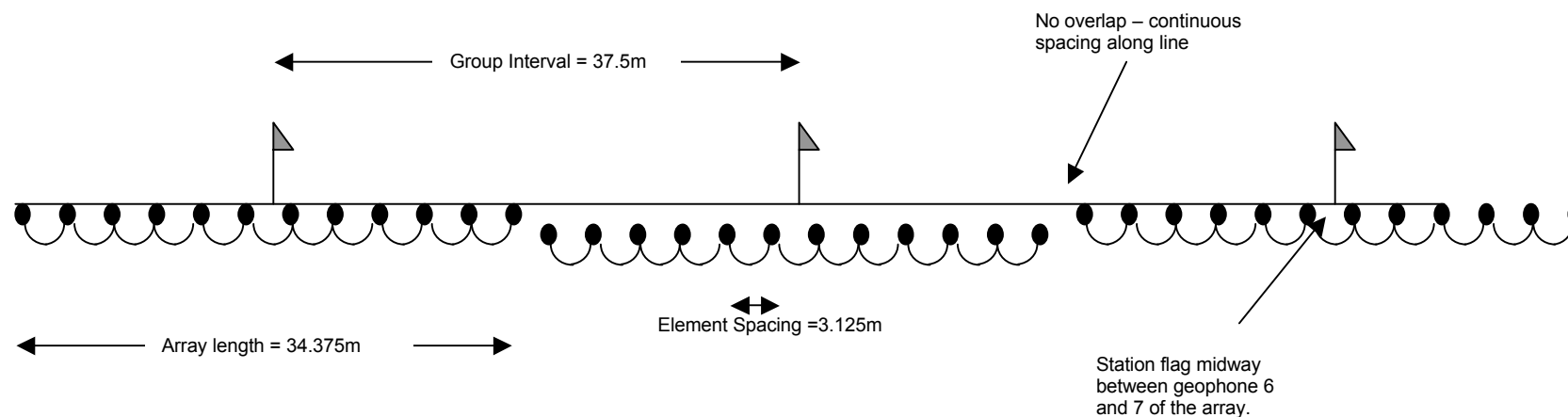
## Receivers

Receiver Group Interval	: 37.5m
Number of live traces	: 124 (4 inner traces amplitude reduced)
Spread	: Split, 2306.25 – 93.75 - 0 – 93.75 – 2306.25
Geophones	: Sensor SM4 10 Hz
Array	: 12 in-line, centred on station, 3.125m spacing
Connection	: Series/Parallel (6x2)
Multiplicity	: 62 fold (4 amplitude reduced trace centre gap)



### 3.0 - PARAMETERS

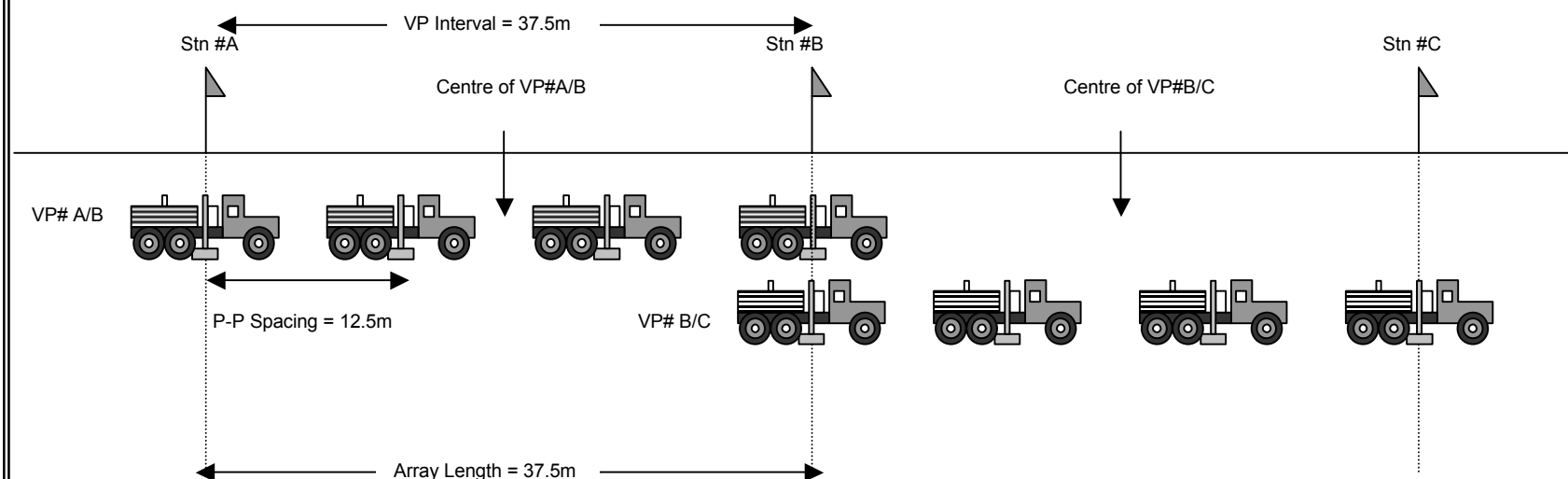
**Fig. # 3-1: Geophone Array for Beach Petroleum's 2003 PEL 110 Albus Seismic Survey**



**Drawn by: Bruce Beer  
Beach Petroleum Rep.**

### 3.0 - PARAMETERS

**Fig. # 3-2: Vibrator Array for Beach Petroleum's PEL 110 2003 Albus Seismic Survey**



*Drawn by: Bruce Beer  
Beach Petroleum Rep.*

## **4.0 - RECORDING**

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### Introduction

The 2003 Albus PEL 110 Seismic Survey was located in PEL 110 in the Cooper Basin, in north east South Australia. Trace Energy Services Pty. Ltd carried out the survey. The recording phase was conducted from August 29<sup>th</sup> – September 5<sup>th</sup>, 2003.

The contract was based on a turnkey or kilometre rate. A total of 163.5000 km of 2D seismic data was recorded on 19 lines in one prospect area. The program straddled the boundary of Cordillo Downs and Innamincka Stations, with most of the program being on Innamincka Station.

Full production statistics appear in Appendix I.

### Logistics

Trace Energy Services provided a mobile camp to house the seismic recording crew. The single campsite used as a base for the whole PEL 110 Albus Seismic Survey was located at the Semaphore #1 well-site.

The camp was complete with kitchen and ablution facilities, mechanic's workshop and instrument workshop as well as accommodation vans. The camp equipment was old and, in some cases, in a poor state of repair. Sleeping accommodation was cramped with up to four persons per room.

## 4.0 - RECORDING

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**Picture # 1: testing geophones before start-up.**

### Start-up Tests

Beach requested that 400 strings of geophones and all Station Units (SU's) be tested before recording operations began. This testing took place on August 28<sup>th</sup> and took all day. There were a small number of failures. Due to the difficulty of testing cables in a camp situation it was deemed best to do this on line. This led to the most significant level of equipment failure as the cables were in a poor state due to water in the heads.

### Parameters

Parameters are listed in section 3.0. They were selected by Beach Petroleum's exploration team. No experimental program was deemed necessary. The parameters are similar to those used in the Cooper Basin by all operators in the last 10 years and were considered adequate for the survey's objectives.

### Equipment

Trace Energy Services provided their Sercel 388 telemetric recording system along with a field deployment of 500 x 12 strings of Sensor SM4 10 hz geophones. There were four vibrators on line with a fifth as spare.

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## 4.0 - RECORDING

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The Trace vibrators were Litton LRS-315's mounted on International Paystar 6x6 trucks. These units were 20 years old but performed well. There were no instances of having to go down to three vibrators on line during the survey.

There was one Station Unit (SU) every 6 stations and a battery unit (PSU) every 48 stations. The batteries lasted 2 days between charges. Since the takeout interval on the cables was 32m, they had to be used in back to back configuration with only each second takeout being used. This setup caused a certain amount of inconvenience for the observers in working out where bad stations were located and also led to cosmetic display problems in pre-first break noise on monitor records.



Picture # 2: vibrators on line BC03-07

### Recording Crew Strength

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

**Table 1: Trace Energy Crew Strength and Disposition**

<u>Contract Requirement</u>	<u>Actually on Crew</u>
Crew Manager (1)	Bob Stephenson (1)

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#### 4.0 - RECORDING

HSE Representative (1)	Russell Gregg (1)
Geophone Repair (1)	Darren Rea (1)
2 Senior Vehicle Mechanics (2)	Rob Smith (1)
Supply Driver	Brendon Olszowy (1)
Camp Cook	Denis Viney (1)
Kitchen Hand	Craig Curd (1)
Camp attendant	Christine Smith (1)
Senior Vibe Tech (1)	John Philipppson / Denis Corbin (2)
Lead Vibe Op	Shane Goosens (1)
4 Vibe Operators	Des, Guy, Abby, Jeff (4)
Senior Observer (1)	Joel Cary (1)
Observer (1)	Peter O'Donnell (1)
Line Boss	Leeton McHugh (1)
6 cable personnel	6 people on 3 cable trucks (6)
2 Jug truck drivers	Only 1 jug truck driver (1)
12 line crew	Only 8 on line crew (8)
Total Contract Requirement = 38	Actually on crew = 33

From Table #1, it can be seen that the crew strength was below contract requirements. Trace argued that it was difficult to recruit new crewmembers and that accommodation was not available on the crew even if they could. This situation was tolerated on the basis that it was a turnkey contract so any production loss as a result of short-handedness was Trace's problem. However, there were OHS issues to consider and Beach strongly recommended that Trace increase crew strength to avoid undue pressure being placed on the crewmembers.

#### Polarity

Polarity on this crew proved to be a problem in 2002. The 2D data gathered proved to 90 degrees out of phase with previously recorded data in the Cooper Basin. The polarity of the system, including geophones and write-to- tape, were tested to be correct SEG standard. This left only the vibrators. The vibe polarity is controlled by switch positions on the recorder sweep generator, the ESG, and the vibrator sweep generators, the VSGs. In attempt to get it right, the polarity of the ESG was set to +90 degrees before recording the Albus Seismic Survey. This setting has proven to be the correct one.

#### Terrain

The terrain in the PEL 110 Albus Seismic Survey was mostly sand dunes with a small amount of gibber in the north east. The dunes were of the cusp shaped "Marqualpie" type. Many were extremely high and steep. In fact one of the lines passed just to the side of King Lookout, the highest dune in the area. The average height of dunes

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## 4.0 - RECORDING

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above the swales was 16m. The dozer operators had made some errors in judgement when cutting the dunes and as a consequence there were excessively steep faces, high side cuts and climbing turns.



**Picture # 3: Line BC03-14 looking north across a gibber plain; note the dangerously blown-in side-cut on the large dune in the foreground.**

### Operations

Some of line preparation errors presented hazardous situations for line crew and vibrators. In an effort to manage this, the senior vibe technician, John Philippon, went ahead in the vibe service truck testing the lines for stability. If the hazard was too great in his opinion, then a detour was found.

Many of the dunes were too steep to vibrate up so skips were inevitable. Over the whole job there were 123 skips or around 3%.

## 4.0 - RECORDING

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**Picture # 4: Line BC03-07 looking east to King Lookout**

Travel time averaged about 1 hour/day. Since Semaphore #1 was the closest practical point to have the camp, travel time to the furthest parts of the program in the south east was reasonably long.

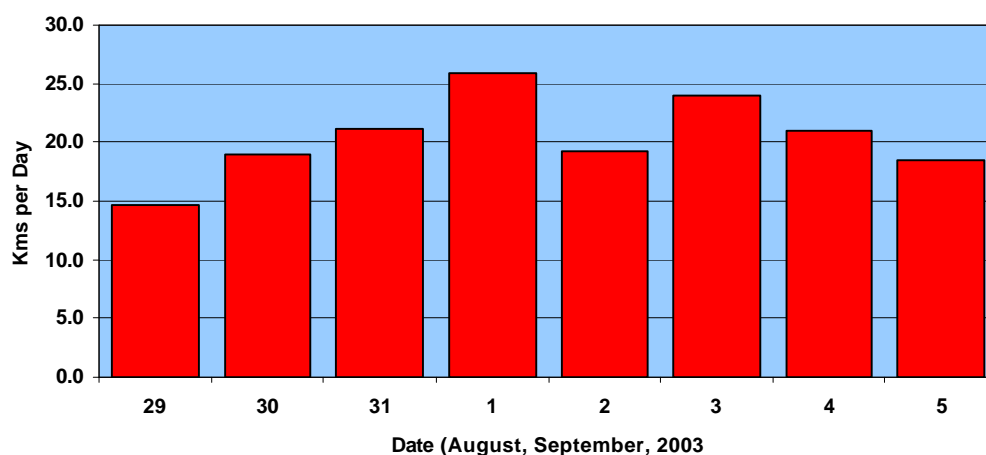
### Production

Fig. #4-1 below details daily production in the 2003 PEL 110 Albus Seismic Survey:

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## 4.0 - RECORDING

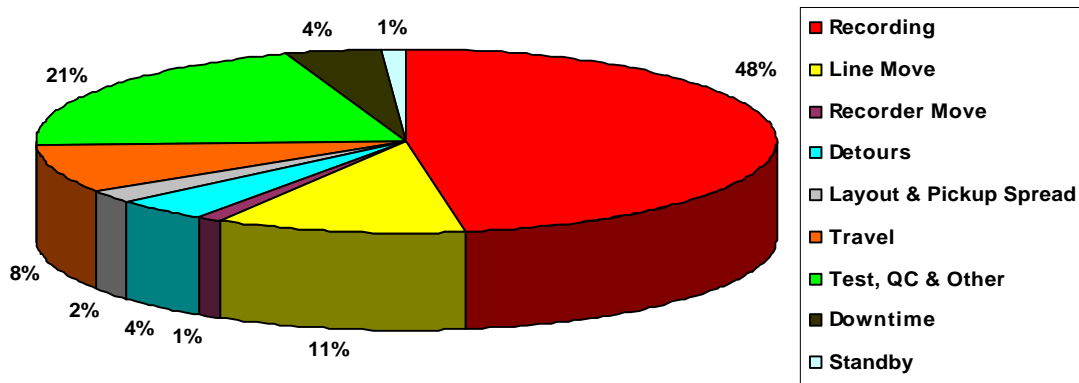
**Fig. #4-1: Recording Production for the 2003 PEL 110 Albus Seismic Survey**



The average daily production was 20.44 km. The above chart shows that the highest daily production was 25.875 km on the 1<sup>st</sup>.

Fig. #4-2 shows the distribution of recording hours in percentage terms for the 2003 PEL 110 Albus Seismic Survey:

**Fig. #4-2: Distribution of Recording Hours for the 2003 PEL 110 Albus Seismic Survey**



Note that "Tests. QC and Other" includes trouble shooting spread, time for the vibrators to fuel up and warm up, time to do daily tests and any miscellaneous time that cannot be registered under any of the other categories..

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## 4.0 - RECORDING

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The standby alluded to in the above chart (1.0 hrs) was chargeable above the turnkey rate and incorporated 1.0 hrs for the start-up induction on August 27<sup>th</sup>. The high figure for “Tests, QC & Other” of 21% (20.0 hrs) is due to the poor state of the cables when the crew arrived. They had been stored poorly at Millicent after Trace’s previous job and water was allowed to get into the heads. Much time was spent trouble shooting these cables and taking them out of the spread.

Table #4-2 below details the statistics:

**Table 4-2: Statistical Summary of the 2003 PEL 110 Albus Seismic Survey**

Total Recorded Chargeable Kms	163.500
Total Chargeable Hours	0.0
Total Overall Hours	96.90
Total Down Hours	4.1
Total Standby Hours	1.0
Total Recording Days	8
Average Km/Day	20.44
Total Recording Hours	45.9
Average Km/Recording Hr	3.56
Average Km/Total Hours	1.69
Total VPs	4251
Total Skips	123
Percentage Skips/Possible VPs	2.8 %
Average Cycle Time	37.78 seconds/VP
Efficiency Factor (Rec Hr/Tot Hr)	47.4%

The slightly low efficiency rate (47.4%) was due to the large amount of time spent on sorting out bad cables.

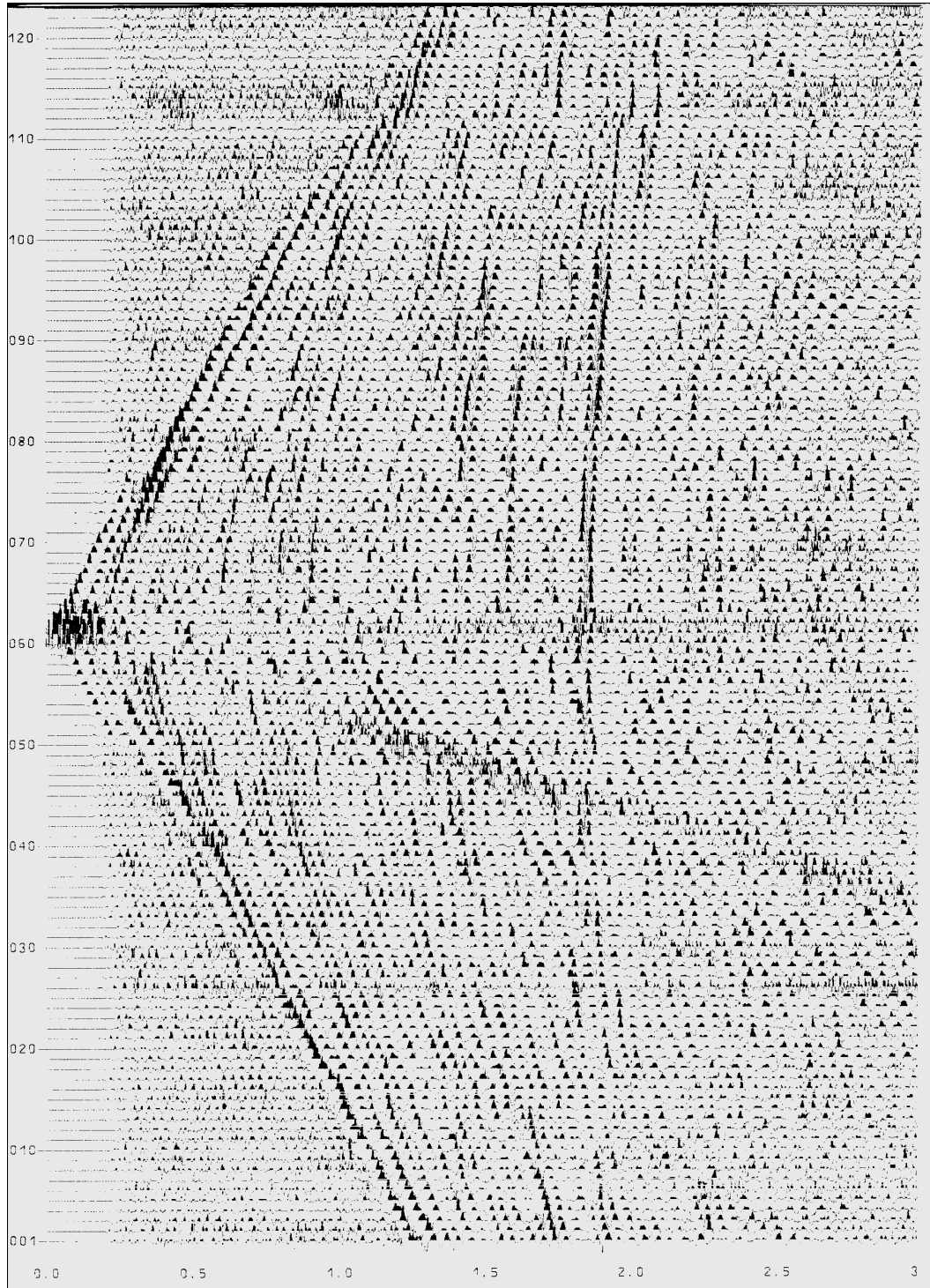
### Data Quality

Data quality ranged from fair to good. Signal extended down to 2.0 seconds. This area is at the outer Permian edge of the Cooper Basin so the “P” horizon disappeared on some lines.

Sample paper monitor records are shown in Sample Monitor #1, 2, 3, 4.



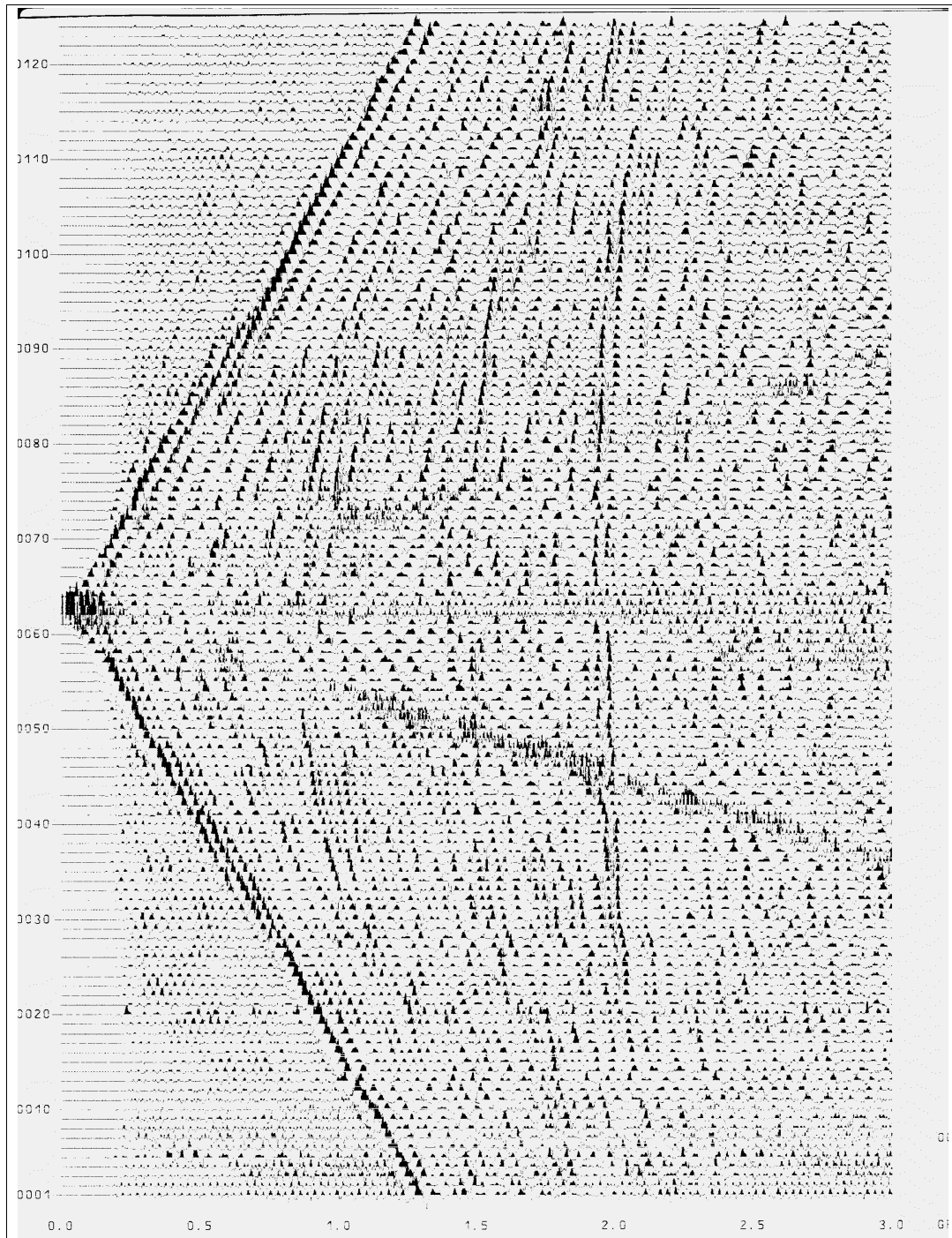
## 4.0 - RECORDING



**Sample Monitor # 1: Line BC03-17 VP#260.5**

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## 4.0 - RECORDING



**Sample Monitor # 2: Line BC03-01 VP# 364.5**

Section 4.0, Page 10 of 14.

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## 4.0 - RECORDING

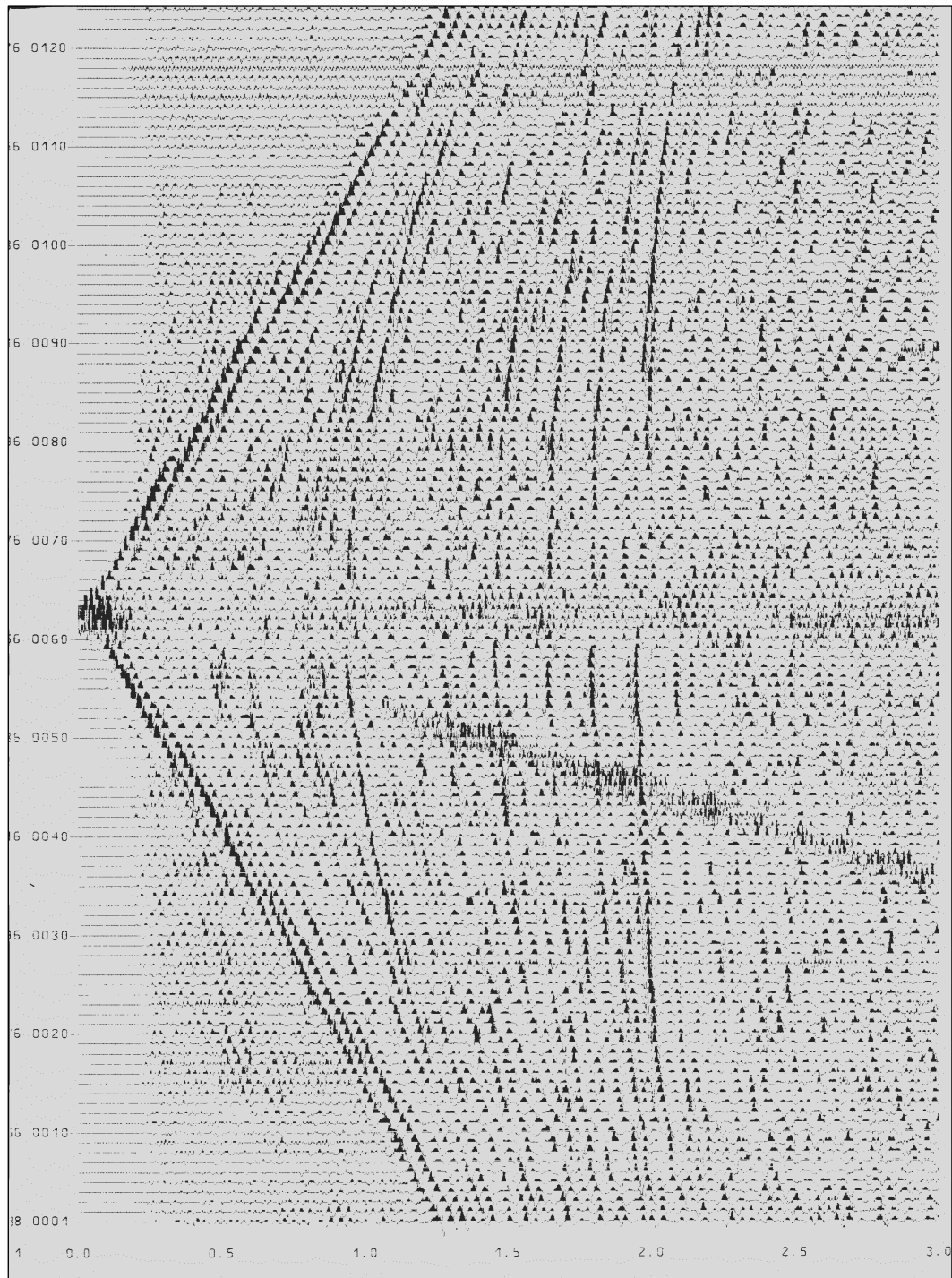


**Sample Monitor # 3: Line BC03-15 VP#262.5**

Section 4.0, Page 11 of 14.

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Recording PEL 110 Albus 03 (complete).doc

## 4.0 - RECORDING



Section 4.0, Page 12 of 14.

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Recording PEL 110 Albus 03 (complete).doc

## **4.0 - RECORDING**

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### Observer & Line Boss

The observers on this job were Peter O'Donnell and Joel Carry. Leeton McHugh was the line boss while John Turner was the trouble-shooter. They all have a professional approach to their jobs and are rigorous in repairing bad traces quickly and encouraging the line crew to strive for better jug plants.



**Picture # 5: Observer Peter O'Donnell sporting a seismic hair-cut.**

## 4.0 - RECORDING

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**Picture # 6: Canadian Observer Joel Cary at the controls of the Sercel 388.**

### Summary

Production in the 2003 PEL 110 Albus Seismic Survey was slower than expected due to considerable trouble with cables. Another reason was that crew numbers were about 5 less than the contract level at the start of the job and reduced even further after the first crew change. This situation was allowed to persist because the decision to go turn-key was made.



## 5.0 DRILLING & LVL

---

### Introduction

The uphole program for the 2003 PEL 110 Albus Seismic Survey consisted of 72 holes at an average spacing of 2.27 km (see Map #1). Drilling began on August 25<sup>th</sup> and was completed on September 10<sup>th</sup>, 2003.

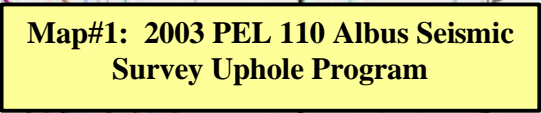
Daly Drilling from Perth, WA was contracted to do the drilling while Expertest was contracted to log the holes. The drilling contract was let on an hourly rate (+ consumables) basis while the Expertest contract was for a daily rate. Full production statistics appear in the appendices.

### Equipment

Daly Drilling provided one Mayhew 1000 drilling rig mounted on a M.A.N. 6 x 6 truck and three water trucks with a support vehicle. One of the water trucks was also a M.A.N. 6 x 6 with a 10,000 litre tank on it. The other two trucks were M.A.N. 4 x 4 trucks with 6,000 litre tanks. Daly Drilling also provided a self-contained camp consisting of a kitchen/diner van, an accommodation/shower van and a third accommodation van. There were two generators.



Expertest provided a single logging unit, one operator and an accommodation/office van.



## 5.0 DRILLING & LVL

### Drilling

Drilling for the most part was relatively easy with mud being used in 35m holes exhibiting sand and clay lithology. Occasionally hole depths were increased for locations on dunes and on other occasions they were reduced to 30m or even 25m for shallow weathering. The statistics for Expertest in Appendix III list the hole and weathering depths.

It was only on the northern ends of lines BC03-13, 14, 15 and on line BC03-12 in the only gibber terrain of the prospect that drilling became difficult. In these holes silcrete stringers, gravel and blowouts slowed the rate dramatically. A combination of air and mud drilling was used on some of these holes and the TCI bit was employed.

Full drilling and LVL statistics appear in Appendix II.

### Production

Fig. #5-1 shows daily production:

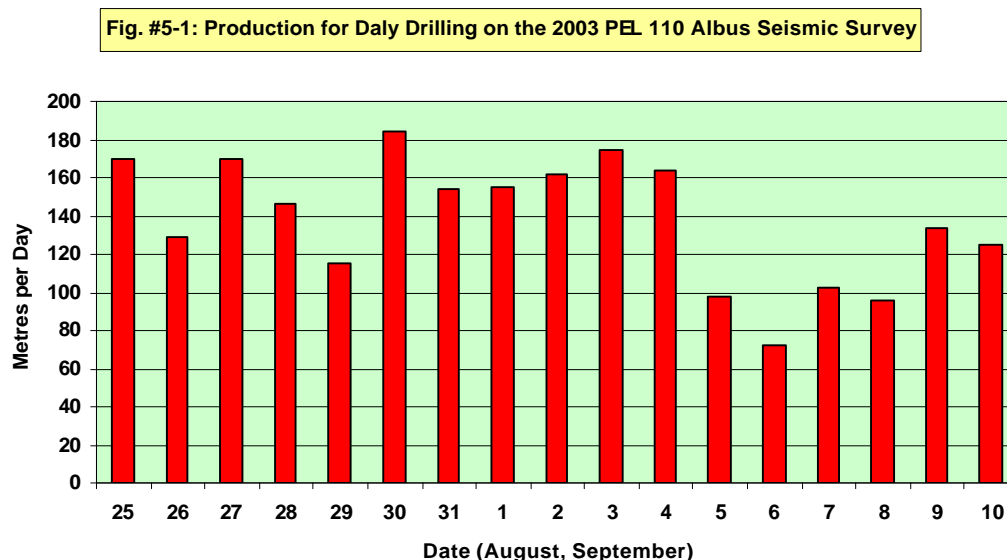


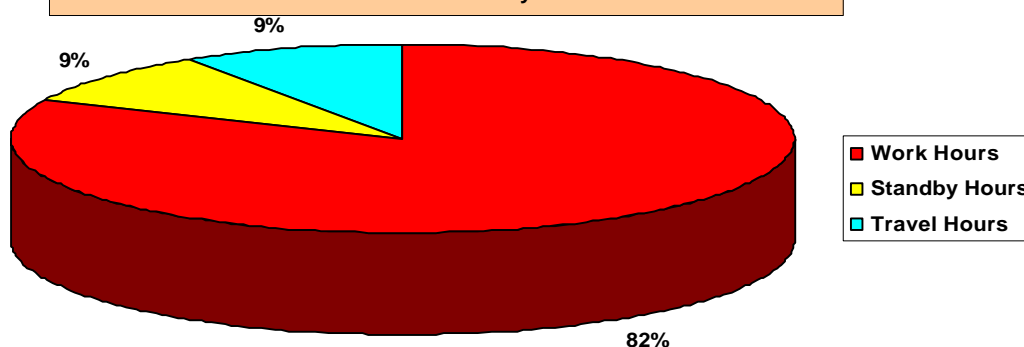
Fig. # 5-1 illustrates that production was low for the whole job. 200m in a day was never achieved. The main reason for this, apart from the gibber drilling, was the difficulty of getting the rig and water trucks across the treacherous dunes between holes.

Fig. # 5-2 below shows the distribution of hours on the drill crew:



## 5.0 DRILLING & LVL

**Fig. # 5-2: Distribution of Hours for Daly Drilling in the 2003 PEL 110 Albus Seismic Survey**



The standby time was for rain at the start of the job and for safety meetings and inductions.

The table below gives the statistics:

**Table 5- 1: Statistics for Daly Drilling on 2003 PEL 110 Albus Seismic Survey**

Start Date	August 25 <sup>th</sup> , 2003
End date	September 10 <sup>th</sup> , 2003
Total Days	17
Total Holes Drilled	72
Total Metres Drilled	2351
Average Holes/Day	4.24
Average Metres/Day	138.3
Total Charge Hours	206.5
Average Metres/Charge Hr	11.38
Total Drill Hours	185.25
Average Metres/Drill Hour	12.67
Daly Drilling Driller	Trevor Edwards
Expertest Logger	Mark Smale
Total 4 <sup>3</sup> / <sub>4</sub> " Regular bits used	20
Total 4 <sup>3</sup> / <sub>4</sub> " Chevron bits used	3
Total TCI bits used	1
Total drums of Lo-Loss used	17
Total bags of Bentonite used	46
Total Bags of Hi-Seal used	7

### Sample Weathering Profiles

In order to give a snapshot of the weathering picture, sample lines from different parts of the program were chosen as being representative of that area. Using elevations provided by DSS and taking the weathering depths as interpreted from the Expertest plots, a value for the elevation of the base of weathering was calculated at each uphole

## 5.0 DRILLING & LVL

location. Using the series trend function in Excel, a linear interpolation was made between each control point. The results were plotted as follows:

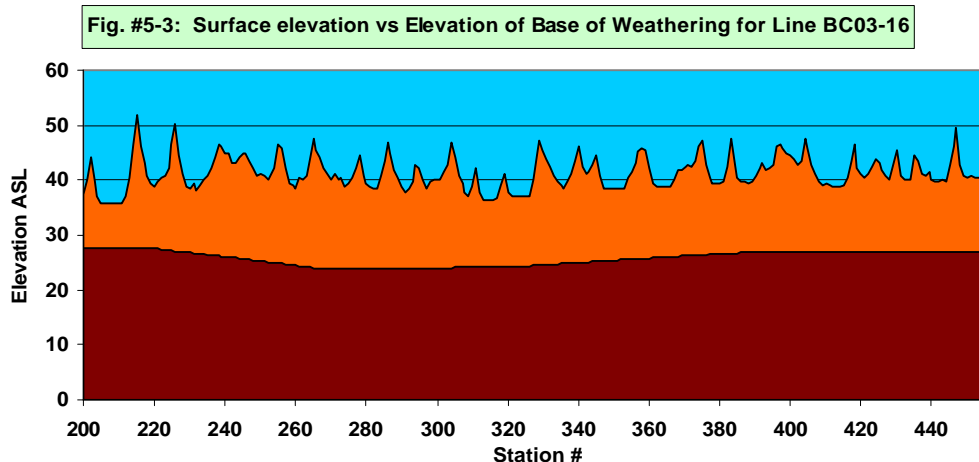


Fig. # 5-3 shows that the base of weathering on line BC03-16 in the south of the prospect is fairly flat with the depth of weathering around 13m in the swales. Sample Monitor #1 shows the plot for DH03-65 at stn# 219 on this line. It shows a sub-weathering velocity of 1813 m/s.

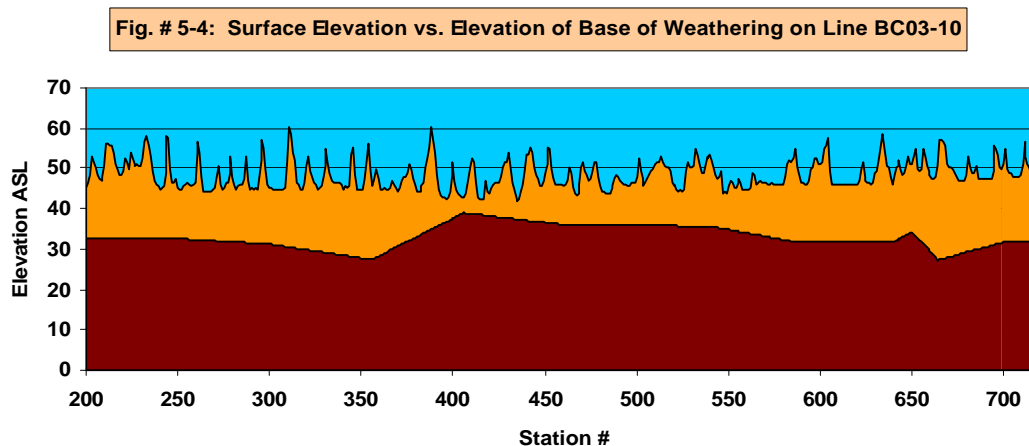


Fig. #5-4 shows an inconsistency in the base of weathering that bears closer examination. The uphole at station # 406 (DH03-23) shows a Dw of 3.9m and appears unambiguous but anomalous (see Sample Monitor # 2).

## 5.0 DRILLING & LVL

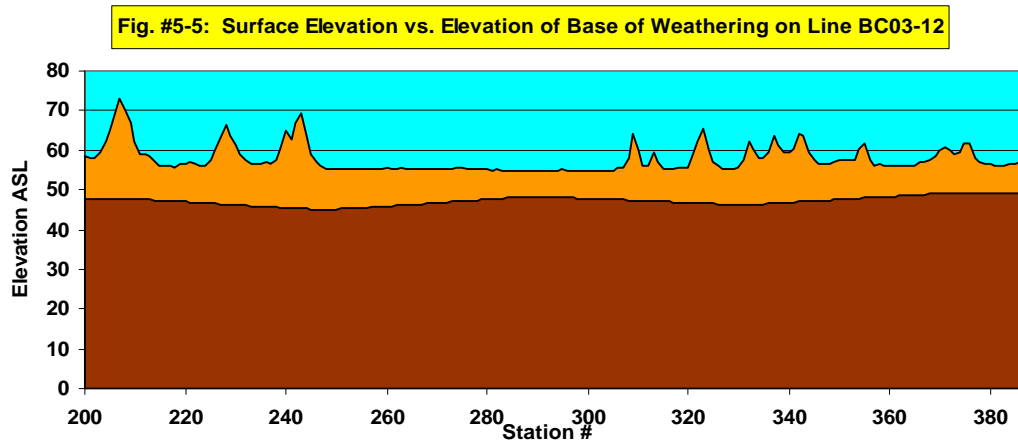


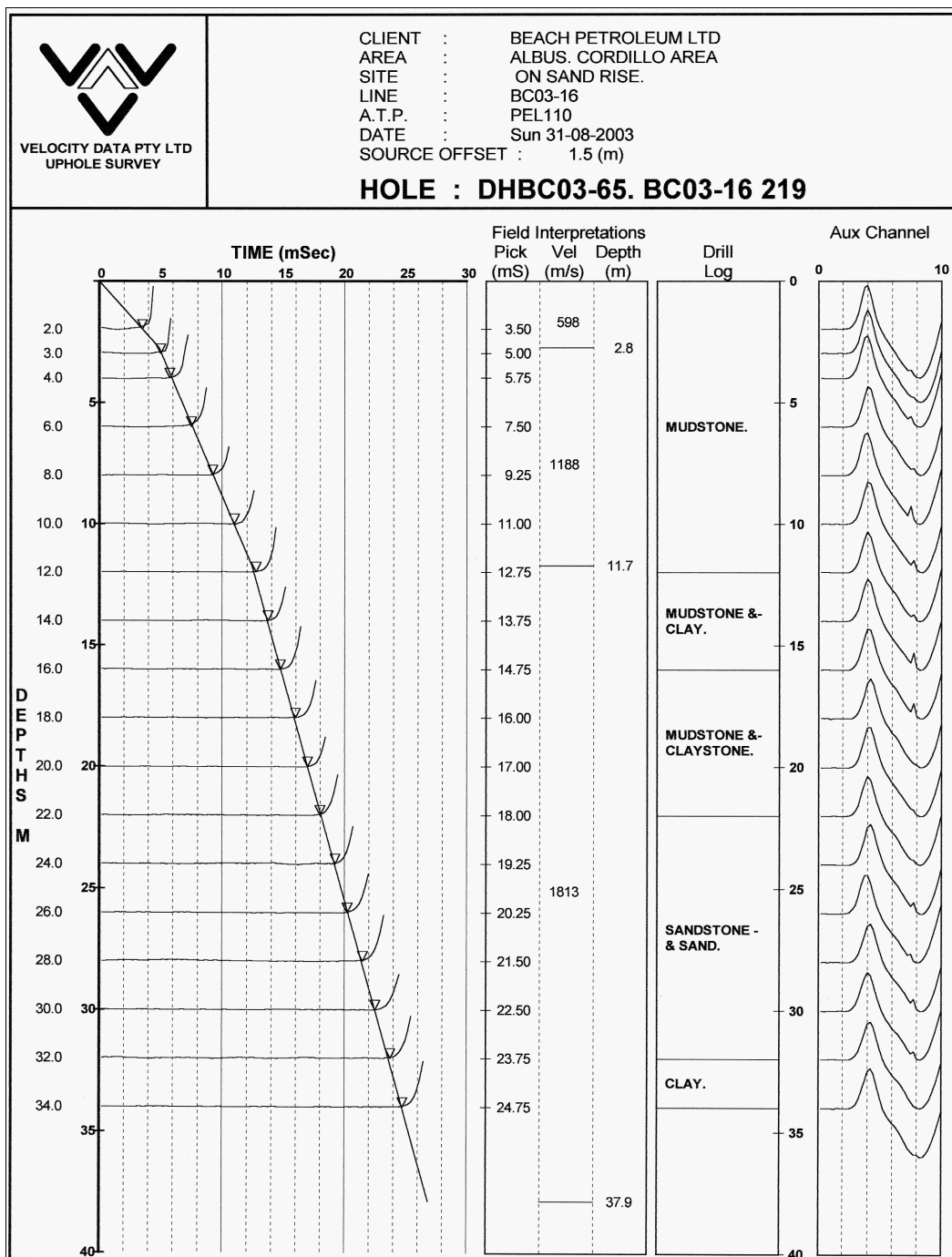
Fig. #5-5 shows that the base of weathering is very flat beneath line BC03-12. It also shows the wide gibber plains between the occasional dunes. The weathering depth is around 10m on the flats. Sample Monitor #3 is for uphole DH03-08 at stn# 374 on this line. It shows a fast velocity followed by a slower velocity inversion (fairly typical of this area).



**Picture # 2: Daly Drilling rig on line BC03-04; driller Trevor Edwards at the controls.**

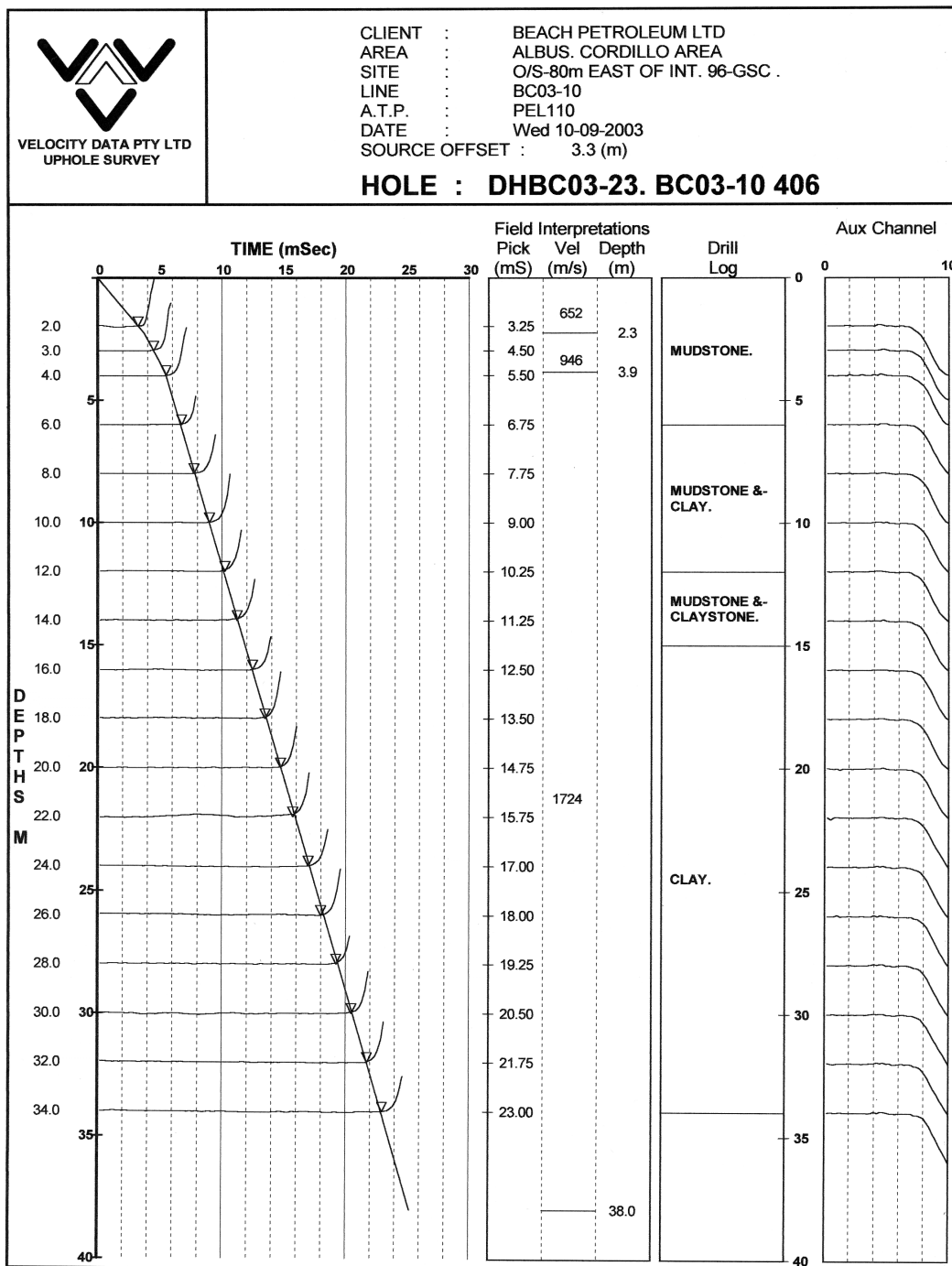


## 5.0 DRILLING & LVL



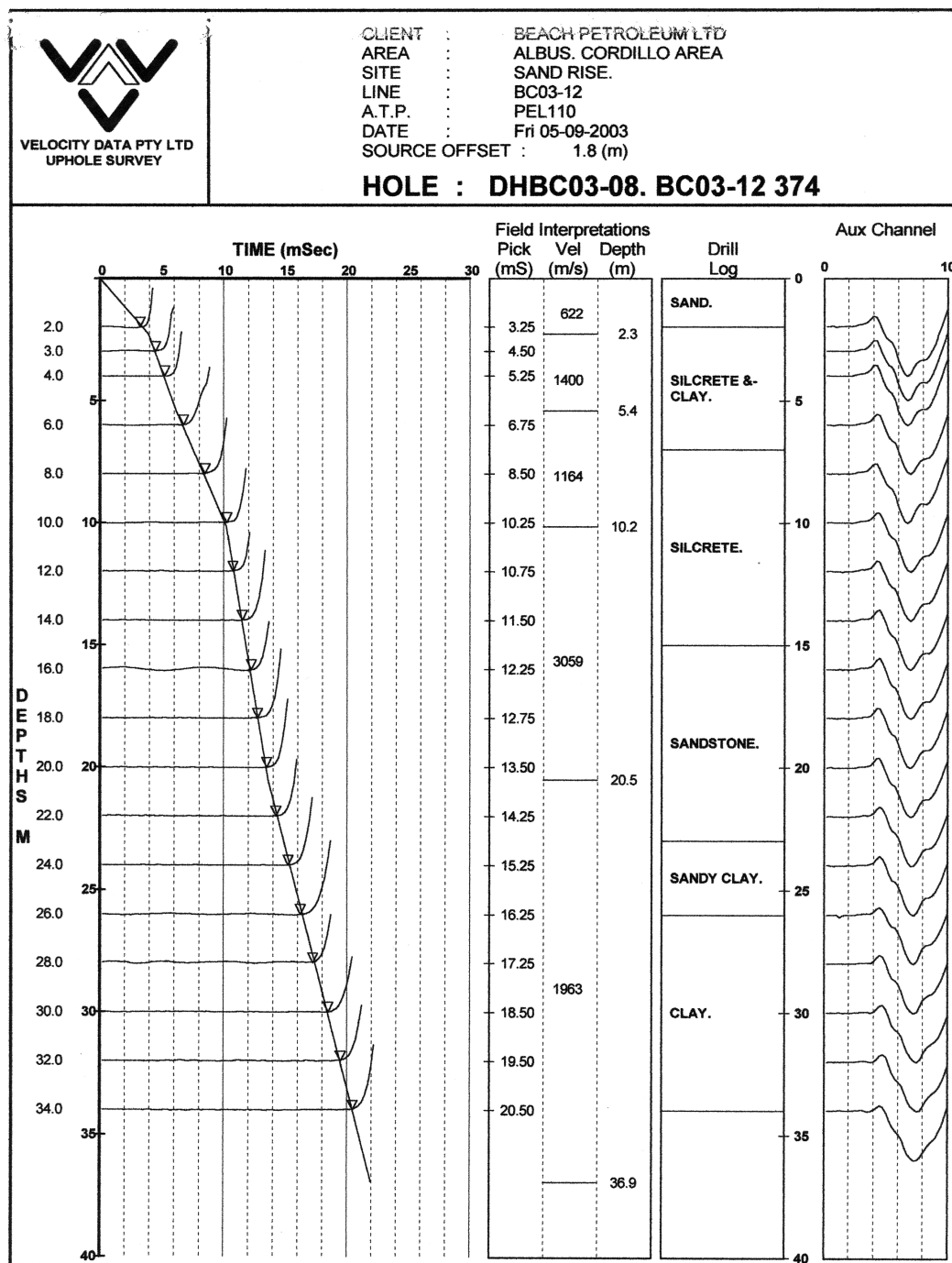
**Sample Uphole Plot # 1: Line BC03-16.**

## 5.0 DRILLING & LVL



Sample Uphole Plot # 2: Line BC03-10 DH03-23; shows anomalous depth of weathering.

## 5.0 DRILLING & LVL



Sample Uphole Plot # 3: Line BC03-12; shows typical velocity inversion.

## 5.0 DRILLING & LVL

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**Picture # 3: Mark Smale logging a hole on line BC03-05**

### Uphole Restoration

Emphasis was given to uphole restoration since this was an area of weakness in the 2002 surveys. In the sandy areas the cuttings were spread and sand thrown over the clay to disguise the colour.



**Picture # 4: restored uphole at the intersection of line BC03-07 and BC03-06; cuttings scattered.**

## 5.0 DRILLING & LVL

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However, this is not completely effective because the cuttings and mud are wet at the time of logging. To be completely effective (if this is what we are aiming for) a follow-up the next day when the mud is dry would be the best way to cover the cuttings. This may involve another dedicated person and vehicle.

### GPS Locations

Beach Petroleum supplied the Expertest logger Mark Smale with a hand-held gps. The reason for this was to be able to pinpoint the location of any holes that had to be moved from the pre-programmed positions pegged by DSS surveyors. The procedure was to provide DSS a post-drilling set of locations so that they could update their pre-plots to come up with a final uphole location file. This was done.

### Summary

The slow production rate was caused by difficult terrain and some hard drilling in the northern areas. Despite this Daly Drilling are recommended for future work because they are one of the few contractors in Australia able to provide a remote area camp and the all-wheel-drive trucks needed negotiate the environmentally prepared lines.

Expertest logger Mark Smale did his usual thorough and professional job. However, Expertest management proved to be intractable when asked to provide a second unit so they are not recommended for future work if there are other choices.



**Picture # 5: reducing rig tyre pressures in order to get over a steep soft dune on line BC03-09**



## 5.0 DRILLING & LVL

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**Picture # 6: rig at DH03-39 at the base of a particularly steep dune.**



**Picture # 7: the rig finally makes it up a steep soft dune on line BC03-09.**



## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

### Introduction

Denham & O’Keeffe Earthmoving (DOK) was contracted to conduct the line preparation. Dynamic Satellite Surveys (DSS) was contracted to do the surveying. Line preparation started on August 11<sup>th</sup> and was completed by August 18<sup>th</sup>.

### Line Preparation

Denham and O’Keeffe provided an abbreviated version of the crew and camp equipment that was fielded in 2002. The reason for this was the difficulty DOK had in finding experienced personnel due to the stop-start nature of the seismic industry in 2003. They had a crew of five people including two dozer operators, a grader operator, a cook and a mechanic. This is two less than last year. The camp had only two trains compared to the three provided last year.



**Picture #6- 1: Grader (Cat 12G) on line BC03-09**

The DOK crew list is as follows:

<u>Position Held</u>	<u>Name</u>
Dozer Operator	Bill Bebbington
Dozer Operator	Darren Jonas (replaced by brother Mick during the job)
Grader Operator	John Talbot
Cook	Mark Gill
Supervisor/Mechanic	Kim Townsend

**6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

The following table details production.

**Table 6- 1: Line Preparation Statistics for Denham & O’Keeffe Earthmoving**

Start Date for Line Preparation	August 11, 2003
End Date for Line Preparation	August 18, 2003
Total Kms Cleared	163.5
Total Chargeable Dozer Hours	209.5
Average Km/Dozer Charge Hour	0.78
Total Grader Hours	104.75

The production rate of 0.78 km/charge hr is lower than usual and can be attributed to steep and difficult dunes and inexperienced dozer operators on one dozer.

DOK had not worked in the Cooper Basin for about a year before this job. Their “gun” operator Peter (Hi-rise) O’Keeffe was not available due to other work commitments. He was replaced by Darren Jonas and later his brother Mick Jonas. These men are usually grader operators so dozing was new to them. Many mistakes were made in line cutting, not just by them but also the experienced Bill Bebbington, who may have been out of practice. Examples of these mistakes included;

- choosing the highest part of a dune to cross;
- constructing climbing turns (including a hairpin climbing turn!);
- making dangerous side cuts;
- making dead end stops at the tops of dunes;

These mistakes were discussed repeatedly at evening toolbox meetings but continued to occur.

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**



**Picture #6- 2: Bill Bebbington in the Komatsu D65E on line BC03-09**

One of the reasons for errors in judgement in choosing the correct line of approach to dunes was confusion over the clearance corridor allowed by the aboriginal WAC team. It was nominally +/- 10m. This proved to be impractical and, early in the program, the operators were given permission to go as far off line as necessary to make the dune crossings safe and easily negotiable.

Another reason for the poor line cutting performance was the unique quality of the dunes in this area. They are the “Marqualpie” dunes which have no definite orientation as with dunes in the rest of the Cooper Basin. They typically form “cusp-shaped” patterns. It is thus difficult to know when approaching a dune what happens on the other side. To overcome this problem, the operators were encouraged to walk the machine to the top of the dune and assess the situation before making a cut. This of course added to the time consumption.

On the positive side, all DOK operators have a keen eye for aboriginal sites. They picked up and reported many that were overlooked by the WAC team.

The completed job was not one of DOK’s best and caused considerable access difficulty for the recording and drill crews. They improved in subsequent programs for both Beach and Stuart.

### **Surveying**

DSS had only three surveyors on their crew this year compared to four last year. The reasoning behind this was that Beach decided on going to a turnkey rate instead of an hourly rate. Consequently, DSS decided to cut the staff by one person in an effort to

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

make the same revenue. The Line Pointer was still charged out at an hourly rate. With only two other surveyors, one was employed full-time in the field while the other (Ron Weekes) divided his time between the field and the office. The low rate of dozer production made this a viable option.



**Picture #6- 3: Darren Jonas in one of the Komatsu D65E's on line BC03-02**

DSS fielded an office/accommodation van and also rented sleeping space from DOK.

The DSS crew list is as follows:

<u>Position</u>	<u>Name</u>
Head Surveyor	Ron Weekes
Line Pointer	Mark Lefebvre
Surveyor	Craig Davey.

Annotated wooden pegs were used every 5<sup>th</sup> station and blue/pink alternating pin flags in between. These pegs were picked up by the recording crew and recycled.

One of the duties of the Line Pointer was to install Environmental Monitoring Points (EMPs). These EMPs are locations marked by permanent markers and appropriately tagged. They are supposed to be in easily accessible sites in terrain that is representative of that throughout the prospect area. In this survey, only one EMP was installed because access to most of the program was difficult. 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 EMP. It is intended that revisits will be made at intervals of 1, 2 and 4 years after the



## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

operation to monitor the rehabilitation of the lines. The EMP also served as permanent marker (PM).



**Picture #6- 4: large dune on line BC03-10 where the dozer operator made two mistakes; the first was choosing the highest part of the dune to cross and the next was a climbing turn.**

Another duty of the Line Pointer was to photograph and register the cultural heritage sites found during the cultural heritage clearance process. ERF reports were prepared and formatted by Bruce Beer using photos and coordinates supplied by Mark Lefebvre. These ERF reports are incorporated in the Environmental Report.

The following table details production:

**Table 6- 2: DSS Surveying Production Statistics for the 2003 PEL 110 Albus Seismic Survey**

Start of Surveying	August 10 <sup>th</sup> , 2003
End of Surveying	August 18 <sup>th</sup> , 2003
Total Km Surveyed	163.5
Total Survey Crew Hours	176.0 (1 surveyor + 1 vehicle with gps)
Average Km/Survey Crew Hr	0.93
Total Line Pointer Hours	94.5
Total Office Hrs	63.0

### Permitting

The PEL 110 Albus Seismic Survey was located on two properties, Cordillo Downs and Innamincka Stations. Cordillo Downs is managed by Anthony and Janet Brook and owned by Anthony's father David Brook of Birdsville. Innamincka Station is a

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

Kidman Pastoral Company property managed by Graham and Marie Morton. Most of the program was located on Innamincka Station.

Janet Brook attended the start-up induction meeting at Semaphore#1 on August 10<sup>th</sup>. After hearing the presentations she was asked to voice her concerns as a landowner. Janet pointed out that the biggest concerns were the state of fences, the wear and tear on station tracks and generally not being kept informed. She generously allowed us to lay down fences for crossings rather than construct expensive gates. As to station tracks, the crew acceded to Janet's request to use a detour on the newly constructed rig road into Semaphore #1 to avoid creating bull-dust in gibber terrain. The shooting order for the program was also designed to minimise the traffic on the Horseshoe Bore track in the north of the program.



**Picture #6- 5: a unique hairpin climbing turn on a dune on line BC03-01; this is poor line prep.**

Visits were made to both Cordillo and Innamincka homesteads by Doug Roberts and Bruce Beer. In addition to this, regular communication by phone and email was kept up throughout the program.

### **Environment**

The environmental impact of the PEL 110 Albus Seismic Survey was significant. Dune cuts were often deep due to necessity but care was taken to avoid unnecessary blade-work in the swales and on the small amount of gibber terrain in the north. A separate environmental report has been written. It contains an EMP report, a GAS audit report and ERF reports.



## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**



**Picture #6- 6: dangerously soft side cut on line BC03-07; the recording truck slid off the side of this cut while reversing out of soft sand.**

### **Summary**

This program presented some unique challenges to the line prep crew. In many cases those challenges were not met well and it is job that DOK would rather forget. Nevertheless, DOK have a very good historical track record and are recommended for future work.

DSS did their usual professional job and are also recommended for future work.



**Picture #6- 7: Kim Townsend and Ray El commissioning the water bore for Semaphore #1.**  
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## **7.0 – SAFETY**

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### Introduction

Safety received a high priority from both Trace Energy Services and Beach Petroleum on the 2003 PEL 110 Albus Seismic Survey. Safety management plans were a pre-condition for all the sub contractors to bid on the job.

Trace had a dedicated HSE officer in Russell Gregg. Russell is also a senior first aider and acted as the crew's defacto paramedic. The basic tenets of the HSE policy were:

- ❑ A start-up induction meeting prior to the start of operations at which potential hazards were identified and discussed. Inductions by Trace 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 at 0615 hrs. They provided a forum for any safety or operational issues to be aired.
- ❑ 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 Party manager and Bird-dog added their views on crew safety performance and any other comments from the crew were invited.

Minutes for safety meetings and toolbox meetings are contained in the appendices.

All vehicles were equipped with first aid kits and fire extinguishers. About 30% of the crew were trained first aiders.

There were no Lost Time Injuries on this job. However, there were two incidents that required medical attention and led to the writing of RIR's (Risk Identification and Accident Report). RIR-02 and RIR-03 appear in the appendices. They were not for work related injuries.

A joint Stuart Petroleum/Stuart Petroleum induction was held prior to the start of line preparation and again before the start of recording. Doug Roberts represented Beach and John Iredale represented Stuart. Several members of PIRSA also attended. An induction for the drill crew was given by Bruce Beer who also gave inductions to all new crewmembers upon arrival.

### Audit

The Trace crew was audited in March 2003 by Santos and Beach personnel. Several issues were highlighted in that audit. The Trace Energy Services response is as follows:

## **7.0 – SAFETY**

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# ***Response to the:***

## **Trace Energy EHS Review**

27 - 28 March 2003

***Written by Bruce Beer, based on answers provided by Trace Energy relief HSE Officer Terry Ernst on 16-9-03***

### **Background**

Santos are planning to use Trace Energy to conduct 2D seismic in April 2003 and as part its due diligence process decided to review Trace Energy's EHS systems. Trace Energy are currently conducting seismic work for Beach Petroleum north east of Tarbat in South West Queensland. Beach were approached by Santos and have kindly allowed Santos to conduct this review.

Trace Energy were unsuccessful in an initial prequalification assessment of 32% conducted in August 2002 and were subsequently pre-qualified in relation to EHS later in 2002 achieving an assessment score of xx%.

### **Purpose**

After considering previous injuries in seismic crews it was determined that the purpose of this review was to evaluate Trace Energy's approach to preventing injuries relating to land transportation, cable and geophone handling, working in hot environments stress.

### **Process**

The review team included the following Santos and Beach Petroleum representatives:  
Brian Willcocks (Review Leader – Santos)  
Alan Jones (Santos)  
John Allen (Bird Dog, Santos)  
Doug Roberts (Beach Petroleum)

Discussions and field visits were conducted involving the following Trace Energy Representatives  
Andy Brett (Operations Manager, Trace Energy)  
Bob Stevenson (Party Chief, Trace Energy)  
Russell Gregg (QHSE Advisor, Trace Energy)

Field visits included reviews of the workshop, uphole recording unit, drilling rig, geophone handling crews (front crew and back crew), vibrator operations and recording truck.

## **7.0 – SAFETY**

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### **Key Findings**

Trace Energy have a similar belief to Santos that EHS is a line management responsibility. Both Andy Brett and Bob Stevenson who are the line managers were actively involved in the whole review process.

Corporate EHS policies have been established relating to HSE, Training, Transportation, PPE, Alcohol and Drugs, Medical and First Aid, Anti-discrimination and Security/Civil Unrest.

These policies are communicated to all crew members at the start of each new seismic job as part of the contractual agreement with each Trace crew member.

A basic one hour informal pre-job orientation is provided to new employees prior to commencing work. The process is brief and doesn't meet all of the Trace HSE manual requirements.

*Recommendation: Ensure all pre-job orientations meet Trace Energy requirements.*

***Response: this is 80% complete. Some training in things such as hazardous materials storage and transport has yet to be done.***

Towards the end of day one of the review it was highlighted that the Review Team had not been provided with a Visitor safety orientation as required by Trace HSE Manual requirements.

*Recommendation: Develop a basic visitor induction checklist and use for all visitors.*

***Response: this has been done***

It appeared during discussion with crew members that most had recently conducted driver training either with Trace Energy or with their previous employer, however the training register is currently being developed.

*Recommendation: Finish developing the training register and use for all employees and all competencies required.*

***Response: a training register has been made and its updating is ongoing.***

The emergency response details in the crew vehicles were either not available or outdated. Although verbally people had a basic understanding of who to report emergencies to, the process was not documented.

*Recommendation: Ensure the emergency response procedure is documented and updated for each job and available for all crews.*

## **7.0 – SAFETY**

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***Response: An emergency response plan is contained within the Site Specific Safety Plan. We are awaiting the return of Russell Gregg (and his computer) to see what documentation he has on the ERP drill conducted at Conus in March. A drill is being planned here. The crew were quizzed by Bruce Beer at the weekly safety meeting on 7-9-03 on the ERP and did well in answering.***

The Seismic crew has recently purchased a tanker for supply of diesel for the crew's vehicles. There are many dangerous goods requirements that arise when transporting bulk dangerous goods including, placarding, licensing, emergency procedures, spill control etc.

***Recommendation: Review dangerous goods requirements and ensure compliance for the diesel tanker.***

***Response: Trace claim to have investigated the regulations for signage etc on diesel storage and found there are no specific requirements.***

All portable electrical equipment, extension leads and residual current devices RCDs are legally required to be inspected and tagged by an electrician in accordance with Australian Standard 3760. Many of the electrical leads had either not been tested or out of date.

***Recommendation: Set up register for all portable electrical equipment, extension leads and RCDs and ensure ongoing compliance.***

***Response: this needs to be addressed and will be when the crew's only qualified electrician, Peter O'Donnell returns from leave.***

### **Other observations:**

The requirements as to which jobs require an ambulance or onsite medic should be clarified from Santos perspective based on a risk assessment approach considering likely scenarios and likely response times from local medical services.

***Response: no plans are in place to provide an ambulance or medic. The current risk assessment is that medical facilities in Moomba provide an adequate backup.***

The journey management system is a good initiative particularly when working in remote locations such as the Cooper Basin. It was noted on day 1 of the review that not all personnel were using the journey management system. It is important that any systems implemented are used by all crew members and in particular site management for the system to be sustainable.

***Response: a journey management system is in place and working well but is used only by people going outside the area of operations covered by VHF radio.***



## **7.0 – SAFETY**

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It was noted that a vehicle inspection checklist has been drafted. Documented Vehicle inspections are mandatory for work conducted with Santos to ensure vehicles are road worthy and fit for purpose prior to use.

***Response: QHSE has consulted with mechanics on crew and vehicle service records (history book) exist. Vehicles are checked from air filter through to test drive every 5000 km.***

The re-engineering of the cable truck and jug truck to improve manual handling is a good initiative. We look forward to seeing all vehicles modified when Trace work for Santos.

***Response: all Trace cable and jug trucks have been converted to have safety cages.***

It was noted that additional crew members are scheduled for First Aid training to meet the Trace requirement of 50% trained in First Aid.

***Response: this is ongoing and Russell Gregg will be consulted on the current status.***

Good lightening precautions were observed in the recording crew. The recording crew stopped operations when lightening was nearing the operation. However, the drilling crew was not as quick to shutdown work. Suggest a review of the requirements be conducted to ensure the drilling crew maintain the same high standards as the recording crew.

***Response: a different drilling contractor, Daly Drilling, is currently on the crew. Precautions for lightning storms were covered in the driller's induction***

One of the cable crew had cuts in his hands from pulling dusty cable for extended periods of time. Suggest a review be conducted to consider whether light weight gloves that provide a good level of dexterity should become a mandatory requirement.

***Response: this suggestion has been left to the discretion of line crew members who can request gloves as needed.***

A number of crew members were wearing shorts or had long sleeves rolled up. For Santos work all crew members must wear trousers and long sleeve cotton shirts. Sleeves must be down at all times whilst outdoors.

***Response: Beach and Stuart do not insist on long pants and long sleeved shirts. It is left to the individual's discretion although warnings of possible consequences are regularly given at safety and toolbox meetings. It is noted however, that most of the crew do comply with the preferred dress code. They are aware that on Santos jobs there will be no discretion allowed.***

Although not under the direct control of Trace Energy, the drilling contractor water truck requires modification. Currently employees are accessing the rear of the truck

## **7.0 – SAFETY**

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by climbing up the back of the vehicle without an appropriate ladder. The crew supervisor understands the problem and will be taking action to resolve.

***Response: the Daly Drilling water trucks will be inspected on the weekend for compliance.***

### ***General Comment by Birddog:***

***In my time on the Trace Energy crew, I have noted a high level of safety awareness and induction by management and HSE officers. This level is not always reflected in documentation and to some extent this has been a deliberate ploy to avoid a paper bureaucracy. The emphasis is far more on practical application. The issue of lack of crew participation in safety meetings has been recognised by management and is being addressed by requiring each department to present a safety hazard on a rotational basis at morning toolbox meetings. In addition to this the crew is often given a quiz at weekly safety meetings to test and increase their knowledge of safety issues and emergency procedures. The HSE officers often give first aid demonstrations at these meetings.***

***The effectiveness of the approach to safety adopted on this crew is reflected in the low incidence of injury. I believe that a comparison of injury incidence on this crew with any other contractor in the Cooper Basin over the past 5 years would be more than favourable.***

***Bruce Beer***

## **7.0 – SAFETY**

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An audit of the camp was conducted by Bruce Beer and Terry Ernst. Even though it was conducted after the PEL 110 Albus survey was completed, the comments are equally applicable. The results of that audit, as written by Terry, are as follows:



### **GENERAL CAMP INSPECTION**

**DATE: 05-10-03**

#### **CAMP - HEALTH & HYGIENE:**

- Is camp in a suitable location to allow for wastewater drainage? **No, contract states where to camp, more “lay flat” hose required.**
- Does the camp have adequate shower facilities? **Yes**
- Are showers cleaned daily and disinfected? **Yes**
- Are toilets cleaned daily and disinfected? **Yes**
- Are there sufficient sunscreens, soap, and creams available for the crew? **Yes**
- Are rooms cleaned daily? **Yes**
- Are sheets, pillowcases washed regularly? **Needs reiterating to Campy**
- Are there adequate bins with lids provided? **More bins required**
- Is garbage bagged, covered and disposed of adequately? **Yes**
- Does the camp have adequate lighting? **More lighting required for outer perimeter of camp, muster point etc.**
- Does the camp have sufficient accommodation? **No, not really, tents supplemented for couples**
- Is the camp free from Litter & Rubbish? **Yes, ongoing**

#### **SAFETY**

- Does the crew have a QHSE Representative? **Yes**
- Is there a Muster point on site with First Aid Kit, Camp layout & Personnel list? **Yes**

## **7.0 – SAFETY**

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- Is there an ERP in place, is it displayed to everyone? **Yes, in place but needs to be displayed more**
- Do accommodation blocks have smoke detectors fitted? **Some, QHSE to order more detectors**
- Is there information displaying Fire Team & ERP for Fire. **No, needs to be displayed**
- Does the camp have adequate fire extinguishers; are they in appropriate positions around camp? **Yes, need to check and make clamps inside rooms to store on camp moves**
- Are there first aid kits available in camp? **Yes, no RFDS Box**
- Are there no smoking signs displayed where smoking is prohibited? **Yes**
- Are stairs and handrails adequate at door entrances? **No, some stairs are cracked. Perhaps landings on Diner, Kitchen & Shower to be made.**

### **KITCHEN**

- Does the Cook & Cook's Offsider wear gloves, appropriate & clean clothing? **Yes**
- Is the kitchen free from dust & insects? **Yes, as best as possible.**
- Does the kitchen have adequate ventilation? **Yes, ventilation fan should be redesigned to extract fumes properly**
- How is food thawed? **Overnight in chiller**
- Are cutting utensils in good condition and cleaned regularly? **Yes**
- Are Cook & Offsider current with Hepatitis vaccinations? **Yes**
- Do Cook & Offsider have Long Hair, if so; do they wear a hat or net? **Yes**
- Is Temperature on chiller room below required setting? **Yes**
- Is chiller room floor in clean condition? **Yes, needs minor fixing on floor**
- Are all meats, poultry etc rotated frequently? **Yes**
- Does chiller room have adequate shelving? **Yes, chiller racks to be completed when camp moving**
- Is there a first aid kit present, is it up to date? **Yes**

## **7.0 – SAFETY**

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### DINER

- Is diner cleaned regularly? **Yes**
- Are there vermin, insects, dust present? **Ongoing, as best as possible**
- Do bins have lids and are they emptied & cleaned regularly? **Yes**
- Is there sufficient lighting inside? **Yes, more spare fluoro lights to be ordered.**
- Is there sufficient room to prepare lunches etc? **Yes, need Bainne Marie**
- Is fridge in good working condition? **Yes**
- Are eating utensils clean? **Yes**
- Are sauce bottles etc wiped daily? **Yes**
- Is hot water Urn cleaned and refilled daily? **Yes**
- Is fire extinguisher present & in working condition? **Yes**

### DRY STORES

- Are food tins & dry stores on shelving? **Yes, needs more shelving.**
- Is there vermin, insects, dust present? **No Vermin present needs to be cleaned daily.**
- Is there sufficient lighting? **Yes, more spare fluoro needed**
- Are freezers & fridges in good working condition? **Yes**
- Is fire extinguisher present & in working condition? **Yes**
- Is there adequate storage space? **Yes, requires better storage shelving.**

### ELECTRICAL

- Are all electrical cables in good condition, are they tagged? **No**
- Are Aggreko boxes in good working condition? **Yes**
- Is generator adequate to supply power to camp? **Yes**
- What is general appearance of generator & power outlets? **Good**

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## **7.0 – SAFETY**

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### MECHANICS

- What is general cleanliness of Mech's Workshop? Ongoing, have started cleaning and redesigning benches etc.
- Is First Aid Kit present? Yes
- Is eye wash station available? No
- Are fire extinguishers present & in working condition? Yes
- Are mechanics wearing appropriate PPE? Yes
- Are MSDS available? No

Other recommendations by Client representative were:

1. Chain handrail – convert to both sides, solid detachable handrail
2. Fuel Tanker – Fire extinguishers to be rechecked, Drip tray & appropriate signage

Inspection performed by

Client Rep: Bruce Beer

QHSE Rep: Terry Ernst

## **7.0 – SAFETY**

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### Summary

Trace Energy Services have elevated their safety awareness greatly in the past two years since winning Cooper Basin contracts. The rigorous emphasis placed in safety by all Cooper Basin operators has led to much higher levels of safety performance. This is a direct result of the continuous review of safety procedures and incidents at morning toolbox and weekly safety meetings. The elevation of Terry Ernst to relief QHSE advisor and Assistant Crew Manager had an overall beneficial effect on the crew. Terry had extensive QHSE training with his former employer WesternGeco and has transferred much of that training to Trace Energy Services.

There were no LTI's on the PEL 110 Albus Seismic Survey. This was more than a matter of good fortune, it was in large part due to the strong emphasis placed on safety by both Trace Energy and Beach Petroleum managements.

## **8.0 – REMARKS & RECOMMENDATIONS**

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- 1) The average daily recording production for the 2003 PEL 110 Albus Seismic Survey was 20.44 km. This is below expectations and was caused by a number of factors, including:
  - a. Long daily trouble-shooting time eliminating bad cables from spread;
  - b. A short-handed crew;
  - c. Difficulty in negotiating poorly cut dunes;
- 2) Data quality was good in all areas.
- 3) Only one campsite was used for the operation. All three camps, line preparation, drilling and recording used this site. It was at the Semaphore#1 well-site. The camp coordinates were:

Easting	463441
Northing	7027334
Latitude	-26° 52' 30.7"
Longitude	+140° 37' 54.9"
- 4) The line preparation operation did not go smoothly. A combination of difficult terrain and inexperienced operators led to a job that was below the normally lofty standards of DOK and one they would rather forget. However, such is their historical credibility that DOK is recommended for future work.
- 5) DSS were surprised to have the turnkey option thrust upon them rather than the hourly rate. Due to the low rate of dozer production they quickly concluded that revenue would be lower than it would have been on hourly rate. They responded by withdrawing one of their surveyors leaving only three. This put extra pressure on personnel but was sustainable due to the low rate of production. DSS are a professional outfit who do good work. They are recommended for future contracts.
- 6) Uphole drilling proved to be a time-consuming and expensive part of the operation. This was caused by:
  - a. Two days of standby due to rain;
  - b. Difficulty in moving the rig and water trucks around the prospect due to large, poorly cut dunes;
  - c. Slow and difficult drilling on the northern part of the program in gibber terrain where silcrete stringers created havoc;
- 7) Despite the low drilling production, Daly drilling are recommended for future work because they have a camp and the all-wheel drive trucks needed to traverse environmentally cut lines. Their personnel were also hard working and competent.
- 8) Expertest provided a professional service despite their aging equipment. This is due to their competent logger Mark Smale. However, Expertest management proved to be extremely recalcitrant when asked to provide a second

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## **8.0 – REMARKS & RECOMMENDATIONS**

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unit so that we could field another drilling rig. They also showed remarkable incompetence in getting data transferred from their Adelaide office to the client. They show an arrogant disregard for the needs of the customer and for this reason they are not recommended for future work unless no alternative is available.

- 9) The provision of excellent maps by Beach was appreciated by the whole crew. The colour topographic maps were particularly popular.
- 10) An innovation this year has been the equipping (by Beach) of the Expertest logger with a hand held gps. This is used to check the coordinates given by DSS surveyors in the pre-plotted uphole program (N.B. one of the duties of the DSS surveyors was to place pegs at all uphole locations). It is also used to report the coordinates of any new location changed by the drillers due to inaccessibility of the pre-programmed location. Although the surveyors are getting better at choosing uphole locations, they still don't see them through drillers eyes and it is sometimes (rarely it must be said) necessary to shift the location a few stations. With no pegs left in the ground to guide them, the only way to pinpoint the new location is with gps. A post-programme listing is sent to DSS to update their pre-plots to a final uphole listing. It is suspected that failure to do this in past years may have led to a few instances of apparently anomalous uphole plots. For example, if an uphole is shifted from the top of a dune to the bottom, the elevation changes and the weathering depth appears not to fit the profile. Processing centres should pick this up but often do not.
- 11) Communication with the drill camp when the main camp moved away was difficult. They relied on faxing their reports to main crew on a daily basis. This was not always reliable. They have the satellite phone setup and driller Trevor Edwards has a new computer so it would not be difficult to get email working. This would improve reporting and allow the opportunity for fbr files being emailed on a daily basis if necessary. It is recommended that the next contract specify email capability as a pre-requisite.
- 12) Trace Energy's Crew Manager, Bob Stephenson, was assisted by Richard Barnes who was on loan from Steve Tobin's Iranian operation. Both men have vast experience and make the best of the poor level of equipment and support they are given. Both are welcome on future Beach jobs.
- 13) Trace Energy's Senior Mechanic John Philippon remains one of their major assets. He is more a mechanical engineer than mechanic. His ability to keep the old vibrators (which are on their final tour of duty before being replaced) going is legendary.
- 14) The Trace Energy camp was inadequate in several aspects. First, many of the vans were in a poor state of repair. Second, there was not enough accommodation. There were some rooms where four people were crammed in. Three couples had their own tents and camped apart from the main camp.

## **8.0 – REMARKS & RECOMMENDATIONS**

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Without this the accommodation situation would have been intolerable. Although everyone admires Trace Energy's ability to survive when other larger organisations have gone under, it is sad that in 2003 we cannot provide better accommodation for seismic personnel.

- 15) This job represented the first time Trace Energy's Australian operation has operated on a continuous basis with regular crew changes every 2 weeks. Normally, they operate with a single crew and shut down between jobs for a break. The continuous operation is new and caused some problems in leave scheduling. There were situations where 10 people would go out and only 5 come in, leaving the crew critically short-handed. It has also meant Trace having to hire extra crewmembers. They seem to have had trouble doing this.
- 16) Despite the obvious camp deficiencies, the work ethic of Trace personnel is second to none and they are recommended for future work.



**Picture #8- 1: using the Bobcat of the Cordillo Downs fencing contractors to help lay dirt on the pit liner at Semaphore bore.**



## **8.0 – REMARKS & RECOMMENDATIONS**

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**Picture # 8-2: Bardrill delivering the compressor to the water bore at Semaphore#1**



**Picture #8- 2: getting the water bore set up**

**BEACH PETROLEUM LIMITED'S PEL 110 ALBUS 2003 SEISMIC SURVEY**

# **APPENDIX I**

## **RECORDING STATISTICS**

**RECORDING PRODUCTION by Trace Energy Services: Beach Petroleum's 2003 pel 110 Albus Seismic Survey: August - September, 2003.**

	Line Details & Kms									Non-Chargeable Hours									Chg Hrs		Comments
Date	Area	Line	First Stn	Last Stn	# Stns	# VPs	# Skips	Chg Kms	Daily Total Km	Record	Line Move	Rec Move	Detours	Wait on Spread	Layout & Pickup	Travel	Tests, QC & Other	Down	Standby	Total Daily Hrs	Comments
22	Cordillo																		1.00		depart Eromanga for Windorah.
23																				wait in Windorah for roads open	
24		"																		wait in Windorah for roads open	
25		"																		halted @ Union Bore bog	
26		"																		arrive at Semaphore. Stby induction	
27		"																		test 400 phones and boxes	
28		"																		start recording; cable probs.	
29		"	BC03-04	362	200	162	161	2	6.0750	14.7000	4.60	1.10					0.80	4.40		0.70	
	"	BC03-05	200	361	161	160	2	6.0375													
	"	BC03-06	386	317	69	69	1	2.5875													
30	"	BC03-06	317	200	117	115	2	4.3875	19.0125	5.50	1.00		2.20			1.20	1.60	0.50		12.00	2.2 hrs stuck on dunes
	"	BC03-16	200	457	257	250	8	9.6375													
	"	BC03-01	200	333	133	129	5	4.9875													
31	"	BC03-01	333	427	94	91	3	3.5250	21.2250	5.60	1.80		0.30			1.30	2.40	0.60		12.00	
	"	BC03-02	406	200	206	203	4	7.7250													
	"	BC03-03	200	432	232	233		8.7000													
	"	BC03-08	370	336	34	34	1	1.2750													
1	Cordillo	BC03-08	336	200	136	135	1	5.1000	25.8750	7.00	1.20		0.20			0.80	1.40	1.20		11.80	
	"	BC03-07	200	519	319	310	10	11.9625													
	"	BC03-09	522	287	235	226	10	8.8125													
2	"	BC03-09	287	200	87	83	4	3.2625	19.2000	5.30	0.80	1.10	0.50			0.70	3.20	0.40		12.00	skips for big dunes; t/s bad cables
	"	BC03-17	200	332	132	129	4	4.9500													
	"	BC03-10	200	493	293	280	14	10.9875													
3	"	BC03-10	493	720	227	223	4	8.5125	24.0375	6.90	1.30		0.40			1.10	2.40	0.10		12.20	crew change day; good production.
	"	BC03-19	336	200	136	118	19	5.1000													
	"	BC03-11	200	385	185	186		6.9375													
	"	BC03-18	338	245	93	91	4	3.4875													
4	"	BC03-18	245	200	45	44	1	1.6875	21.0375	6.00	2.50		0.10			1.20	2.30	0.20		12.30	
	"	BC03-15	200	505	305	302		11.4375													
	"	BC03-12	387	200	187	186		7.0125													
	"	BC03-13	434	410	24	25		0.9000													

**RECORDING PRODUCTION by Trace Energy Services: Beach Petroleum's 2003 pel 110 Albus Seismic Survey; August - September, 2003.**

		Line Details & Kms									Non-Chargeable Hours									Chg Hrs		Comments
Date		Area	Line	First Stn	Last Stn	# Stns	# VPs	# Skips	Chg Kms	Daily Total Km	Record	Line Move	Rec Move	Detours	Wait on Spread	Layout & Pickup	Travel	Tests, QC & Other	Down	Standby	Total Daily Hrs	Comments
5	"	BC03-13	410	200	210	206	4		7.8750	18.4125	5.00	0.80		0.50		2.10	0.90	2.30	0.40		12.00	complete Cordillo recording.
6	"	BC03-14	200	481	281	262	20		10.5375													P/U spread
Totals						4360	4251	123	163.5000	163.5000	45.90	10.50	1.10	4.20		2.10	8.00	20.00	4.10	1.00	96.90	

Total Hours = 96.90  
 Overall Average Kms/Total Hr = 1.69  
 Overall Average Kms/Rec Hr = 3.56  
 Average Km/day = 20.44

**BEACH PETROLEUM LIMITED'S 2003 PEL 110 ALBUS SEISMIC SURVEY**

# **APPENDIX II**

# **DRILLING STATISTICS**



**PRODUCTION for DALY DRILLING on BEACH PETROLEUM'S 2003 ALBUS SEISMIC SURVEY, AUGUST - SEPTEMBER, 2003**

Date	Prospect	Line Details			Drill Hours					Consumables						Comments
		Lines	# Holes	Metres	Work	Stby	Charge	Travel	Down	43/4 Regular	4 3/4" Chev	TCI	Lo-Loss (drums)	Bentonite (bags)	Hi-Seal (bags)	
Aug-19																
20																
21																
22	Cordillo															mobilise Innaminck to Semaphore.
23	"					10.00	10.00									standby for rain (15mm).
24	"					10.00	10.00									stby for wet conditions
25	"	BC03-10,04	5	170	11.00		11.00	1.00	0.00	1	-	-	1	2	-	start drilling; calaypans wet
26	"	BC03-05	4	129	10.25		10.25	1.00	0.00	2	-	1	-	3	1	silcrete & lost circ.
27	"	BC03-17,06	5	170	10.00	0.50	10.50	1.00	0.00	2	-	-	1	3	-	stby for induction in evening.
28	"	17,9,8,7	4	146	11.00		11.00	1.25		2	-	-	1	3	-	trouble getting over dunes.
29	"	BC03-10,09	4	115	10.00		10.00	1.25		2	-	-	1	2	-	big dunes; slow drilling due silcrete
30	"	1,2,7,9,16	6	184	10.00		10.00	1.50		1	-	-	2	3	-	good day!
31	"	1,2,7,16	5	154	10.00	0.25	10.25	1.25		1	-	-	1	2	1	stby for weekly safety meeting.
Sep 1	Cordillo	BC03-03	5	155	10.75		10.75	1.75		1	-	-	1	3	-	difficult dunes
2	"	18,10,11	5	162	10.00		10.00	2.00		-	2	-	2	5	2	lost circulation on 3 holes.
3	"	18,11,19	5	175	10.00		10.00	1.50		1	-	-	1	4	-	used TCI for 7m in DH33.
4	"	14,10	5	164	11.25		11.25	1.00		1	1	-	1	3	-	
5	"	14,12	3	98	11.50		11.50	1.00		1	-	-	-	1	-	hard silcrete; try air and hammer
6	"	15,12	2	72	11.75		11.75	1.00		1	-	-	1	3	-	hard silcrete - blowouts
7	"	BC03-15	3	102	10.50	0.50	11.00	1.25		1	-	-	1	2	1	hard silcrete; hammer and rock bit
8	"	BC03-13,15	3	96	11.00		11.00	1.25		1	-	-	1	2	1	hard silcrete & gravel cause probs
9	"	BC03-13,12	4	134	11.25		11.25	1.00		1	-	-	1	2	-	combination air/mud drilling
10	"	BC03-10	4	125	10.00		10.00	0.50		1	-	-	1	3	1	complete Cordillo prospect.
11	Mentone -		0	0	5.00		5.00			-	-	-	-	-	-	move to Mentone; pay half cost*
12	"						0.00									drilling at Mentone.
13	"						0.00									"
14	"						0.00									"
																* Beach & Stuart agreed to share move costs.
Totals			72	2351	185.25	21.25	206.50	20.50	0.00	20	3	1	17	46	7	

Average Hole Depth = 32.65

Average Metres/Charge Hr = 11.38

**APPENDIX III**

**EXPERTEST LVL**  
**STATISTICS**

**PRODUCTION for EXPERTEST on BEACH PETROLEUM'S 2003 ALBUS SEISMIC SURVEY, AUGUST - SEPTEMBER, 2003**

Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Hours					Km Travelled per day	Comments
								Work	Standby	Travel	Down	Total		
Aug-21	Cordillo													
22	"													
23	"								10.00			10.00		mobilise Moomba to Semaphore 1;set up camp.
24	"								10.00			10.00		standby for rain (15mm)
25	"	BC03-10	22	356	30	18	5	11.00		1.00		12.00	35	stby for wet conditions.
	"	BC03-04	40	321	33	17								start drilling. Claypans wet and dunes soft
	"	"	44	303	34	19								
	"	"	52	280	39	21								
	"	"	56	256	34	21								
26	"	BC03-05	39	327	31	17	4	10.75		1.00		11.75	15	
	"	"	43	309	33	15								
	"	"	51	283	31	13								
	"	"	55	259	34	22								
27	"	BC03-17	38	282	29	15	5	11.00		0.75		11.75	30	
	"	BC03-06	42	336	34	20								
	"	"	50	313	39	20								
	"	"	54	289	34	16								
	"	"	61	240	34	14								
28	"	BC03-17	37	227	34	11	4	10.25		1.25		11.50	30	
	"	BC03-09	41	227	34	18								
	"	BC03-08	49	227	39	21								
	"	BC03-07	53	219	39	25								
29	"	BC03-10	20	247	23	14	4	11.00		1.25		12.25	25	
	"	BC03-10	21	300	24	14								
	"	BC03-09	45	394	34	22								
	"	BC03-09	46	443	34	20								
30	"	BC03-09	47	487	34	14	6	10.25		1.50		11.75	30	
	"	BC03-07	58	484	34	13								
	"	BC03-02	63	347	29	11								
	"	BC03-01	64	319	29	12								
	"	BC03-16	67	322	29	13								
	"	BC03-01	71	231	29	12								
31	"	BC03-07	57	417	34	18	5	11.00	0.25	1.25		12.50	42	stby for weekly safety meeting
	"	BC03-02	60	387	34	19								

**PRODUCTION for EXPERTEST on BEACH PETROLEUM'S 2003 ALBUS SEISMIC SURVEY, AUGUST - SEPTEMBER, 2003**

Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Hours					Km Travelled per day	Comments
								Work	Standby	Travel	Down	Total		
Sep-01	Cordillo	BC03-16	65	219	34	12								
		BC03-01	68	266	23	13								
		BC03-02	70	238	29	15								
		BC03-03	59	407	34	20	5	11.00		1.75		12.75	52	difficult dunes
	"	"	62	372	29	10								
	"	"	66	325	29	17								
	"	"	69	263	34	14								
	"	"	72	220	29	11								
2	"	BC03-18	31	264	34	22	5	10.25		2.00		12.25	50	lost circulation in 3 holes.
	"	BC03-11	32	310	34	17								
	"	BC03-10	34	702	34	18								
	"	BC03-18	35	224	26	14								
	"	BC03-11	48	239	34	14								
3	"	BC03-18	28	323	34	16	5	10.00		1.50		11.50	45	
	"	BC03-11	29	367	34	24								
	"	BC03-19	30	313	34	22								
	"	BC03-19	33	288	39	24								
	"	BC03-19	36	259	34	18								
4	"	BC03-14	10	362	34	20	5	11.00		1.00		12.00	40	
	"	BC03-14	13	308	34	18								
	"	BC03-14	16	250	28	16								
	"	BC03-14	18	201	34	14								
	"	BC03-10	27	588	34	16								
5	"	BC03-14	2	458	30	4	3	11.50		1.00		12.50	45	hard, thick silcrete, velocity inversion.
	"	BC03-14	6	401	34	21								
	"	BC03-12	8	374	34	20								
6	"	BC03-15	3	483	38	13	2	10.75		1.00		11.75	45	hard silcrete and blowouts; difficult logging
	"	BC03-12	7	331	34	16								
7	"	BC03-15	11	387	34	24	3	11.25	0.25	1.00		12.50	50	hard silcrete and blowouts; difficult logging
	"	BC03-15	14	335	34	18								
	"	BC03-15	19	227	34	16								
8	"	BC03-13	12	260	33	21	3	11.00		1.25		12.25	45	
	"	BC03-13	15	200	29	15								
	"	BC03-15	17	275	34	17								

**PRODUCTION for EXPERTTEST on BEACH PETROLEUM'S 2003 ALBUS SEISMIC SURVEY, AUGUST - SEPTEMBER, 2003**

Date	Area	Line	Hole #	Stn#	Depth Logged	Wx Depth	Total Holes for Day	Hours					Km Travelled per day	Comments
								Work	Standby	Travel	Down	Total		
9	"	BC03-13	1	410	34	24	4	11.50		1.00		12.50	45	complete Cordillo prospect.
	"	BC03-12	4	212	33	24								
	"	BC03-12	5	248	34	21								
	"	BC03-13	9	315	33	21								
10	"	BC03-10	23	406	34	4	4	10.25		0.75		11.00	65	
	"	BC03-10	24	459	34	10								move to Stuart Mentone; pay half cost working at Stuart Mentone SS
	"	BC03-10	25	500	23	12								
11	Mentone-	BC03-10	26	544	34	12		5.00				5.00	73	
12	"													
Totals					2351		72	188.75	20.50	20.25		229.50	165	

**APPENDIX IV**

**LINE PREPARATION  
STATISTICS**



**LINE PREPARATION PRODUCTION BY DENHAM & O'KEEFE EARTHMOVING on BEACH PETROLEUM'S 2003 ALBUS SEISMIC SURVEY: AUGUST, 2003**

		Dozer #6 (Komatsu D65E)						Dozer # 7 (Komatsu D65E)						Grader			Comments
Date	AREA	Line	Km	Work	Walk/Float	Standby	Charge	Line	Km	Work	Walk/Float	Standby	Charge	Work/Walk	Stby	Charge	
10	Cordillo					10.00	10.00					10.00	10.00		10.00	10.00	attend startup induction and standby for gps to be fitted by DSS.
11	"	BC03-10,17	8.51	10.00	1.00		11.00	BC03-04,05	10.10	10.50			10.50	10.00		10.00	start line preparation
12	"	BC03-9,17,7	9.20	10.00	1.00		11.00	BC03-06,05	9.00	10.00	1.00		11.00	11.00		11.00	steep dunes; wind blowing sand back in.
13	"	BC03-7,8,9	13.92	10.50	0.50		11.00	BC03-07,02	10.60	9.50	1.00		10.50	10.50		10.50	light rain during day causes slippery claypans; good for dunes
14	"	BC03-01,16	11.00	11.00			11.00	BC03-2,3,16	13.30	10.50			10.50	11.00		11.00	
15	"	BC03-16,18	7.04	10.00	1.00		11.00	BC03-03,10	9.00	9.00	2.00		11.00	11.00		11.00	D#6 clear access from 07 to 18; D#7 clean up 05 enroute 10.
16	"	BC03-18,11,15	10.28	10.00	1.00		11.00	BC03-11,10,19	12.64	11.00			11.00	11.00		11.00	Mick Jonas took over D#7 from Darren Jonas. Access old Ins
17	"	BC03-12,13,15	10.00	11.00		0.50	11.50	BC03-14,10,19	9.98	10.00	1.00	0.50	11.50	11.00	0.50	11.50	stby 0.5 hr for weekly safety meeting.
18	"	BC03-12,13,15	9.43	9.00	2.00		11.00	BC03-14,13	9.50	9.00	2.00		11.00	11.00		11.00	complete line prep on Cordillo prospect.
19		-	0.00	0.00	3.50		3.50	-	0.00	0.00	3.50		3.50	3.00		3.00	grader rehabilitate camp site; float dozers to Mentone (half cost)*
20							0.00						0.00	1.75		1.75	grader walk to Mentone (half cost)*
21							0.00						0.00			0.00	working on the Stuart Petroleum Mentone prospect
22							0.00						0.00			0.00	"
23							0.00						0.00			0.00	"
24							0.00						0.00			0.00	"
25							0.00						0.00			0.00	"
26							0.00						0.00	3.00		3.00	grader walk to Priscilla (half cost)*
27					3.50		3.50				3.50		3.50			0.00	working on the Stuart Petroleum Priscilla prospect*
28							0.00						0.00			0.00	"
29							0.00						0.00			0.00	"
30							0.00						0.00			0.00	"
31							0.00						0.00			0.00	*Note: Beach & Stuart agreed to share cost of prospect move.
Monthly Totals			79.38	81.50	13.50	10.50	105.50		84.12	79.50	14.00	10.50	104.00	94.25	10.50	104.75	

Total Km Cleared = 163.50  
Total Dozer Hrs = 209.50  
Total Grader Hrs = 104.75  
Average Km/Dozer Hr = 0.78

**BEACH PETROLEUM'S 2003 PEL 110 ALBUS SEISMIC SURVEY**

**APPENDIX V**

**SURVEYING STATISTICS**

**Survey Production by DYNAMIC SATELLITE SURVEYS - on Beach Petroleum's 2003 PEL 110 Albus Seismic Survey: August, 2003**

Date	Area	Lines	Kms	Line Pointer Hrs			Office Hrs			Survey HJrs			Travel	Comments
				L/P Work	L/P Stby	L/P Charge Hrs	Office Work Time	Office Stby Time	Total Office Chg Time	Survey Wk	Survey Stby	Survey Chg Hrs	Total Travel Time	
10	Cordillo			3.00	3.00	6.00	3.00		3.00		9.00	9.00		*Note: Beach and Stuart agreed to pay half stby surveyors DSS arrive; attend induction; fit gps to dozers surveyors scout control and set up base stations. start pegging; Tony Morcomb returned from Innamincka rain causes claypans to be slippery.  establish 4 control points by static gps.  complete Cordillo prospect. move to Stuart Mentone prospect*.
11	"			11.00		11.00			0.00			0.00		
12	"	BC03-04,10,17	14.4000	11.00		11.00	0.00		0.00	22.00		22.00		
13	"	BC03-05,06,08,09,10	28.7625	11.00		11.00	10.00		10.00	23.00		23.00		
14	"	BC03-01,02,07,09	29.0250	11.00		11.00	11.00		11.00	22.00		22.00		
15	"	BC03-02,03,16	22.0875	11.00		11.00	11.00		11.00	22.00		22.00		
16	"	BC03-10	11.7375	11.00		11.00	6.00		6.00	28.00		28.00		
17	"	10,11,14,15,18,19	29.5875	11.00	0.50	11.50	11.00		11.00	22.00	1.00	23.00		
18	"	BC03-12,13,14,15	27.9000	11.00		11.00	11.00		11.00	22.00		22.00		
19	Mentone					0.00			0.00		5.00	5.00		
20						0.00			0.00			0.00		
						0.00			0.00			0.00		
Monthly Totals			163.5000	91.00	3.50	94.50	63.00	0.00	63.00	161.00	15.00	176.00	0.00	

**BEACH PETROLEUM LIMITED'S 2003 PEL 110 ALBUS SEISMIC SURVEY**

# **APPENDIX VI**

## **PERSONNEL LIST**

[illegible]

NAME	POSITION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
BOB STEPHENSON	CREW MANAGER																											1	1	1	1	1	5
PAUL ARMSTRONG	CREW MANAGER																																0
RICHARD BARNES	CREW MANAGER																											1	1	1	1	1	5
JOEL CARY	OBSERVER																											1	1	1	1	1	5
PETER O'DONNELL	OBSERVER																											1	1	1	1	1	5
JOHN PHILIPPSON	SNR MECHANIC																											1	1	1	1	1	5
BRENDAN OLSZOWY	VIB MECHANIC																											1	1	1	1	1	5
DENNIS CORBIN	VIB MECHANIC																											1	1	1	1	1	5
ROBERT SMITH	MECHANIC																											1	1	1	1	1	5
RUSSELL GREGG	SAFETY OFFICER																											1	1	1	1	1	5
NOEL GRAINGER	CABLE REPAIR																																0
DENNIS VINEY	COOK																											1	1	1	1	1	5
JON TURNER	TROUBLE SHOOTER																											1	1	1	1	1	5
SHANE GOOSSENS	AST OBSERVER																											1	1	1	1	1	5
ABBY BANN	VIB OPP																											1	1	1	1	1	5
DES POSTANS	VIB OPP																											1	1	1	1	1	5
SHANE BENEKE	VIB OPP																																0
ADAM PIPPOS	VIB OPP																																0
GUY EBERHARDT	VIB OPP																											1	1	1	1	1	5
JEFF MILLS	VIB OPP																											1	1	1	1	1	5
LEETON McHUGH	LINE BOSS																											1	1	1	1	1	5
TERRY ERNST	LINE CREW																																0
LIZ GOOLD	LINE CREW																											1	1	1	1	1	5
LIAM SHUTTLEWORTH	LINE CREW																											1	1	1	1	1	5
TONY HUTCHISON	LINE CREW																											1	1	1	1	1	5
DARREN REA	CABLE REPAIR																											1	1	1	1	1	5
RAY AUCKRAM	LINE CREW																											1	1	1	1	1	5
SIMON TOLL	LINE CREW																											1	1	1	1	1	5
DEL HILDRED	LINE CREW																											1	1	1	1	1	5
JUSTIN POPE	LINE CREW																											1	1	1	1	1	5
FIONA HICKS	LINE CREW																											1	1	1	1	1	5
MELINDA LYNHAM	LINE CREW																											1	1	1	1	1	5

<b>Crew List Beach Albus PEL110 August, 2003</b>																																	
NAME	POSITION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
BEN SHAVE	LINE CREW																											1	1	1	1	1	5
KATRINA IRELAND	LINE CREW																											1	1	1	1	1	5
MAT ROBINSON	LINE CREW																											1	1	1	1	1	5
EMMA BURTON	LINE CREW																											1	1	1	1	1	5
LIONEL DABE	LINE CREW																															0	
JULIEN GOOSSENS	LINE CREW																															0	
MEGAN BANN	LINE CREW																															0	
JOE KEANE	LINE CREW																															0	
ADAM TOTH	LINE CREW																											1	1	1	1	1	5
CRAIG CURD	AST COOK																											1	1	1	1	1	5
CHRISTINE SMITH	CAMP ATT.																											1	1	1	1	1	5
RICKY FOX																																0	
																																0	
BRUCE BEER	CLIENT REP.																											1	1	1	1	1	5
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	35	35	35	175

NAME	POSITION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
BEN SHAVE	LINE CREW																											1	1	1	1	1	5
KATRINA IRELAND	LINE CREW																											1	1	1	1	1	5
MAT ROBINSON	LINE CREW																											1	1	1	1	1	5
EMMA BURTON	LINE CREW																											1	1	1	1	1	5
LIONEL DABE	LINE CREW																																0
JULIEN GOOSSENS	LINE CREW																																0
MEGAN BANN	LINE CREW																																0
JOE KEANE	LINE CREW																																0
ADAM TOTH	LINE CREW																											1	1	1	1	1	5
CRAIG CURD	AST COOK																											1	1	1	1	1	5
CHRISTINE SMITH	CAMP ATT.																											1	1	1	1	1	5
RICKY FOX																																	0
																																	0
BRUCE BEER	CLIENT REP.																											1	1	1	1	1	5
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	35	35	35	175



**BEACH PETROLEUM LIMITED'S 2003 PEL 110 ALBUS SEISMIC SURVEY**

# **APPENDIX VII**

## **EQUIPMENT LIST**

# Trace Energy Services Vehicle List

VEHICLE	REGISTRATION	K.M.S.	YEAR	TRAILER TYPE	REGISTRATION
<b>TRUCKS</b>					
KENWORTH	WA - 1AGB177		May-80	KITCHEN	WA - 6UO308
HINO - FUEL	VIC - RMR625		Jun-85	DINER	WA - 6UO309
ISUZU - CABLE	WA - 1AOR420		Jul-84	SHOWER	VIC - N60916
ISUZU JCS	WA - 1AMI165		Apr-85	STORES	VIC- N60915
ISUZU - CRANE	WA - 9DL970		Sep-87	WORKSHOP	WA - 1TAR750
ISUZU - RECORDER	QLD-922FWD		Mar-92	CABLE REPAIR	VIC - N69423
ISUZU SERVICE	WA - 1ALU225		Feb-93	OFFICE	WA- 6WC-169
HINO	WA - BD610		Nov-87	CAVALIER - SLEEPER	WA - 8UW166
HINO	WA - 7DT982		Feb-85	CAVALIER - SLEEPER	WA - 8US595
VIBRATOR	WA - 8XX751		1980	SLEEPER	WA - 8WS627
VIBRATOR	WA - 8XX752		1980	SLEEPER	WA-7TL494
VIBRATOR	WA - 8XX753		1980	SLEEPER	WA-8WS671
VIBRATOR	WA - 8XX754		1980	SLEEPER	WA-9RG657
VIBRATOR	WA - 8XX755		1980	TOILETS - MALE	WA-1TDJ497
PAYSTAR 50000	QLD IFS688		1980	TOILETS - FEMALE	WA-1TBF454
PAYSTAR 50000	QLD IFS686		1980	WASH DOWN	WA -1TBU582
PAYSTAR 50000	QLD IFS685		1980	SIGN	WA -1TDN321
M.A.N	WA - G12833		Jun-76		
<b>TOYOTAS</b>					
TOYOTA - JUG UTE	WA - 1BHD-892		1999		
TOYOTA - JUG UTE	WA - 1BGO-007		1999		
TOYOTA - CABLE UTE	WA - 1BGN-212		1999		
TOYOTA - CABLE UTE	WA - 1BEK-496		1999		
TOYOTA - CABLE UTE	WA - 1BDH-550		1999		
TOYOTA - CABLE UTE	WA - 1AWY557		Jun-97		
TOYOTA - UTE	WA - 1AUI376		Dec-97		
TOYOTA - UTE	WA - 1AFX011		Sep-98		
TOYOTA - UTE	WA - 1AFP393		Jul-95		
TOYOTA - P.C.	WA - 9JH585		Mar-94		
TOYOTA - CREW CAB	WA - 9DX654		Aug-95		
TOYOTA - 80 SERIES	WA - 9GZ035		Mar-96		

## **APPENDIX VIII**

# **RISK IDENTIFICATION & ACCIDENT REPORTS**

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment : Trace Energy Services				Report Number	RIR-01 - 030903
Location	Cordillo Downs 2D	Client	Beach Petroleum	Report Date	03-09-03
Project	Cooper Basin – Crew 401	Name of reporter	T.Ernst	Revision Date	12-09-03

<b>Description of Actual or Potential Loss</b>				Event date	03-09-03	Event Time	1200 hrs
<b>Classification</b>		<b>Category</b> (Check all boxes which apply)				<b>Site</b>	
<input type="checkbox"/> Accident/Failure <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Light <input type="checkbox"/> Near Accident/Failure <input type="checkbox"/> Hazardous situation		<input type="checkbox"/> Personnel <input type="checkbox"/> Health <input checked="" type="checkbox"/> Injury <input type="checkbox"/> Fatality <input type="checkbox"/> Automotive <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle <input type="checkbox"/> Environmental <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission <input type="checkbox"/> Other <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation				<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other <b>Site Name:</b> Cordillo Downs	
Company Involved		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Industry Recognized	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Regulatory Recordable
		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Brief description (50 characters maximum)							
Skin irritation / reaction to tops of hands caused from using a hazardous washing powder.							

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls	
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input checked="" type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> <input checked="" type="checkbox"/> Very High (Daily or more) <input type="checkbox"/> High (Weekly to Fortnightly) <input type="checkbox"/> Medium (Fortnightly to Quarterly) <input type="checkbox"/> Low (Every 4 – 12 months) <input type="checkbox"/> Very low (Less than once per year)	<b>C2</b> <p>High Risk (Do not take this risk.)</p> <p>Medium Risk (Reduce Risk)</p> <p>Low Risk (Improve)</p> <p>1 2 3 4 5 Light Serious Major Catas. Multi-catas</p> <p>&lt;\$10k \$10-100K \$100-\$1m &gt;\$1m &gt;\$1m+ 1<sup>st</sup> Aid LTI &lt;90 LTI &gt;90 Fatality Fatal + Potential severity</p>
		What were the potential consequence.	

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

The camp attendant duties on crew involve washing clothes and using certain chemicals to kill bacteria and germs, this is to aid in the prevention of spreading diseases.

On the 3<sup>rd</sup> Sep, the camp attendant showed to me her hands, which were red in colour with blisters apparent on tops of hands.

The Immediate actions taken were to define what was actually causing this.

The QHSE Officer concluded that a chemical called "Blue Brite" (a powder which is used to wash clothes) was more than likely the main cause for the skin irritation. Also several other crew personnel were experiencing similar problems with developing skin irritations of a similar nature.

The chemical was removed and a different washing powder is being used instead.

The camp attendant's hands gradually improved over the next week with the QHSE monitoring them every day.

The washing powder "Blue Brite" has since been removed from site and no reports of developing rashes from other crew personnel have been reported.

12<sup>th</sup> Sep

The camp attendants hands have recovered completely and no visible rash developments are apparent.

At the time of the incident the camp attendant had been using gloves.

# Loss Report

Injury or Illness Information									
(for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1	Christine Smith		Aug-03	Trace	Camp				N
2									
3									
4									

Indicate details on injuries for each of the persons above

Injury		Body parts affected		Days lost (estimated)	
1	A	C		0	
2					
3					
4					

Automotive Accident Information			
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No		Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle		On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Weather Conditions</b>	<b>Road Type</b>	<b>Accident Type</b>	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy	<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface	<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? <input type="checkbox"/> Yes <input type="checkbox"/> No		Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph		Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No	
All persons wearing seatbelts? <input type="checkbox"/> Yes <input type="checkbox"/> No		Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No			

Environmental Accident Information			
<b>Result</b>		<b>Details</b>	
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Soil contamination <input type="checkbox"/> Ground water contamination	<input type="checkbox"/> Release to water way <input type="checkbox"/> Released to air <input type="checkbox"/> Marine life damage	Amount spilled or discharged: Material name or code : Duration of discharge	Unit Hrs min

Other Loss Information				
(Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total
Remarks :			



# Loss Report

Name of Manager leading the investigation		T.Ernst	
Names of other team members		C.Smith	
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>			
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Caught between <input type="checkbox"/> Fall on same level <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Caught on <input type="checkbox"/> Caught in <input type="checkbox"/> Struck by <input checked="" type="checkbox"/> Contact with		
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper placement <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper lifting <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Horseplay <input type="checkbox"/> Failure to use PPE properly <input checked="" type="checkbox"/> Failure to warn <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Failure to secure <input type="checkbox"/> Poor control of Contractor <input type="checkbox"/> Improper position for task <input type="checkbox"/> Improper loading <input type="checkbox"/> Servicing equip in operation <input type="checkbox"/> Using defective equipment		
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Pressure exposure <input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Slippery surface <input type="checkbox"/> Noise exposure <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Inadequate/excess illumination <input type="checkbox"/> Poor housekeeping/disorder		
<b>Investigation Section 2 - Basic Causes</b>			
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)			
<b>Personal Factors</b>		<b>Job Factors</b>	
<input checked="" type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of skills <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Improper motivation <input type="checkbox"/> Stress <input type="checkbox"/> Fatigue <input type="checkbox"/> Substance Abuse		<input type="checkbox"/> Inadequate leadership/supervision <input checked="" type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Wear and tear <input type="checkbox"/> Organizational rules <input type="checkbox"/> Conflicting goals/objectives	

<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Organization & Resources <input checked="" type="checkbox"/> Risk Management <input checked="" type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Policies & Objectives <input type="checkbox"/> Contractor & Supplier Mgmt <input type="checkbox"/> Design & Planning <input type="checkbox"/> Assessment & Cont. Improvt.					
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Provided first Aid	QHSE	03-09-03	03-09-03	Hands red, swollen with blisters.
2	Remove "Blue Brite" washing powder Using alternative washing powder	QHSE	04-09-03	04-09-03	Blue Brite washing powder removed from site
3	Monitored hands over 1 week period	QHSE	12-09-03	12-09-03	Hands have healed
4	Purchase only leading brands of washing powder.	Camp Attendant	12-09-03	12-09-03	

# Loss Report

<b>Comments by Reviewing Line Manager</b> <b>To be completed by Area President or VP for all Catastrophic accidents</b>		
<b>Endorsements</b>		
We accept accountability for implementing the items of this action plan under our responsibility.		
Name of Manager	Signature	Date
Name of reviewing Line Manager	Signature	Date

**Diagram or Sketch:**

# Loss Report

**APPENDIX IX**

**SAFETY MEETING**

**MINUTES**

**Client:** Stuart Petroleum  
**Prospect:** Mentone 2D  
**Date:** 7<sup>th</sup> Sep 2003  
**Time:** 0630 – 0700 hrs

**Richard Barnes (Crew Manager)** opened the meeting and told the crew it was a successful camp move with no major hazards and no incidents. He then handed the meeting over to Terry Ernst, QHSE.

**Terry Ernst (QHSE Officer)** asked the crew if they knew what “QHSE” stood for. Quality, Health, Safety & Environment. These four key words are today’s main topic and will be talked about to give the crew and new personnel an understanding of what Health & Safety is really about.

QUALITY - We need quality in our work being performed to ensure that we can obtain further work in the future. There are also many other quality issues, just to name some are quality of equipment, personnel, vehicles etc.

HEALTH - Everyone on crew is responsible for their own health & well being. Shower regularly and wash your hands, this will help in preventing diseases being spread throughout the camp.

SAFETY - Safety is everyone’s responsibility, the safety officer is like a “Tool” for people to use on crew, to ensure the best possible working environment for all.

ENVIRONMENT - We work and live in a great country, with very little pollution and we need to keep it that way. So use the bins and cigarette tins provided in camp.

In summarizing what we are trying to do for everyone on crew, is to try to maintain a safe working Environment and to better living conditions.

A couple of outstanding camp Inductions for people will be done in the next day or so.

Terry then handed the meeting over to the client representative, Bruce Beer.

**Bruce Beer (Client Rep)** asked the crew some questions about the ERP and the crew did quite well in answering them. Some training or even an ERP drill would greatly benefit the crew to help them deal with a real life scenario if something happened.

**Craig Curd (Cooks Offsider)** asked the crew if they use the mess room late at night then to turn off the lights as insects are attracted.

**Ben Shave (Line Crew)** brought up the subject of whether jacking plates can be made to change tyres with, as it is pretty difficult in the soft sandy regions.

Meeting closed.

Crew Manager  
Richard Barnes

QHSE Officer  
Terry Ernst

# **Beach Petroleum Limited**

## **Field Operations Report**

**for the**

**2003 PEL 107/91 Albus Seismic Survey**

**Cooper Basin, South Australia**

**Conducted by:**

**Trace Energy Services Pty Ltd**

**From**

**September 24<sup>th</sup> – September 30<sup>th</sup>, 2003**



**(ABN 20 007 617 969)**

**Prepared by: Bruce Beer  
Beach Pet. Representative**

## **CONTENTS**

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# **CONTENTS**

## **Beach Petroleum Limited:** **2003 PEL 107/91 Albus Seismic Survey**

### **Section**

- |     |  |
|-----|--|
| 1.0 | Introduction   |
|     | Fig. # 1-1: Program Map, 2003 PEL 107 Albus SS       |
|     | Fig. # 1-2: Program Map, 2003 PEL 91 Albus SS        |
| 2.0 | Timetable of Events                                  |
| 3.0 | Parameters   |
| 4.0 | Recording  |
| 5.0 | Uphole Drilling & LVL                                |
| 6.0 | Line Preparation, Survey, Permitting and Environment |
| 7.0 | Safety   |
| 8.0 | Remarks & Recommendations                            |

### **Appendices**

- I. Recording Statistics
- II. Drilling Statistics
- III. LVL Statistics
- IV. Line Preparation Statistics
- V. Surveying Statistics
- VI. Personnel List
- VII. Equipment List
- VIII. Risk Identification & Accident Reports
- IX. Safety Meeting Minutes



## **1.0 INTRODUCTION**

---

The 2003 PEL 107/91 Albus Seismic Survey was operated by Beach Petroleum Limited and conducted in the Cooper Basin in north-east South Australia by Trace Energy Services. The crew was billeted in three separate camps that were located mid-way between Spencer and Tantana on the northern side of the Stuart/Tantana road. This one camp site served for the whole job.

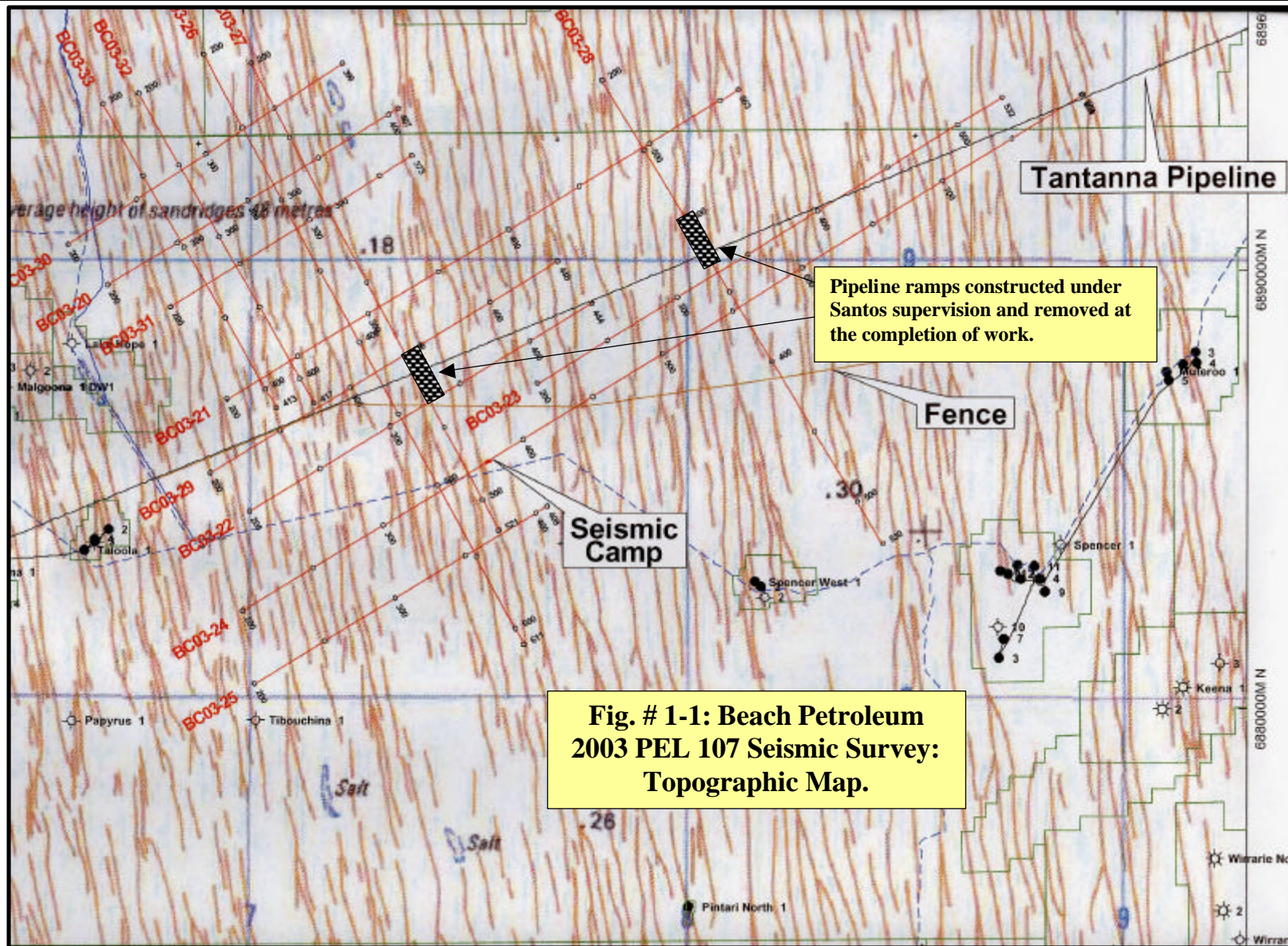
Trace was contracted on a turnkey rate basis. 158.925 km of 2D seismic data was recorded in two prospect areas. One of these areas was a single line, Line BC03-39, over the Carrickalinga #1 well-site in PEL 91 and was recorded on behalf of Great Artesian Oil and Gas Limited. It was 6.525 km long. Recording began on September 23<sup>rd</sup> and was completed on September 30<sup>th</sup>, 2003.

Trace Energy Services subcontracted Dynamic Satellite Surveys (DSS) to do the surveying, Denham and O'Keeffe (DOK) to do the line preparation, Daly Drilling to do the uphole drilling and Expertest to do the uphole logging.

Doug Roberts was the geophysicist in charge of the project for Beach Petroleum while Bruce Beer was contracted to supervise the field operations.

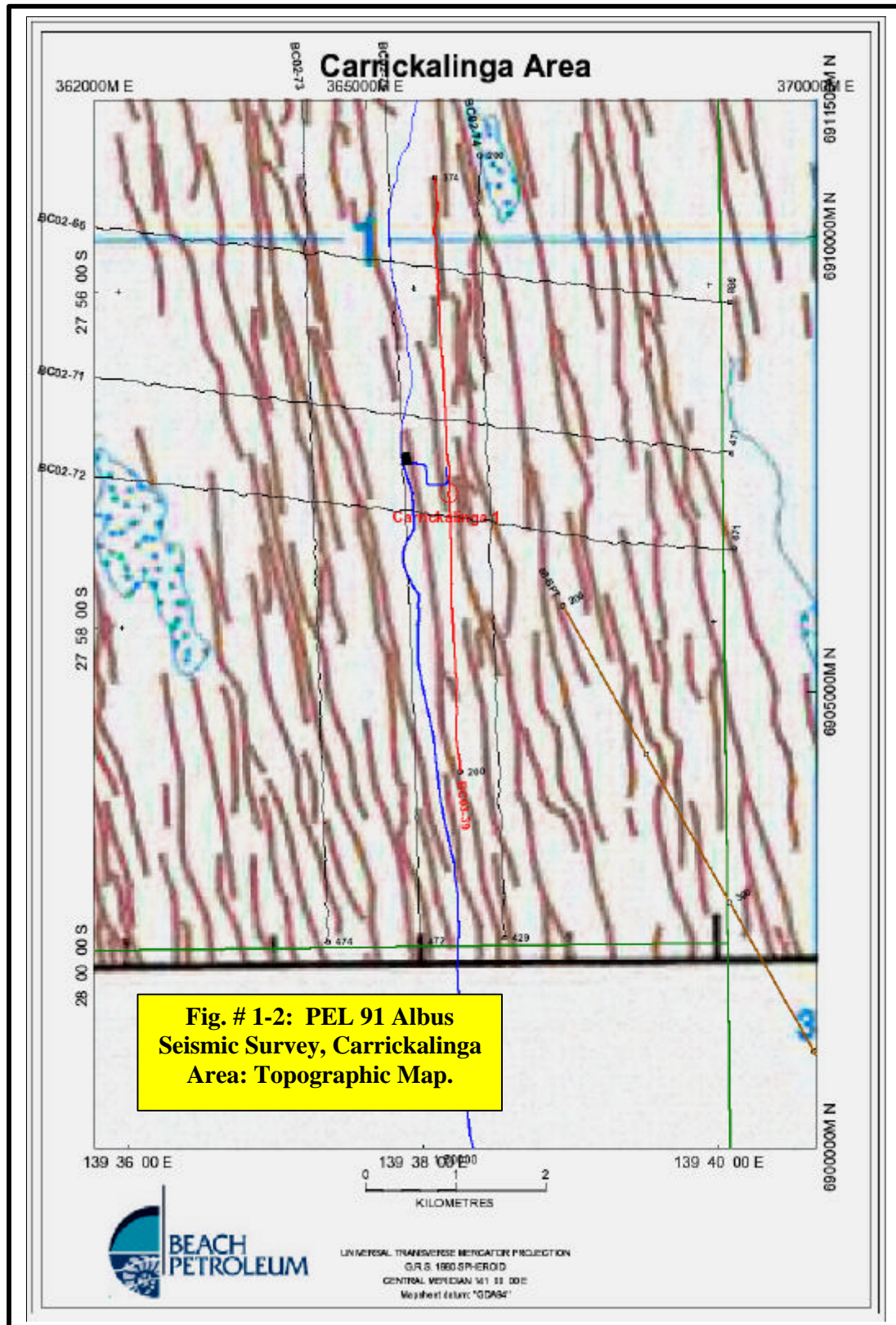
There were no Lost Time Injuries during the job. Statistics for the project are included in the appendices. Maps of the programs appear in Fig. # 1-1 and Fig. # 1-2.

## 1.0 INTRODUCTION





## 1.0 INTRODUCTION



## **2.0 TIMETABLE of EVENTS**

---

Sep 5 Start line preparation at PEL 107

Sep 13 Complete line preparation at PEL 107 and PEL 91.

Sep 24 Start recording on PEL 107

Sep 30 Complete recording on PEL 107 and record the PEL 91 line at Carrickalinga.

Nov 1 Start uphole drilling at PEL 107

Nov 11 Drill the PEL 91 line at Carrickalinga

Nov 14 Complete uphole drilling at PEL 107.

### 3.0 - PARAMETERS

---

#### 3.0 RECORDING PARAMETERS

Survey: 2003 PEL 107/91 Albus Seismic Survey    PEL: 107 and 91  
Lines: BC03-20 ? BC03-33 (PEL 107)            Area: Spencer/Tantana  
    Carrickalinga  
    BC03-39 (PEL 91)

##### Instrumentation

Instruments: : Sercel 388  
 No. Channels : 124  
 Tape Format : SEG-D Revision 1 8058IEEE Demultiplexed,  
    Noise edited correlated summed 4 sec record  
 Filters : Hi cut 125 Hz, ? dB/Octave  
    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

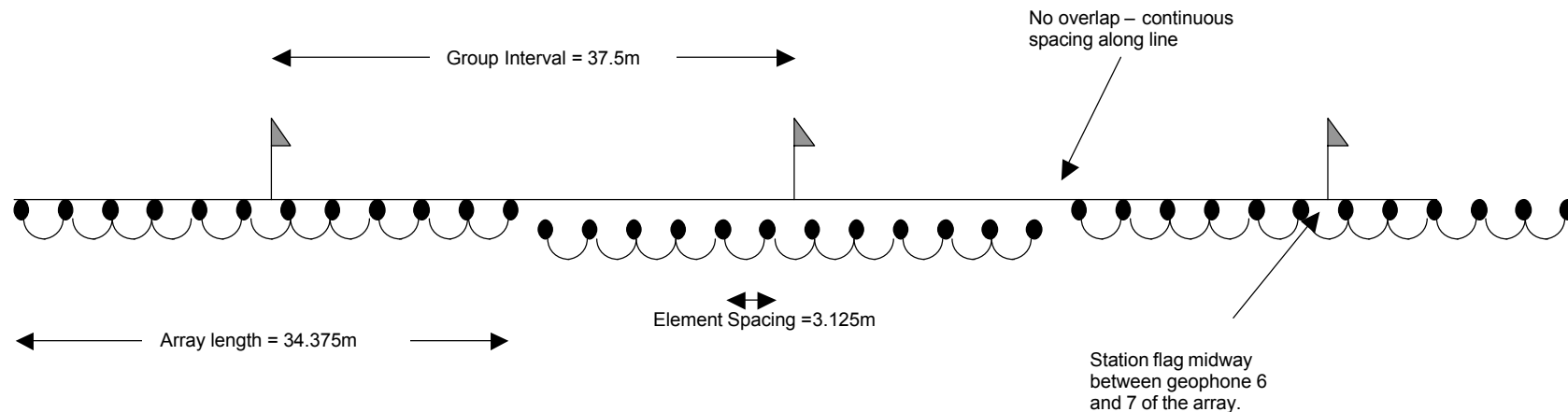
Vibrators : 4 x LRS-315s on Int'l Paystar 6x6 trucks  
 Electronics : Pelton Advance 2  
 Sweep Frequency : Linear 5-90 Hz  
 Sweep Length : 3 seconds  
 No. Sweeps : 2 standing  
 VP Interval : 37.5m  
 Vibrator Array : 4 vibs in line, 12.5m pad to pad standing. No move-up.  
 Sweep Amplitude Taper : 100% (none)  
 Drive Level : Maximum 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 (4 inner traces amplitude reduced)  
 Spread : Split, 2306.25 – 93.75 - 0 – 93.75 – 2306.25  
 Geophones : Sensor SM4 10 Hz  
 Array : 12 in-line, centred on station, 3.125m spacing  
 Connection : Series/Parallel (6x2)  
 Multiplicity : 62 fold (60 fold processed)

### 3.0 - PARAMETERS

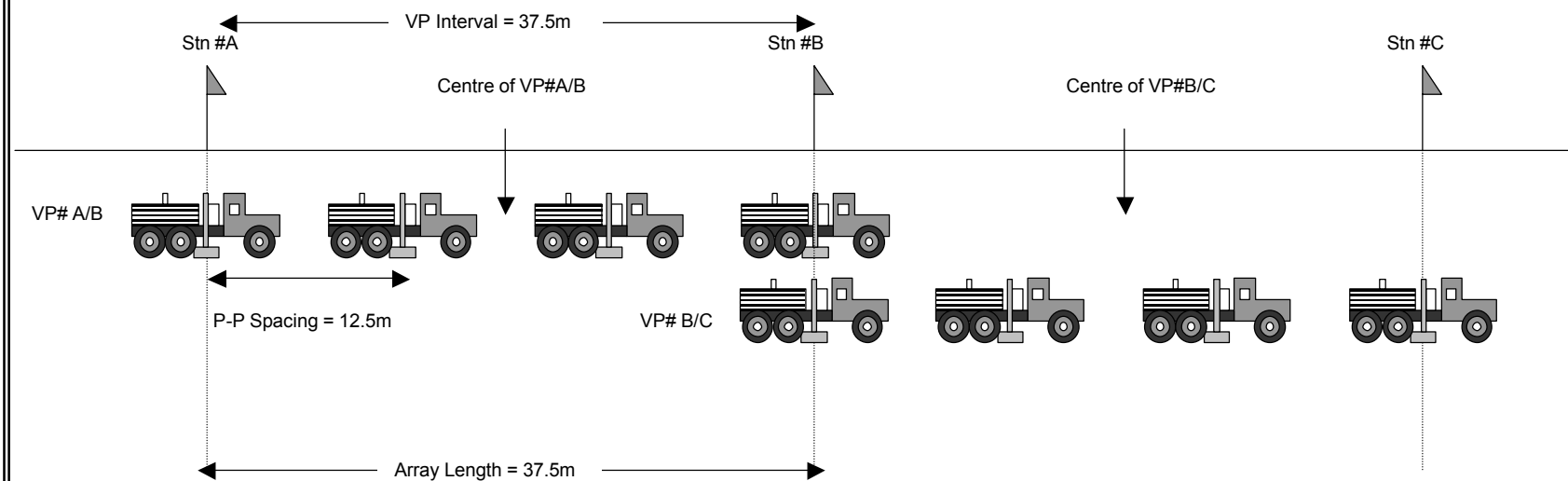
**Fig. # 3-1: Geophone Array for Beach Petroleum's  
2003 PEL 107/91 Albus Seismic Survey**



**Drawn by: Bruce Beer  
Beach Petroleum Rep.**

### 3.0 - PARAMETERS

**Fig. # 3-2: Vibrator Array for Beach Petroleum's 2003 PEL 107/91 Albus Seismic Survey**



*Drawn by: Bruce Beer  
Beach Petroleum Rep.*



## **4.0 - RECORDING**

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### Introduction

The 2003 PEL 107/91 Albus Seismic Survey was located in PELs 107 and 91 in the Cooper Basin, in north east South Australia. The PEL 91 component was a single line, BC03-39, over the Carrickalinga #1 well-site on behalf of Great Artesian Oil and Gas. Trace Energy Services Pty. Ltd carried out the survey. The recording phase was conducted from September 24<sup>th</sup> – September 30<sup>th</sup>, 2003.

The contract was based on a turnkey or kilometre rate. A total of 158.925 km of 2D seismic data was recorded on 15 lines in two prospect areas. The PEL 107 program straddled the Tantana to Gidgealpa surface oil pipeline and the boundary fence between Mungeranie Station (to the north) and Mulka Station (to the south). The PEL 91 single line was on Mungeranie Station near to the track north from Lake Hope#1.

Full production statistics appear in Appendix I.



**Picture # 4- 1: the Trace Energy camp in PEL 107**

### Logistics

Section 4.0, Page 1 of 14.

## 4.0 - RECORDING

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Trace Energy Services provided a mobile camp to house the seismic recording crew. The single campsite used as a base for the whole PEL 107/91 Albus Seismic Survey was located just north of the Tantana road midway between Spencer West and Taloola (see Fig. # 1-1).

The camp was complete with kitchen and ablution facilities, mechanic's workshop and instrument workshop as well as accommodation vans. The camp equipment was old and, in some cases, in a poor state of repair. Sleeping accommodation was cramped with up to four persons per room.



**Picture # 4- 2: testing geophones prior to the start of the Albus Seismic Survey**

### Start-up Tests

Beach requested that 400 strings of geophones and all Station Units (SU's) be tested before recording operations began on the PEL 110 program in August. This testing was considered sufficient for the PEL 107 operation since the crew had been working continuously since then and on-line testing had kept track of faulty spread.

### Parameters

## 4.0 - RECORDING

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Parameters are listed in section 3.0. They were selected by Beach Petroleum's exploration team. No experimental program was deemed necessary. The parameters are similar to those used in the Cooper Basin by all operators in the last 10 years and were considered adequate for the survey's objectives.

### Equipment

Trace Energy Services provided their Sercel 388 telemetric recording system along with a field deployment of 500 x 12 strings of Sensor SM4 10 hz geophones. There were four vibrators on line with a fifth as spare.

The Trace vibrators were Litton LRS-315's mounted on International Paystar 6x6 trucks. These units were 20 years old but performed well. There were no instances of having to go down to three vibrators on line during the survey.



**Picture # 4- 3: Janet, Neil and Danny watch as the vibrators pass on Line BC03-27.**

There was one Station Unit (SU) every 6 stations and a battery unit (PSU) every 48 stations. The batteries lasted 2 days between charges. Since the takeout interval on the cables was 32m, they had to be used in back to back configuration with only each second takeout being used. This setup caused a certain amount of inconvenience for

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## 4.0 - RECORDING

the observers in working out where bad stations were located and also led to cosmetic display problems in pre-first-break noise on monitor records.

### Recording Crew Strength

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

**Table 1: Trace Energy Crew Strength and Disposition**

<b><u>Contract Requirement</u></b>	<b><u>Actually on Crew</u></b>
Crew Manager	Bob Stephenson (1)
HSE Representative	Terry Ernst (1)
Geophone Repair	Noel Grainger (1)
2 Senior Vehicle Mechanic	Rob Smith, vacant position (1)
Supply Driver	Brendon Olszowy (1)
Camp Cook	Craig Curd (1)
Kitchen Hand	Sacha Techendorf (1)
Camp attendant	Del Hildred (1)
Senior Vibe Tech	Jon Philippson (1)
Lead Vibe Op	Abbey Bann (1)
4 Vibe Operators	Des, Adam, Shane, Jeff (4)
Senior Observer	Joel Cary (1)
Observer	Peter O'Donnell (1)
Line Boss	Leeton McHugh (1)
6 cable personnel	6 people on 3 cable trucks (6)
2 Jug truck drivers	Only 1 jug truck driver (1)
12 line crew	Only 6 on line crew (6)
<b>Total Contract Requirement = 38</b>	<b>Actually on crew = 30</b>

From Table #1, it can be seen that the crew strength was well below contract requirements. Trace argued that it was difficult to recruit new crewmembers and that accommodation was not available on the crew even if they could. This situation was tolerated on the basis that it was a turnkey contract so any production loss as a result of short-handedness was Trace's problem. However, there were OHS issues to consider and Beach strongly recommended that Trace increase crew strength to avoid undue pressure being placed on their crewmembers.

### Polarity

Polarity on this crew proved to be a problem in 2002. The 2D data gathered proved to 90 degrees out of phase with previously recorded data in the Cooper Basin. The polarity of the system, including geophones and write-to- tape, were tested to be

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## 4.0 - RECORDING

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correct SEG standard. This left only the vibrators. The vibe polarity is controlled by switch positions on the recorder sweep generator, the ESG, and the vibrator sweep generators, the VSGs. In attempt to get it right, the polarity of the ESG was set to +90 degrees before recording the Albus Seismic Survey. This setting has proven to be the correct one.

### Terrain

The terrain in the PEL 107/91 Albus Seismic Survey was exclusively sand dunes. These were roughly north-south in orientation with a steep eastern lee face. The average height of dunes above the swales was 18m. The area was almost totally devoid of trees but there were a variety of shrubs such as Marpoo, Dead Finish and Murray's Wattle. Spinifex and sandhill canegrass stabilised the dunes. During the spring period in which operations took place, there were numerous sightings of snakes including King Brown, Western and Speckled Brown, Fierce Snake and Death Adder. The crew were constantly reminded to be on the lookout for snakes and advised to wear long pants.



**Picture # 4- 4: front juggy Simon Toll on Line BC03-29**

## 4.0 - RECORDING

### Operations

Obstructions affecting smooth operations were the Tantana to Gidgealpa surface oil pipeline and the fence-line forming the boundary between Mungeranie and Mulka Stations. Permission was sought from Santos to install crossings over the pipeline and, under the supervision of the Tantana field operator, DOK built two ramps. One was just east of the line BC03-27 crossing and the other was at the BC03-28 crossing (see the map in Fig. # 1-1). These two ramps, together with the Lake Hope road crossing, gave adequate access to the whole grid. Drop gates were used at fence-line crossings with the landowner's permission.

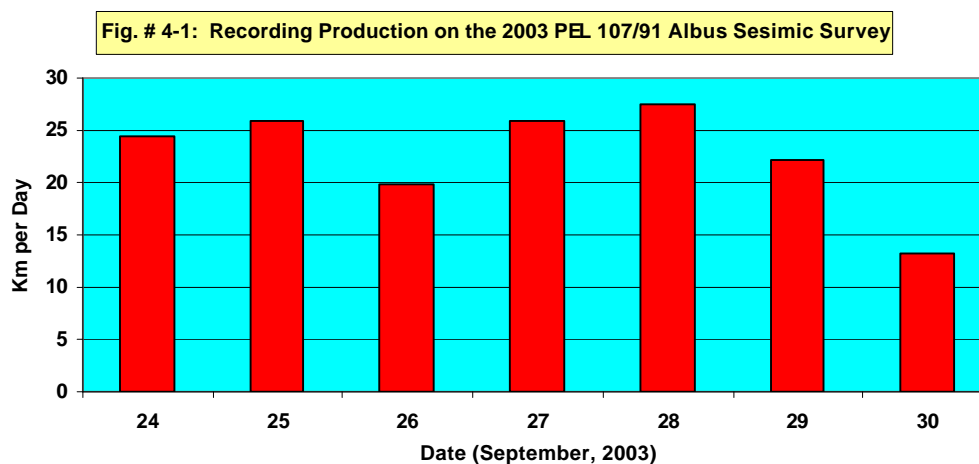
Travel time averaged about 1 hour per day and this is a normal and reasonable figure.

### Production

Fig. #4-1 below details daily production in the 2003 PEL 107/91 Albus Seismic Survey:

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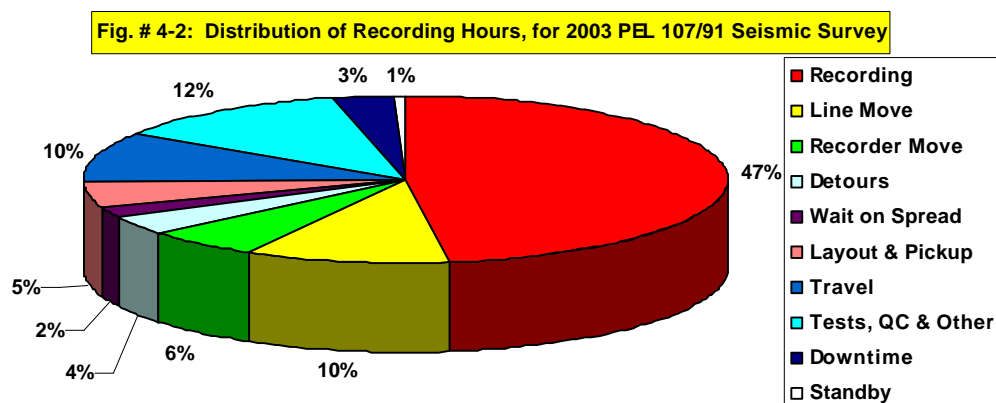
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The average daily production was 22.70 km. The above chart shows that the highest daily production was 27.525 km on the 28<sup>th</sup>.

Fig. #4-2 shows the distribution of recording hours in percentage terms for the 2003 PEL 107/91 Albus Seismic Survey:

## 4.0 - RECORDING



Note that “Tests, QC and Other” includes trouble shooting spread, time for the vibrators to fuel up and warm up, time to do daily tests and any miscellaneous time that cannot be registered under any of the other categories..

The standby alluded to in the above chart (0.5 hrs) was chargeable above the turnkey rate and was for a weekly safety meeting.



**Picture # 4- 5: picking up geophone on Line BC03-22 near the fence line**

Table #4-2 below details the statistics:

Section 4.0, Page 7 of 14.



## 4.0 - RECORDING

**Table 4-2: Statistical Summary of the 2003 PEL 107/91 Albus Seismic Survey**

Total Recorded Chargeable Kms	158.925
Total Chargeable Hours	0.0
Total Overall Hours	88.40
Total Down Hours	2.8
Total Chargeable Standby Hours	0.5
Total Recording Days	7
Average Km/Day	22.70
Total Recording Hours	42.3
Average Km/Recording Hr	3.76
Average Km/Total Hours	1.80
Total VPs	4160
Total Skips	93
Percentage Skips/Possible VPs	2.2 %
Average Cycle Time	35.81 seconds/VP
Efficiency Factor (Rec Hr/Tot Hr)	47.85%

### Data Quality

Data quality was good. Signal extended beyond 2.0 seconds with the “P” horizon prominent at around 1.8 seconds.

Sample paper monitor records are shown in Sample Monitor # 4-1, 4-2, 4-3, 4-4.

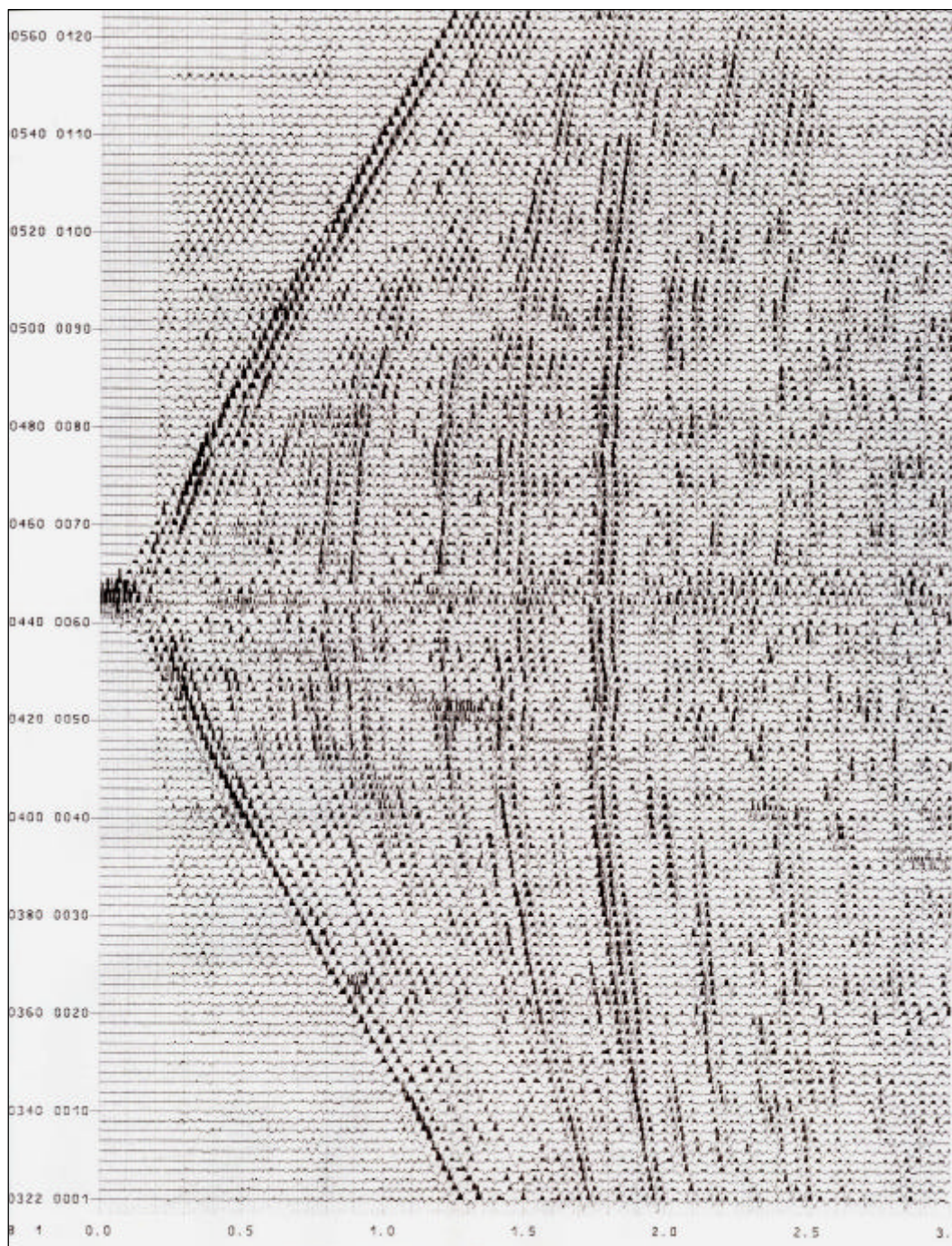


**Picture # 4- 6: ramp over the Tantana - Gidgealpa surface oil pipeline**

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## 4.0 - RECORDING

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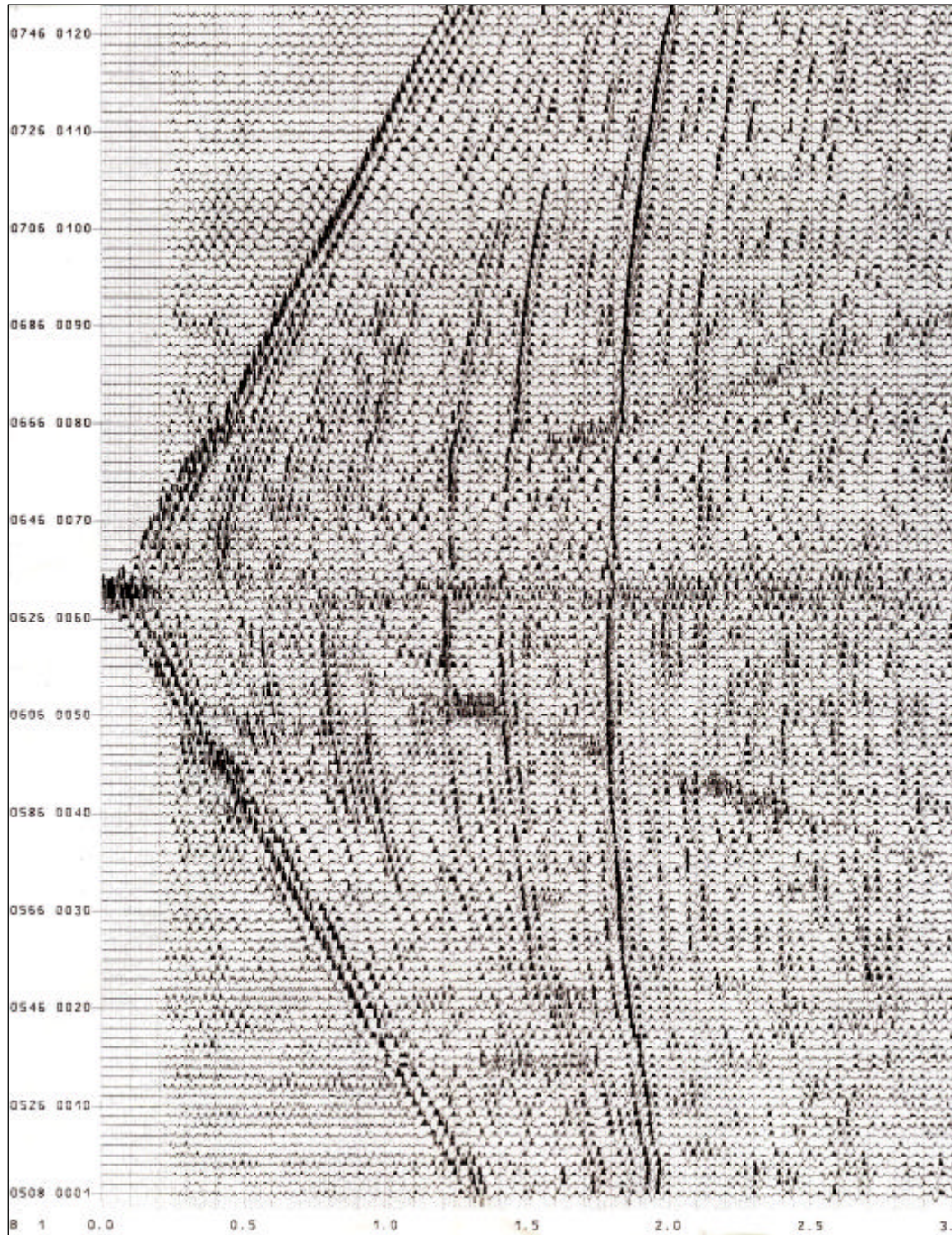


**Sample Monitor # 4- 1: Line BC03-33 VP # 322.5**

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## 4.0 - RECORDING

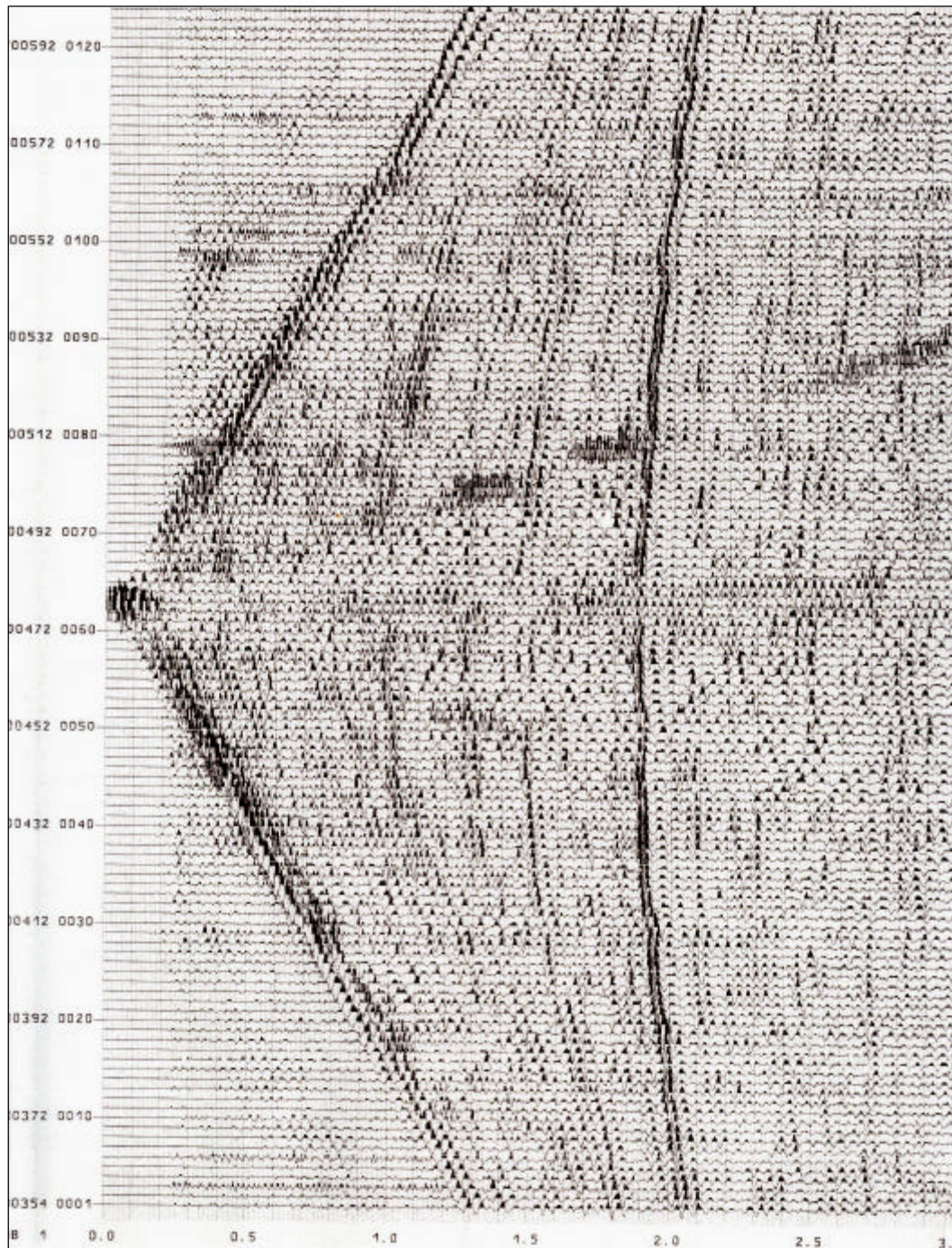


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Recording PEL 107,91 Albus 03.doc



## 4.0 - RECORDING



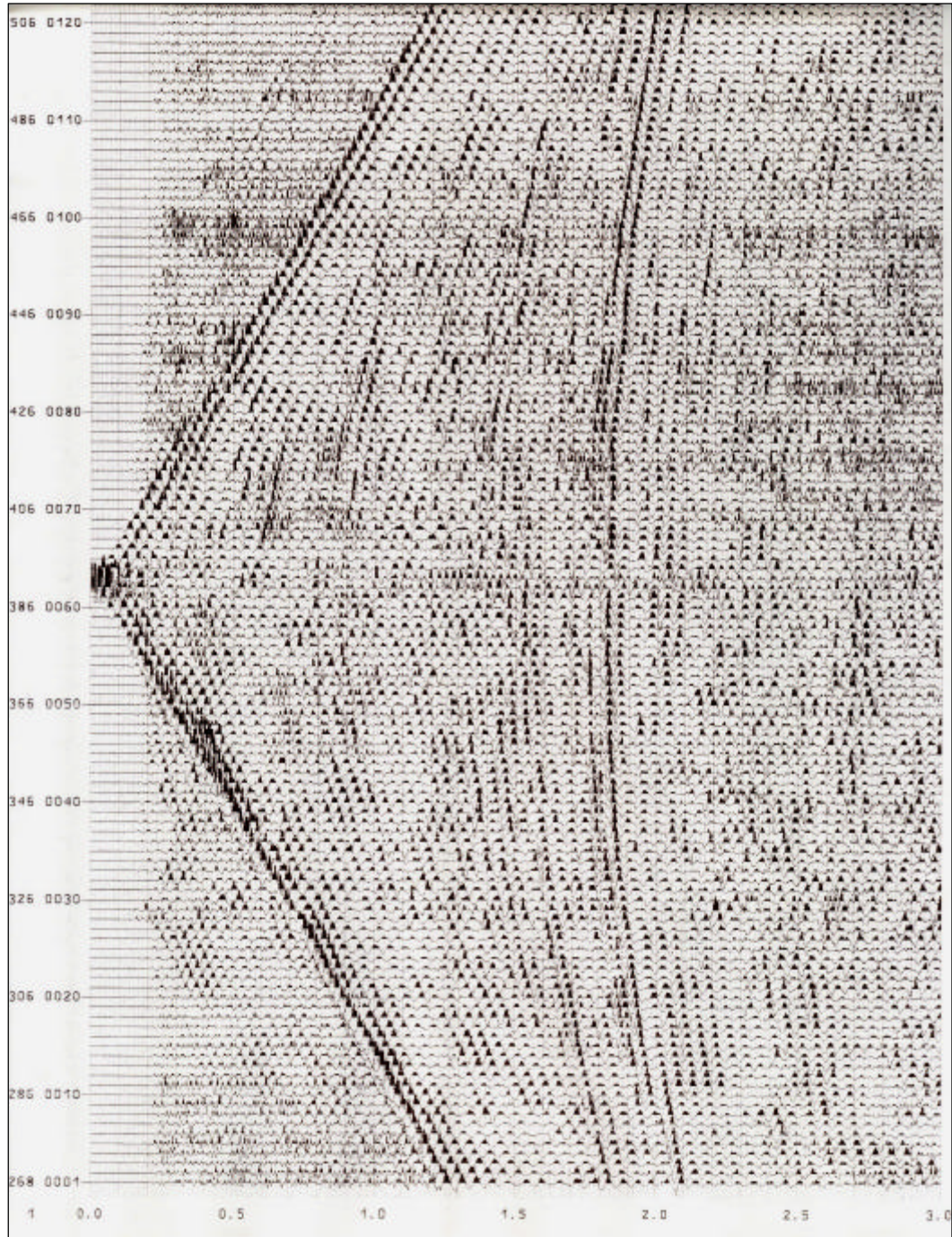
Section 4.0, Page 11 of 14.

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Recording PEL 107,91 Albus 03.doc



## 4.0 - RECORDING

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Recording PEL 107,91 Albus 03.doc

## 4.0 - RECORDING

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### Observer & Line Boss

The observers on this job were Joel Carry and Peter O'Donnell. Leeton McHugh was the line boss while John Turner was the trouble-shooter. They all have a professional approach to their jobs and are rigorous in repairing bad traces quickly and encouraging the line crew to strive for better jug plants.



### Summary

Production in the 2003 PEL 107/91 Albus Seismic Survey was reasonable although lower than the 2002 average. This was due to the short-handed line crew which seemed like a false economy from the Trace Energy point of view. It did not affect Beach Petroleum since this was a turnkey contract. As usual, the Trace Energy line crew impressed with their work and quality ethic.



## 4.0 - RECORDING

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Picture # 4- 8: Senior Observer Joel Cary in the dogbox.



## 5.0 DRILLING & LVL

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### Introduction

The uphole program for the 2003 PEL 107/91 Albus Seismic Survey consisted of 84 holes at an average spacing of 1.89 km (see Map # 5-1 and #5-2). Drilling began on November 1<sup>st</sup> and was completed on November 14<sup>th</sup>, 2003.

Daly Drilling from Perth, WA was contracted to do the drilling while Expertest was contracted to log the holes. The drilling contract was let on an hourly rate (+ consumables) basis while the Expertest contract was for a daily rate (plus a km rate for the logging truck). Full production statistics appear in Appendix II and III.

### Equipment

Daly Drilling provided one Mayhew 1000 drilling rig mounted on a M.A.N. 6 x 6 truck and three water trucks with a support vehicle. One of the water trucks was also a M.A.N. 6 x 6 with a 10,000 litre tank on it. The other two trucks were M.A.N. 4 x 4



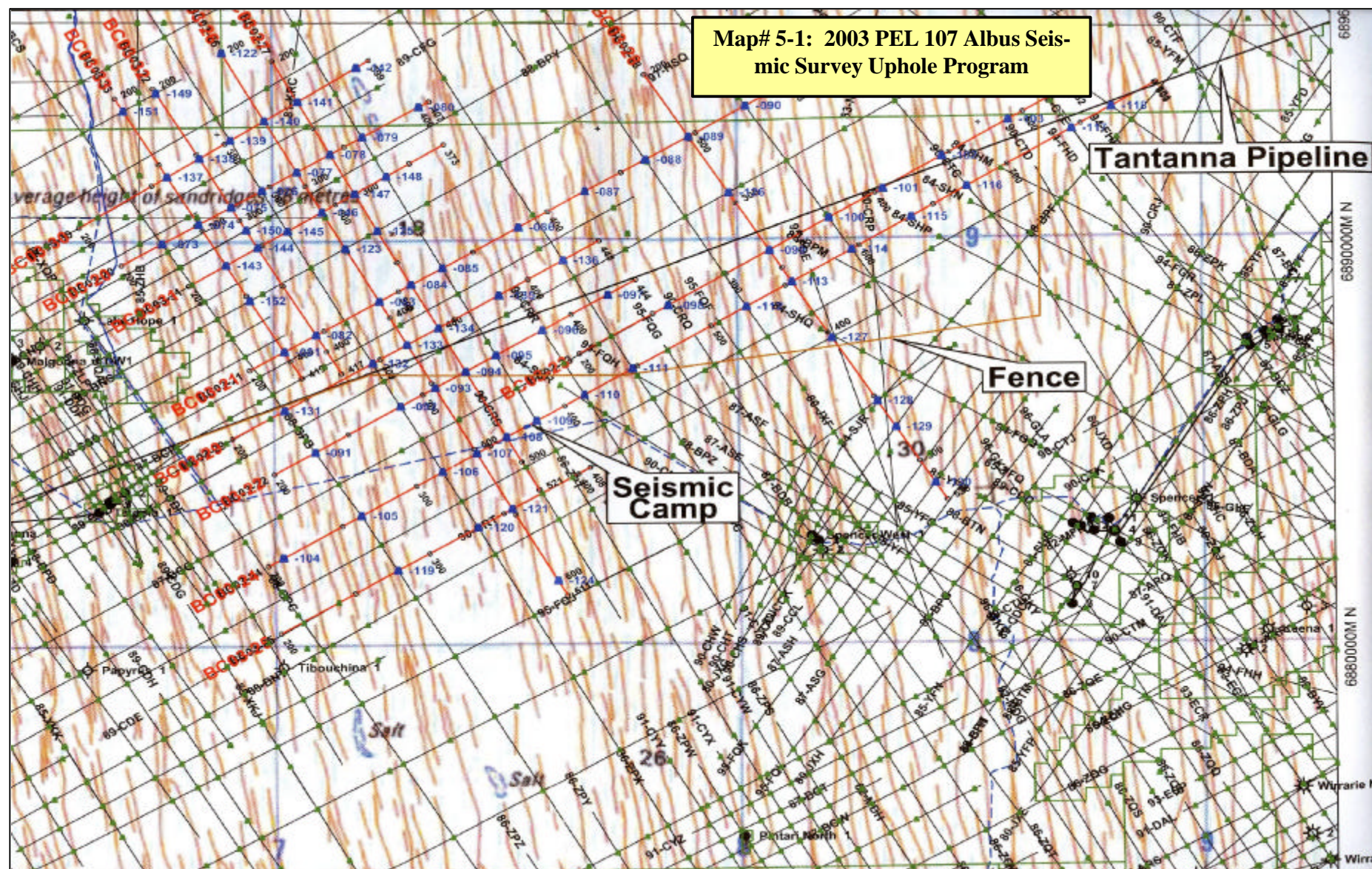
**Picture # 5- 1: the Daly Drilling camp.**

trucks with 6,000 litre tanks. Daly Drilling also provided a self-contained camp consisting of a kitchen/diner van, an accommodation/shower van and a third accommodation van. There were two generators.

Expertest provided a single logging unit, one operator and an accommodation/office van.

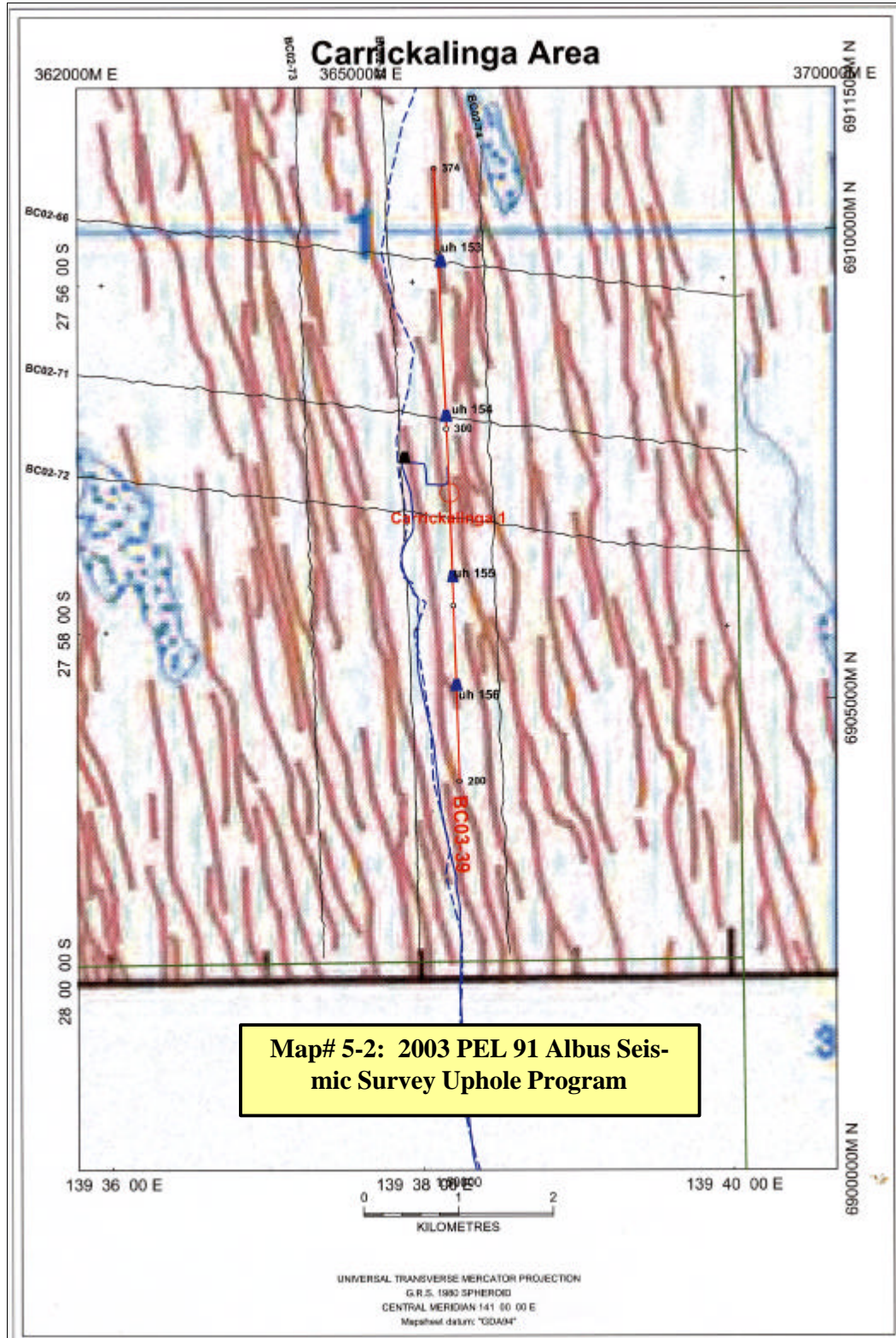


## 5.0 DRILLING & LVL





## 5.0 DRILLING & LVL



## 5.0 DRILLING & LVL

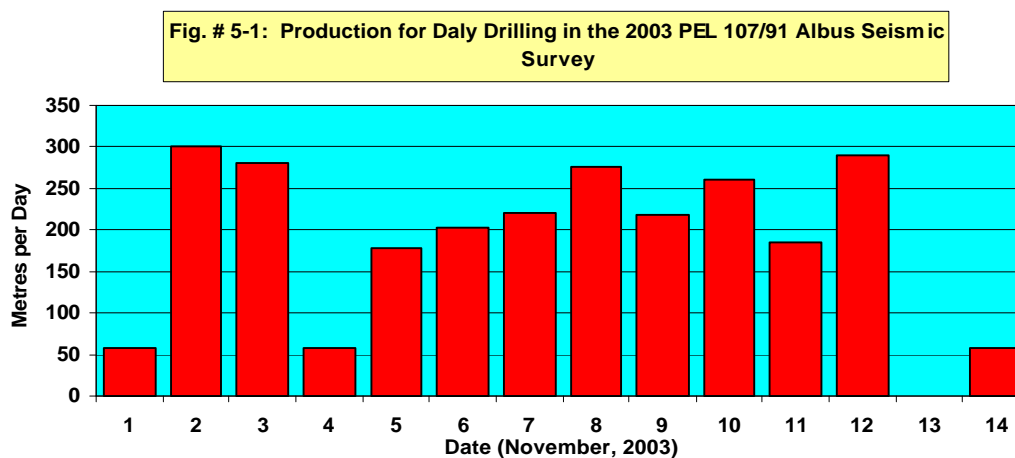
### Drilling

Drilling was relatively easy with mud being used in 30-35m holes exhibiting sand, mudstone and clay lithologies. Hole depths were increased for locations on dunes on the (correct) assumption that weathering depth would increase. The statistics for Ex-pertest in Appendix III list the hole and weathering depths.

Full drilling and LVL statistics appear in Appendix II.

### Production

Fig. #5-1 shows daily production:



Production was inhibited by difficulty getting around the soft dunes which had blown in after a month and a half since cutting. The drillers were quite critical of the cutting procedures employed by DOK. One of the water trucks blew a transfer case and this led to downtime on November 4<sup>th</sup> and 5<sup>th</sup>.

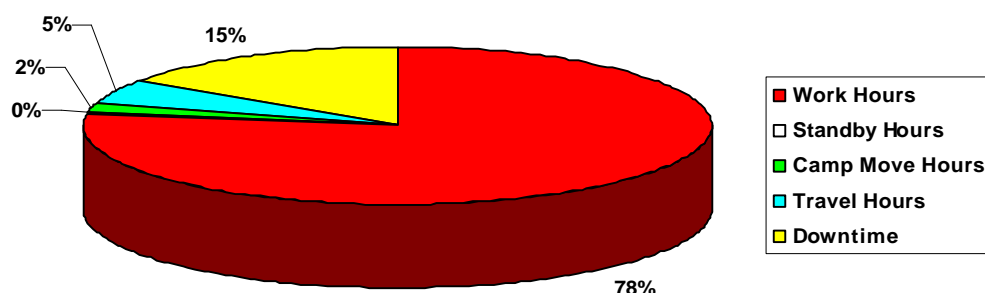
Another incident inhibiting production was the sudden need for driller Trevor Edwards to go on compassionate leave. A day was lost on the 13<sup>th</sup> while owner Keith Daly came to replace him.

Fig. # 5-1 illustrates that production was good on days without downtime. Most days exceeded 200m and one day, the 2<sup>nd</sup>, exceeded 300m. Production was lower on the 11<sup>th</sup> because the rig had to travel north to Carrickalinga#1 in PEL 91.

Fig. # 5-2 below shows the distribution of hours on the drill crew:

## 5.0 DRILLING & LVL

**Fig. # 5-2: Distribution of Hours for Daly Drilling on the 2003 PEL 107/91 Uphole Program**



The outstanding feature of the above chart is the high downtime figure of 15%.

The table below gives the statistics:

**Table 5- 1: Statistics for Daly Drilling on 2003 PEL 107/91 Albus Seismic Survey**

Start Date	November 1 <sup>st</sup> , 2003
End date	November 14 <sup>th</sup> , 2003
Total Days	14
Total Holes Drilled	84
Total Metres Drilled	2584
Average Holes/Day	6
Average Metres/Day	184.6
Total Charge Hours	125.25
Average Metres/Charge Hr	20.63
Total Drill Hours	122.0
Average Metres/Drill Hour	21.18
Daly Drilling Drillers	Trevor Edwards & Keith Daly
Expertest Logger	Don Blick
Total 4 <sup>3/4</sup> " Regular bits used	11
Total 4 <sup>3/4</sup> " Chevron bits used	0
Total TCI bits used	0
Total drums of Lo-Loss used	12
Total bags of Bentonite used	45
Total Bags of Hi-Seal used	0

### Sample Weathering Profiles

In order to give a snapshot of the weathering picture, sample lines from different parts of the program were chosen as being representative of the whole. Using elevations provided by DSS and taking the weathering depths as interpreted from the Expertest plots, 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:

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## 5.0 DRILLING & LVL

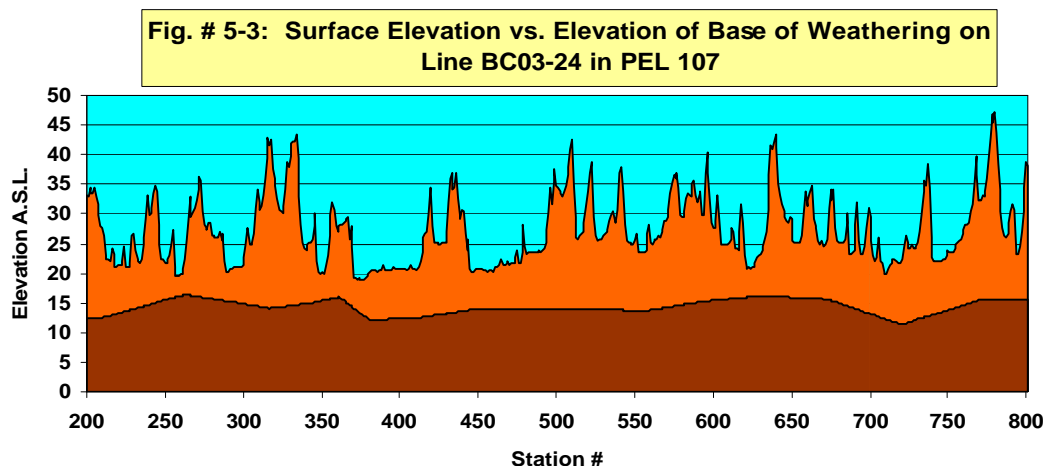


Fig. # 5-3 shows that the base of weathering on line BC03-24 in the south of the prospect is fairly flat with the depth of weathering 10-12m in the swales. Sample Uphole Plot #1 shows the plot for DHBC03-112 at stn# 526 on this line. It shows a sub-weathering velocity of 1927 m/s.

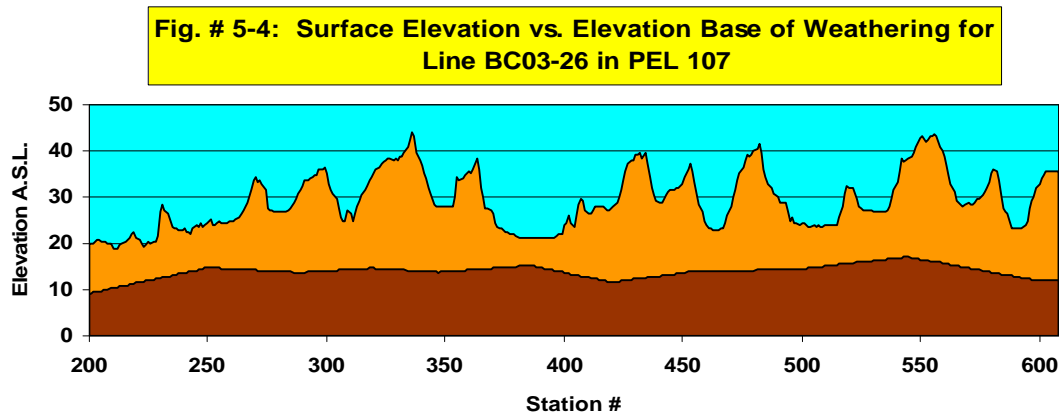
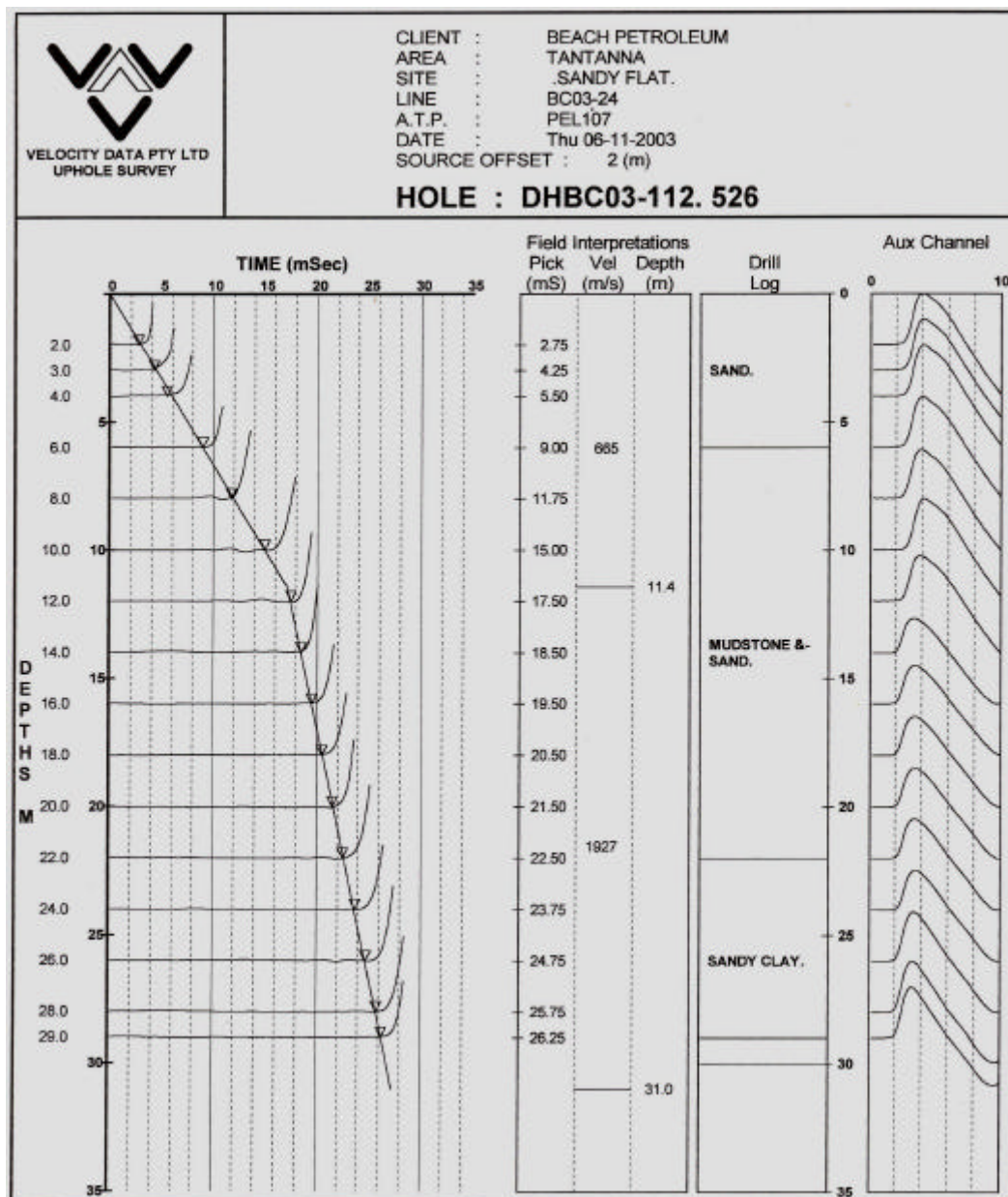


Fig. #5-4 shows that the base of weathering is reasonably flat on line BC03-26 and 8-10m deep in the swales. Sample Uphole Plot #2 shows the plot for DHBC03-123 at station # 347 on this line. The sub-weathering velocity is 1760 m/s.

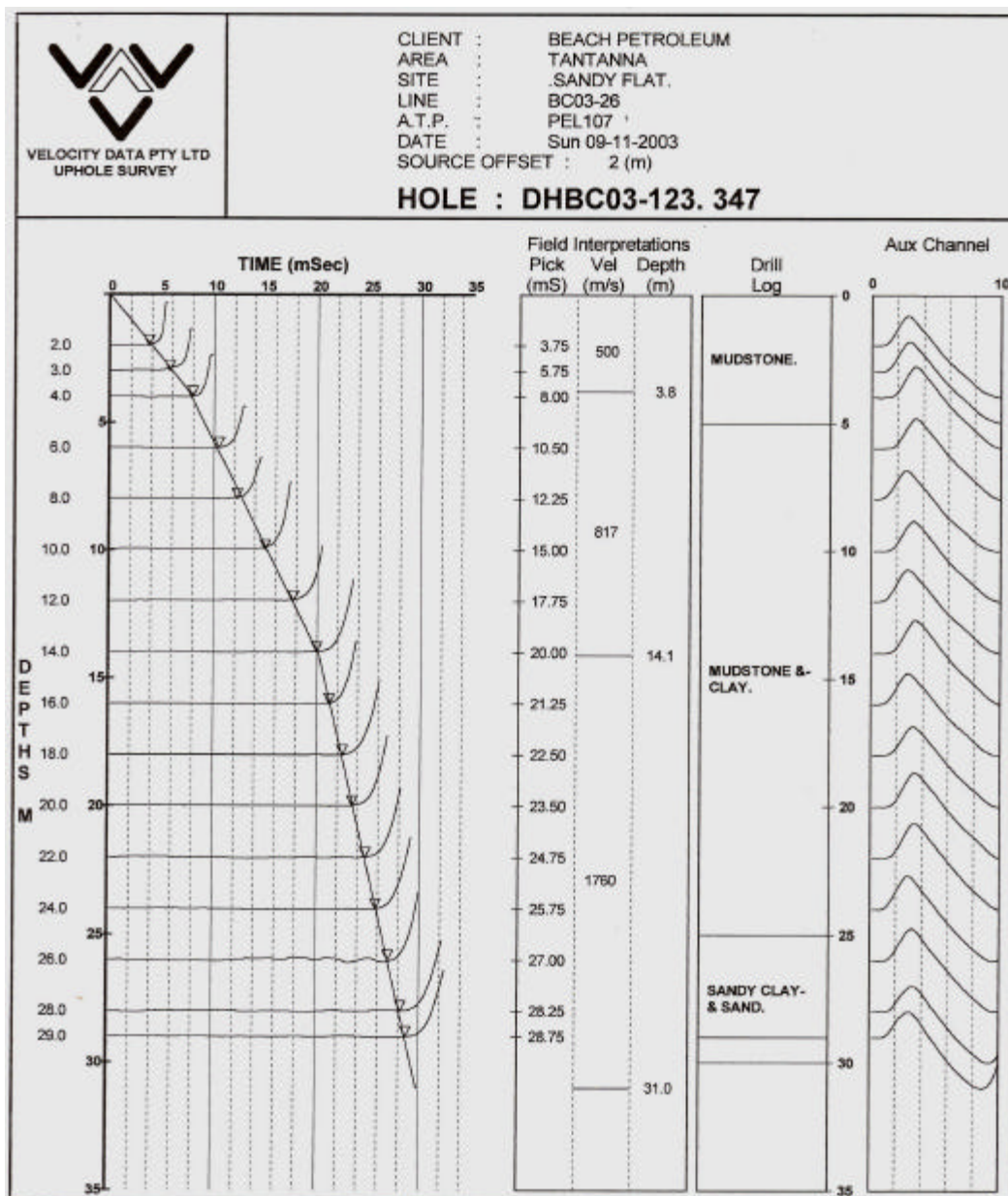


## 5.0 DRILLING & LVL



Sample Uphole Plot # 1: Line BC03-24.

## 5.0 DRILLING & LVL



Sample Uphole Plot # 2: Line BC03-26 DH03-123.

## **5.0 DRILLING & LVL**

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### Uphole Restoration

Emphasis was given to uphole restoration since this was an area of weakness in the 2002 surveys. In the sandy areas the cuttings were spread and sand thrown over the clay to disguise the colour.



**Picture # 5- 2: Example of an uphole site; cuttings are spread but mud is still evident.**

However, this is not completely effective because the cuttings and mud are wet at the time of logging. To be completely effective (if this is what we are aiming for) a follow-up the next day when the mud is dry would be the best way to cover the cuttings. This may involve another dedicated person and vehicle.

### GPS Locations

Beach Petroleum supplied the Expertest loggers with a hand-held gps. The reason for this was to be able to pinpoint the location of any holes that had to be moved from the pre-programmed positions pegged by DSS surveyors. The procedure was to provide DSS a post-drilling set of locations so that they could update their pre-plots to come up with a final uphole location file. This was done.



## 5.0 DRILLING & LVL

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**Picture # 5- 3: Expertest Observer Don Blick pushing a hole-hat into a restored uphole.**

### Summary

Daly Drilling had some misfortune during this survey with downtime due to badly blown-in lines and then the unfortunate compassionate leave of driller Trevor Edwards. Apart from this, the production rate was very good; on some days 9 holes were drilled. They are recommended for future work due to their excellent efforts and also because they are one of the few contractors available in Australia who can field all-wheel drive trucks and a remote operations camp.

Expertest logger Don Blick did his usual professional job and did not have any downtime. He and his back to back Mark Smale are recommended for future work. However, his parent company, Expertest, showed little in the way of support for the field operation and were uncooperative when requested by Beach to field two units so that a second rig could be employed to keep the drilling operation up to recording. As it was, the drilling finished 1.5 months later than recording, thus putting pressure on processing, interpretation and timing commitments. They are not recommended for future work.

## 5.0 DRILLING & LVL

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**Picture # 5- 4: Daly drill crew with Trevor Edwards on the step, Ian Wyatt left and Mick Delaney right.**

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

### Introduction

Denham & O’Keeffe Earthmoving (DOK) was contracted to conduct the line preparation. Dynamic Satellite Surveys (DSS) was contracted to do the surveying. Line preparation started on September 5th and was completed on September 13<sup>th</sup>.

### Line Preparation

Denham and O’Keeffe provided an abbreviated version of the crew and camp equipment that was fielded in 2002. The reason for this was the difficulty DOK had in finding experienced personnel due to the stop-start nature of the seismic industry in 2003. They had a crew of five people including two dozer operators, a grader operator, a cook and a mechanic. This is two less than last year. The camp had only two trains compared to the three provided last year.



The DOK crew list is as follows:

<u>Position Held</u>	<u>Name</u>
Dozer Operator	Bill Bebbington
Dozer Operator	Mick Jonas
Grader Operator	John Talbot
Cook	Mark Gill
Supervisor/Mechanic	Kim Townsend

The following table details production.



## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

**Table 6- 1: Line Preparation Statistics for Denham & O’Keeffe Earthmoving on PEL 107/91**

Start Date for Line Preparation	September 5 <sup>th</sup> , 2003
End Date for Line Preparation	September 13 <sup>th</sup> , 2003
Total Kms Cleared	158.925
Total Days	9
Average Km/day	17.66
Total Chargeable Dozer Hours	191.5
Average Km/Dozer Charge Hour	0.83
Total Grader Hours	88.5

The production rate of 0.83 km/charge hr is lower than usual and can be attributed to steep and difficult dunes, an inexperienced dozer operator on one dozer, the effect of a long move to Line BC03-39 in PEL 91 and the need to ramp the Tantana oil pipeline.



**Picture # 6- 2: constructing one of two ramp over the Tantana oil pipeline.**

DOK had not worked in the Cooper Basin for about a year before this job. Their “gun” operator Peter (Hi-rise) O’Keeffe was not available due to other work commitments. He was replaced by Mick Jonas. Mick is normally a grader operator and was still coming to terms with dozer operating.

The Tantana surface oil pipeline posed an obstacle since it bisected the PEL 107 program. With the permission and under the supervision of Santos personnel, two earth ramps were constructed to allow access across the line. These ramps were eventually removed in January 2004.

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**



On the positive side, all DOK operators have a keen eye for aboriginal sites. This was important because it was often necessary to divert outside the narrow +/- 10m clearance corridor given by the WAC team to make the line safely negotiable. Thus the operators frequently saw virgin terrain not covered by the WAC team.

### Surveying

DSS had only three surveyors on their crew this year compared to four last year. The reasoning behind this was that Beach decided on going to a turnkey rate instead of an hourly rate. Consequently, DSS decided to cut the staff by one person in an effort to make the same revenue. The Line Pointer was still charged out at an hourly rate. With only two other surveyors, one was employed full-time in the field while the other (Ron Weekes) divided his time between the field and the office. The relatively low rate of dozer production made this a viable option.

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**



DSS fielded an office/accommodation van and also rented sleeping space from DOK.

The DSS crew list is as follows:

<u>Position</u>	<u>Name</u>
Head Surveyor	Ron Weekes
Line Pointer	Mark Lefebvre
Surveyor	Craig Davey.

Annotated wooden pegs were used every 5<sup>th</sup> station with alternating blue and pink pin flags in between. These pegs and pin flags were picked up by the recording crew and recycled.

One of the duties of the Line Pointer was to install Environmental Monitoring Points (EMPs). These EMPs are locations marked by permanent markers and appropriately tagged. They are supposed to be in easily accessible sites in terrain that is representative of that throughout the prospect area. In this survey, two EMPs were installed. One was near the southern end of line BC03-28 and the other near the intersection of the Lake Hope #1 track and line BC03-30. 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).



## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**



Another duty of the Line Pointer was to photograph and register the cultural heritage sites found during the cultural heritage clearance process. ERF reports were prepared and formatted by Bruce Beer using photos and coordinates supplied by Mark Lefebvre. These ERF reports are incorporated in the Environmental Report.

The following table details production:

**Table 6- 2: DSS Surveying Production Statistics for the 2003 PEL 107/91 Albus Seismic Survey**

Start of Surveying	September 6 <sup>th</sup> , 2003
End of Surveying	September 13 <sup>th</sup> , 2003
Total Km Surveyed	158.925
Total Survey Crew Hours	124.0 (1 surveyor + 1 vehicle with gps)
Average Km/Survey Crew Hr	1.28
Total Line Pointer Hours	99.0
Total Office Hrs	59.0

The above table shows that a healthy rate of survey production (1.28 km/hr) was maintained. This was well in excess of the dozing rate.

### Permitting

The PEL 107/91 Albus Seismic Survey was located on two properties, Mulka to the south and Mungeranie to the north. Mulka is owned by Santos and managed by Margie and Gary Overton, while Mungeranie is owned by Graham Betts and managed by Rodney Fullarton. The area of this survey is at the eastern extremity of those properties and access to the homesteads on the Birdsville Track was difficult. There were no cattle in the area. Permitting was left to Beach Petroleum office staff but

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## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

telephone contact was established in the field with Rodney Fullarton who had no concerns with the survey.

### **Environment**

The environmental impact of the PEL 107/91 Albus Seismic Survey was typical of that in dune terrain. The standard practices were observed, i.e. dune cuts were minimised, sand was left on dune shoulders and not ramped into the swale and no windrows were left in swales. Ongoing monitoring of the EMPs will establish how well rehabilitation is taking place. A separate environmental report has been written and submitted to PIRSA. It contains an EMP report, a GAS audit report and ERF reports.



**Picture # 6- 6: Line BC03-28 looking north; typical of the treeless dune terrain of PEL 107**

### **Summary**

For the PEL 107/91 program DOK improved their performance over their first effort in 2003 in PEL 110. Nevertheless, there were still complaints from both the recording crew and the drill crew about some of the cutting techniques. It is almost impossible to satisfy everyone but there is still room for improvement to reach that elusive perfect compromise. DOK are recommended for future work.

DSS are a truly professional outfit and cheerfully accept the additional tasks thrust upon them over and above their normal surveying duties. These include installation of pegs to mark uphole locations, installing and photographing EMPs, identifying, photographing and reporting ERFs. They are recommended for future work.



## **7.0 – SAFETY**

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### **Introduction**

Safety received a high priority from both Trace Energy Services and Beach Petroleum on the 2003 PEL 107/91 Albus Seismic Survey. Safety management plans were a pre-condition for all the sub contractors to bid on the job.

Trace had a dedicated HSE officer in Russell Gregg. Russell is also a senior first aider and acted as the crew's defacto paramedic. However, Russell was on leave for the PEL 107 program and his place was taken by Terry Ernst. Terry (Scooter) is a former WesternGeco employee and a trained QHSE officer. His experience was invaluable to the crew.

The basic tenets of the HSE policy were:

- ❑ A start-up induction meeting prior to the start of operations at which potential hazards were identified and discussed. Inductions by Trace 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 at 0615 hrs. They provided a forum for any safety or operational issues to be aired.
- ❑ Weekly safety meetings: these were held on Sunday mornings and were more focused on purely safety issues. The QHSE officer would review the week's safety performance and often include a first aid demonstration. The Crew Manager and Bird-dog added their views on crew safety performance and any other comments from the crew were invited.

Minutes for safety meetings and toolbox meetings are contained in the appendices.

All vehicles were equipped with first aid kits and fire extinguishers. About 30% of the crew were trained first aiders.

There were no Lost Time Injuries on this job. However, there was one incident that required medical attention and led to the writing of a RIR (Risk Identification and Accident Report). RIR-04 appears in the appendices. Surprisingly, it was the QHSEA himself who was injured. He was helping to clean a fridge in which glass bottles had frozen and cracked. He sustained a cut finger. It was treated on the crew and healed rapidly.

A joint Stuart Petroleum/Stuart Petroleum induction was held prior to the start of line preparation and again before the start of recording. Doug Roberts represented Beach and John Iredale represented Stuart. Several members of PIRSA also attended. An induction for the drill crew was given by Bruce Beer who also gave inductions to all new crewmembers upon arrival.

### **Audit**

## **7.0 – SAFETY**

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The Trace crew was audited in March 2003 by Santos and Beach personnel. Several issues were highlighted in that audit. The Trace Energy Services response is as follows:

## **7.0 – SAFETY**

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# ***Response to the:***

## **Trace Energy EHS Review**

27 - 28 March 2003

***Written by Bruce Beer, based on answers provided by Trace Energy relief QHSE Officer Terry Ernst on 16-9-03***

### **Background**

Santos are planning to use Trace Energy to conduct 2D seismic in April 2003 and as part its due diligence process decided to review Trace Energy's EHS systems. Trace Energy are currently conducting seismic work for Beach Petroleum north east of Tarbat in South West Queensland. Beach were approached by Santos and have kindly allowed Santos to conduct this review.

Trace Energy were unsuccessful in an initial prequalification assessment of 32% conducted in August 2002 and were subsequently pre-qualified in relation to EHS later in 2002 achieving an assessment score of xx%.

### **Purpose**

After considering previous injuries in seismic crews it was determined that the purpose of this review was to evaluate Trace Energy's approach to preventing injuries relating to land transportation, cable and geophone handling, working in hot environments stress.

### **Process**

The review team included the following Santos and Beach Petroleum representatives:

Brian Willcocks (Review Leader – Santos)

Alan Jones (Santos)

John Allen (Bird Dog, Santos)

Doug Roberts (Beach Petroleum)

Discussions and field visits were conducted involving the following Trace Energy Representatives

Andy Brett (Operations Manager, Trace Energy)

Bob Stevenson (Party Chief, Trace Energy)

Russell Gregg (QHSE Advisor, Trace Energy)

Field visits included reviews of the workshop, uphole recording unit, drilling rig, geophone handling crews (front crew and back crew), vibrator operations and recording truck.

## **7.0 – SAFETY**

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### **Key Findings**

Trace Energy have a similar belief to Santos that EHS is a line management responsibility. Both Andy Brett and Bob Stevenson who are the line managers were actively involved in the whole review process.

Corporate EHS policies have been established relating to HSE, Training, Transportation, PPE, Alcohol and Drugs, Medical and First Aid, Anti-discrimination and Security/Civil Unrest.

These policies are communicated to all crew members at the start of each new seismic job as part of the contractual agreement with each Trace crew member.

A basic one hour informal pre-job orientation is provided to new employees prior to commencing work. The process is brief and doesn't meet all of the Trace HSE manual requirements.

*Recommendation: Ensure all pre-job orientations meet Trace Energy requirements.*

***Response: this is 80% complete. Some training in things such as hazardous materials storage and transport has yet to be done.***

Towards the end of day one of the review it was highlighted that the Review Team had not been provided with a Visitor safety orientation as required by Trace HSE Manual requirements.

*Recommendation: Develop a basic visitor induction checklist and use for all visitors.*

***Response: this has been done***

It appeared during discussion with crew members that most had recently conducted driver training either with Trace Energy or with their previous employer, however the training register is currently being developed.

*Recommendation: Finish developing the training register and use for all employees and all competencies required.*

***Response: a training register has been made and its updating is ongoing.***

The emergency response details in the crew vehicles were either not available or outdated. Although verbally people had a basic understanding of who to report emergencies to, the process was not documented.

*Recommendation: Ensure the emergency response procedure is documented and updated for each job and available for all crews.*

## **7.0 – SAFETY**

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***Response: An emergency response plan is contained within the Site Specific Safety Plan. We are awaiting the return of Russell Gregg (and his computer) to see what documentation he has on the ERP drill conducted at Conus in March. A drill is being planned here. The crew were quizzed by Bruce Beer at the weekly safety meeting on 7-9-03 on the ERP and did well in answering.***

The Seismic crew has recently purchased a tanker for supply of diesel for the crew's vehicles. There are many dangerous goods requirements that arise when transporting bulk dangerous goods including, placarding, licensing, emergency procedures, spill control etc.

***Recommendation: Review dangerous goods requirements and ensure compliance for the diesel tanker.***

***Response: Trace claim to have investigated the regulations for signage etc on diesel storage and found there are no specific requirements.***

All portable electrical equipment, extension leads and residual current devices RCDs are legally required to be inspected and tagged by an electrician in accordance with Australian Standard 3760. Many of the electrical leads had either not been tested or out of date.

***Recommendation: Set up register for all portable electrical equipment, extension leads and RCDs and ensure ongoing compliance.***

***Response: this needs to be addressed and will be when the crew's only qualified electrician, Peter O'Donnell returns from leave.***

### **Other observations:**

The requirements as to which jobs require an ambulance or onsite medic should be clarified from Santos perspective based on a risk assessment approach considering likely scenarios and likely response times from local medical services.

***Response: no plans are in place to provide an ambulance or medic. The current risk assessment is that medical facilities in Moomba provide an adequate backup.***

The journey management system is a good initiative particularly when working in remote locations such as the Cooper Basin. It was noted on day 1 of the review that not all personnel were using the journey management system. It is important that any systems implemented are used by all crew members and in particular site management for the system to be sustainable.

***Response: a journey management system is in place and working well but is used only by people going outside the area of operations covered by VHF radio.***



## **7.0 – SAFETY**

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It was noted that a vehicle inspection checklist has been drafted. Documented Vehicle inspections are mandatory for work conducted with Santos to ensure vehicles are road worthy and fit for purpose prior to use.

***Response: QHSE has consulted with mechanics on crew and vehicle service records (history book) exist. Vehicles are checked from air filter through to test drive every 5000 km.***

The re-engineering of the cable truck and jug truck to improve manual handling is a good initiative. We look forward to seeing all vehicles modified when Trace work for Santos.

***Response: all Trace cable and jug trucks have been converted to have safety cages.***

It was noted that additional crew members are scheduled for First Aid training to meet the Trace requirement of 50% trained in First Aid.

***Response: this is ongoing and Russell Gregg will be consulted on the current status.***

Good lightening precautions were observed in the recording crew. The recording crew stopped operations when lightening was nearing the operation. However, the drilling crew was not as quick to shutdown work. Suggest a review of the requirements be conducted to ensure the drilling crew maintain the same high standards as the recording crew.

***Response: a different drilling contractor, Daly Drilling, is currently on the crew. Precautions for lightning storms were covered in the driller's induction***

One of the cable crew had cuts in his hands from pulling dusty cable for extended periods of time. Suggest a review be conducted to consider whether light weight gloves that provide a good level of dexterity should become a mandatory requirement.

***Response: this suggestion has been left to the discretion of line crew members who can request gloves as needed.***

A number of crew members were wearing shorts or had long sleeves rolled up. For Santos work all crew members must wear trousers and long sleeve cotton shirts. Sleeves must be down at all times whilst outdoors.

***Response: Beach and Stuart do not insist on long pants and long sleeved shirts. It is left to the individual's discretion although warnings of possible consequences are regularly given at safety and toolbox meetings. It is noted however, that most of the crew do comply with the preferred dress code. They are aware that on Santos jobs there will be no discretion allowed.***

Although not under the direct control of Trace Energy, the drilling contractor water truck requires modification. Currently employees are accessing the rear of the truck

## **7.0 – SAFETY**

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by climbing up the back of the vehicle without an appropriate ladder. The crew supervisor understands the problem and will be taking action to resolve.

***Response: the Daly Drilling water trucks will be inspected on the weekend for compliance.***

### ***General Comment by Birddog:***

***In my time on the Trace Energy crew, I have noted a high level of safety awareness and induction by management and HSE officers. This level is not always reflected in documentation and to some extent this has been a deliberate ploy to avoid a paper bureaucracy. The emphasis is far more on practical application. The issue of lack of crew participation in safety meetings has been recognised by management and is being addressed by requiring each department to present a safety hazard on a rotational basis at morning toolbox meetings. In addition to this the crew is often given a quiz at weekly safety meetings to test and increase their knowledge of safety issues and emergency procedures. The HSE officers often give first aid demonstrations at these meetings.***

***The effectiveness of the approach to safety adopted on this crew is reflected in the low incidence of injury. I believe that a comparison of injury incidence on this crew with any other contractor in the Cooper Basin over the past 5 years would be more than favourable.***

***Bruce Beer***

## **7.0 – SAFETY**

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An audit of the camp was conducted by Bruce Beer and Terry Ernst. Even though it was conducted after the PEL 107 Albus survey was completed, the comments are equally applicable. The results of that audit, as written by Terry, are as follows:



### **GENERAL CAMP INSPECTION**

**DATE: 05-10-03**

#### **CAMP - HEALTH & HYGIENE:**

- Is camp in a suitable location to allow for wastewater drainage? **No, contract states where to camp, more “lay flat” hose required.**
- Does the camp have adequate shower facilities? **Yes**
- Are showers cleaned daily and disinfected? **Yes**
- Are toilets cleaned daily and disinfected? **Yes**
- Are there sufficient sunscreens, soap, and creams available for the crew? **Yes**
- Are rooms cleaned daily? **Yes**
- Are sheets, pillowcases washed regularly? **Needs reiterating to Campy**
- Are there adequate bins with lids provided? **More bins required**
- Is garbage bagged, covered and disposed of adequately? **Yes**
- Does the camp have adequate lighting? **More lighting required for outer perimeter of camp, muster point etc.**
- Does the camp have sufficient accommodation? **No, not really, tents supplemented for couples**
- Is the camp free from Litter & Rubbish? **Yes, ongoing**

#### **SAFETY**

- Does the crew have a QHSE Representative? **Yes**
- Is there a Muster point on site with First Aid Kit, Camp layout & Personnel list? **Yes**

## **7.0 – SAFETY**

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- Is there an ERP in place, is it displayed to everyone? **Yes, in place but needs to be displayed more**
- Do accommodation blocks have smoke detectors fitted? **Some, QHSE to order more detectors**
- Is there information displaying Fire Team & ERP for Fire. **No, needs to be displayed**
- Does the camp have adequate fire extinguishers; are they in appropriate positions around camp? **Yes, need to check and make clamps inside rooms to store on camp moves**
- Are there first aid kits available in camp? **Yes, no RFDS Box**
- Are there no smoking signs displayed where smoking is prohibited? **Yes**
- Are stairs and handrails adequate at door entrances? **No, some stairs are cracked. Perhaps landings on Diner, Kitchen & Shower to be made.**

### **KITCHEN**

- Does the Cook & Cook's Offsider wear gloves, appropriate & clean clothing? **Yes**
- Is the kitchen free from dust & insects? **Yes, as best as possible.**
- Does the kitchen have adequate ventilation? **Yes, ventilation fan should be redesigned to extract fumes properly**
- How is food thawed? **Overnight in chiller**
- Are cutting utensils in good condition and cleaned regularly? **Yes**
- Are Cook & Offsider current with Hepatitis vaccinations? **Yes**
- Do Cook & Offsider have Long Hair, if so; do they wear a hat or net? **Yes**
- Is Temperature on chiller room below required setting? **Yes**
- Is chiller room floor in clean condition? **Yes, needs minor fixing on floor**
- Are all meats, poultry etc rotated frequently? **Yes**
- Does chiller room have adequate shelving? **Yes, chiller racks to be completed when camp moving**
- Is there a first aid kit present, is it up to date? **Yes**

## **7.0 – SAFETY**

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### **DINER**

- Is diner cleaned regularly? **Yes**
- Are there vermin, insects, dust present? **Ongoing, as best as possible**
- Do bins have lids and are they emptied & cleaned regularly? **Yes**
- Is there sufficient lighting inside? **Yes, more spare fluoro lights to be ordered.**
- Is there sufficient room to prepare lunches etc? **Yes, need Binnie Marie**
- Is fridge in good working condition? **Yes**
- Are eating utensils clean? **Yes**
- Are sauce bottles etc wiped daily? **Yes**
- Is hot water Urn cleaned and refilled daily? **Yes**
- Is fire extinguisher present & in working condition? **Yes**

### **DRY STORES**

- Are food tins & dry stores on shelving? **Yes, needs more shelving.**
- Is there vermin, insects, dust present? **No Vermin present needs to be cleaned daily.**
- Is there sufficient lighting? **Yes, more spare fluoro needed**
- Are freezers & fridges in good working condition? **Yes**
- Is fire extinguisher present & in working condition? **Yes**
- Is there adequate storage space? **Yes, requires better storage shelving.**

### **ELECTRICAL**

- Are all electrical cables in good condition, are they tagged? **No**
- Are Aggreko boxes in good working condition? **Yes**
- Is generator adequate to supply power to camp? **Yes**
- What is general appearance of generator & power outlets? **Good**

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## **7.0 – SAFETY**

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### **MECHANICS**

- What is general cleanliness of Mech's Workshop? [Ongoing, have started cleaning and redesigning benches etc.](#)
- Is First Aid Kit present? [Yes](#)
- Is eye wash station available? [No](#)
- Are fire extinguishers present & in working condition? [Yes](#)
- Are mechanics wearing appropriate PPE? [Yes](#)
- Are MSDS available? [No](#)

[Other recommendations by Client representative were:](#)

1. Chain handrail – [convert to both sides, solid detachable handrail](#)
2. Fuel Tanker – [Fire extinguishers to be rechecked, Drip tray & appropriate signage](#)

Inspection performed by

Client Rep: Bruce Beer

QHSE Rep: Terry Ernst

## **7.0 – SAFETY**

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### Summary

Trace Energy Services have elevated their safety awareness greatly in the past two years since winning Cooper Basin contracts. The rigorous emphasis placed in safety by all Cooper Basin operators has led to much higher levels of safety performance. This is a direct result of the continuous review of safety procedures and incidents at morning toolbox and weekly safety meetings. The elevation of Terry Ernst to relief QHSE advisor and Assistant Crew Manger had an overall beneficial effect on the crew. Terry had extensive QHSE training with his former employer WesternGeco and has transferred much of that training to Trace Energy Services.

There were no LTI's and only one medical treatment case on the PEL 107 Albus Seismic Survey. This was more than a matter of good fortune, it was in large part due to the strong emphasis placed on safety by both Trace Energy and Beach Petroleum managements.

## 8.0 – REMARKS & RECOMMENDATIONS

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- 1) The average recording rate for the PEL 107/91 seismic Survey was 22.70 km/day. This was below the rate achieved in 2002 but was reasonable in view of the circumstances, which included, a short-handed line crew, an obstructive obstacle in the Tantana surface oil pipeline and the short line BC03-39 in an isolated location north in PEL 91.
- 2) Data quality was good in all areas.
- 3) Only one campsite was used for the operation. All three camps, line preparation, drilling and recording used this site. It was on the northern side of the Tantana road midway between Spencer West and Taloola. The camp coordinates were:

Easting:	375600
Northing:	6885580
Latitude	-28° 08' 58.4"
Longitude	+139° 43' 59.1"



Picture # 8- 1: the Trace Energy camp at PEL 107

- 4) The line preparation operation went reasonably smoothly. Production was affected by the obstacle of the Tantana oil pipeline which had to be ramped and detoured and also by the remote line BC03-39 in PEL 91. DOK are recommended for future work.
- 5) DSS were surprised to have the turnkey option thrust upon them rather than the hourly rate. Due to the low rate of dozer production they quickly concluded that revenue would be lower than it would have been on hourly rate. They responded by withdrawing one of their surveyors leaving only three. This put extra pressure on personnel but was sustainable due to the low rate of production. DSS are a professional company who do good work. They are recommended for future contracts.
- 6) Uphole drilling went well with the exception of some downtime due to a damaged water truck. The drillers maintain that this damage was caused by poorly cut lines. Time was also lost when driller Trevor Edwards had to depart quickly on compassionate leave. He was replaced by owner Keith Daly. Despite these setbacks the drill rate of 20.6 metres/charge hour was good. Daly Drilling is recommended for future work.
- 7) Expertest provided a professional service despite their aging equipment. This is due to the competence of their loggers, Mark Smale and Don Blick. However, Expertest management proved to be uncooperative when asked to provide a second unit so that another drilling rig could be fielded. This refusal meant that the drilling operation fell far behind recording and put pressure on timing

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## **8.0 – REMARKS & RECOMMENDATIONS**

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schedules and commitments. They are not recommended for future work unless an alternative is unavailable.

- 8) The provision of excellent maps by Beach was appreciated by the whole crew. The colour topographic maps were particularly popular.
- 9) An innovation this year has been the equipping (by Beach) of the Expertest logger with a hand held gps. This is used to check the coordinates given by DSS surveyors in the pre-plotted uphole program (N.B. one of the duties of the DSS surveyors was to place pegs at all uphole locations). It is also used to report the coordinates of any new location changed by the drillers due to inaccessibility of the pre-programmed location. Although the surveyors are getting better at choosing uphole locations, they still don't see them through drillers eyes and it is sometimes (rarely it must be said) necessary to shift the location a few stations. With no pegs left in the ground to guide them, the only way to pinpoint the new location is with gps. A post-programme listing is sent to DSS to update their pre-plots to a final uphole listing. It is suspected that failure to do this in past years may have led to a few instances of apparently anomalous uphole plots. For example, if an uphole is shifted from the top of a dune to the bottom, the elevation changes and the weathering depth appears not to fit the profile. Processing centres should pick this up but often do not.



**Picture # 8- 2: from left - cable repairman Noel Grainger; Danny Burns and Neil Gibbins (Beach) and observer Peter ("Mad-dog") O'Donnell at the hat night.**

- 10) Communication with the drill camp when the main camp moved away was difficult. They relied on faxing their reports to main crew on a daily basis. This was not always reliable. They have the satellite phone setup and driller Trevor Edwards has a new computer so it would not be difficult to get email working.

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## **8.0 – REMARKS & RECOMMENDATIONS**

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This would improve reporting and allow the opportunity for fbr files being emailed on a daily basis if necessary. It is recommended that the next contract specify email capability as a pre-requisite.

- 11) Trace Energy's Crew Manager, Bob Stephenson, was assisted by relief manager Paul Armstrong from Trace's Canadian division. Both men have vast experience and make the best of the poor level of equipment and support they are given. Both are welcome on future Beach jobs.
- 12) Trace Energy's Senior Mechanic John Philippon remains one of their major assets. He is more a mechanical engineer than mechanic. His ability to keep the old vibrators (which were close to their final tour of duty before being replaced) going is legendary.
- 13) The Trace Energy camp was inadequate in several aspects. First, many of the vans were in a poor state of repair. Second, there was not enough accommodation. There were some rooms where four people were crammed in. Three couples had their own tents and camped apart from the main camp. Without this the accommodation situation would have been (more) intolerable. Although everyone admires Trace Energy's ability to survive when other larger organisations have gone under, it is sad that in 2003 we cannot provide better accommodation for seismic personnel. Trace is reputedly working on replacing some of the accommodation units. This cannot happen too quickly.
- 14) This 2003 round of work represented the first time Trace Energy's Australian operation has operated on a continuous basis with regular crew changes every 2 weeks. Normally, they operate with a single crew and shut down between jobs for a break. The continuous operation is new and caused some problems in leave scheduling. There were situations where 10 people would go out and only 5 come in, leaving the crew critically short-handed. It has also meant Trace having to hire extra crewmembers. They seemed to have trouble doing this.
- 15) On September 24<sup>th</sup>, Neil Gibbins, Danny Burns and Janet Skinner visited the crew to thank them for the year's efforts. Neil made a brief speech and handed out Beach Petroleum hats to a grateful crew. Visits such as this mean a great deal to crewmembers who often feel that their efforts go unnoticed.

## **8.0 – REMARKS & RECOMMENDATIONS**

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**Picture # 8- 3: Janet Skinner and Senior Observer Joel Cary at the hat night**

16) Despite the obvious camp deficiencies, the work ethic of Trace personnel is second to none and they are recommended for future work.



**Picture # 8- 4: Trace Energy crewmembers sporting their newly acquired Beach Petroleum hats at the hat presentation night on September 24<sup>th</sup>.**



## **8.0 – REMARKS & RECOMMENDATIONS**

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**Picture # 8- 5: l-r: legendary bush cook Denis (“Burger”) Viney, vibe operator Des Postans and cable-repairman Noel Grainger at the hat night.**



**Picture # 8- 6: standing l-r: Bob Stephenson, Paul Armstrong, Dennis Corben, Shane Goosens, Peter O’Donnel. Joel Cary, Darren Rae, Liz Gould. Sitting: big fat Bruce Beer, and ? at the hat night.**

**APPENDIX I**

**RECORDING  
PRODUCTION**

**RECORDING PRODUCTION by Trace Energy Services: Beach Petroleum's 2003 PEL 107/91 Albus Seismic Survey; September, 2003.**

	Line Details & Kms									Non Chargeable Hours									Chg Hrs		Comments
Date	Area	Line	First Stn	Last Stn	# Stns	# VPs	# Skips	Charge Kms	Daily Total Km	Record	Line Move	Rec Move	Detours	Wait on Spread	Layout & Pickup	Travel	Tests, QC & Other	Down	Standby	Total Daily Hrs	Comments
22	"																				"
23	PEL 107 -															2.40				2.40	complete Priscilla & move to PEL 107
24	"	BC03-27	521	200	321	315	7	12.0375	24.4125	6.40	0.60	1.20	0.30		1.50	0.80	0.90	0.40		12.10	layout spread and start recording.
	"	BC03-26	200	530	330	323	8	12.3750													
25	"	BC03-26	530	608	78	78		2.9250	25.8750	7.00	0.80	0.90	0.10			1.00	1.90	0.70		12.40	
	"	BC03-25	408	200	208	209		7.8000													
	"	BC03-24	200	604	404	394	11	15.1500													
26	"	BC03-24	604	801	197	189	8	7.3875	19.8375	5.20	1.90		1.70			0.80	1.80	0.60		12.00	detours around pipeline; big dunes
	"	BC03-23	532	200	332	315	18	12.4500													
27	"	BC03-22	444	200	244	242	3	9.1500	25.9125	7.10	1.30		1.00			0.80	1.80	0.20		12.20	detours around pipeline & dunes
	"	BC03-29	448	200	248	237	12	9.3000													
	"	BC03-30	200	399	199	196	4	7.4625													
28	"	BC03-20	407	200	207	203	5	7.7625	27.5250	7.20	1.80		0.10			1.00	0.80	0.90	0.50	12.30	chg stby for weekly safety meeting.
	"	BC03-31	200	373	173	172	2	6.4875													
	"	BC03-32	417	200	217	218		8.1375													
	"	BC03-33	200	337	137	138		5.1375													
29	"	BC03-33	337	413	76	76		2.8500	22.1250	6.10	0.90	1.70		1.40		0.80	1.40			12.30	was due to crew change
	"	BC03-21	200	563	363	356	8	13.6125													
	"	BC03-28	200	351	151	149	3	5.6625													
30	PEL 107	BC03-28	351	530	179	178	1	6.7125	6.7125	1.70		1.20		0.40		0.30	0.60			4.20	complete PEL 107 program
	PEL 91	BC03-39	374	200	174	172	3	6.5250	6.5250	1.60	1.80				2.80	0.70	1.60			8.50	start & finish PEL 91 line
Totals					4238	4160	93	158.9250	158.9250	42.30	9.10	5.00	3.20	1.80	4.30	8.60	10.80	2.80	0.50	88.40	

Total Overall Hours = **88.4**  
 Overall Average Kms/Total Hr = **1.80**  
 Overall Average Kms/Rec Hr = **3.76**  
 Average Km/Day = **22.70**  
 Averag Cycle Time/VP = **35.81**  
 Efficiency Factor (Rec/Tot Hrs) **47.85%**

**BEACH PETROLEUM'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY**

# **APPENDIX II**

# **DRILLING STATISTICS**

**PRODUCTION for DALY DRILLING on BEACH PETROLEUM'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY, NOVEMBER, 2003**

Date	Prospect	Line Details			Drill Hours						Consumables						Comments
		Lines	# Holes	Metres	Work	Stby	Camp Move	Charge	Travel	Down	43/4 Regular	4 3/4" Chev	TCI	Lo-Loss (drums)	Bentonite (bags)	Hi-Seal (bags)	
1	PEL 107 BC03-24		2	58	4.00		3.00	7.00	0.00		1	-	-	-	1		* Note: camp move took 6 hrs & by agreement Stuart paid half move camp from Stuart Priscilla* stby safety meeting
2	" 24,25,26		9	301	12.00	0.25		12.25	0.00		-	-	-	1	8	-	
3	" 22,23,24		9	280	12.25			12.25	0.50		1	-	-	2	4	-	
4	" 24	24	2	57	3.00			3.00	0.50	9.00	1	-	-	-	1	-	down due u/s transfer case
5	" 24,28		6	178	9.00			9.00	0.50	3.00	-	-	-	-	3	-	down repairing water truck
6	" 24,23,28,21		7	203	12.50			12.50	1.00		1	-	-	1	4	-	difficult access
7	" 21,27,29		7	221	10.75			10.75	1.00		1	-	-	1	3	-	difficult access
8	" 27,26,29,31,32,20		9	276	11.75			11.75	0.75		1	-	-	2	4	-	
9	" 26,31,27,20		7	218	9.75			9.75	1.00	2.00	1	-	-	1	3	-	late start due to camp water run
10	" 20,30,26,32		9	260	11.25			11.25	1.00		1	-	-	1	5	-	
11	" 33,30		2	68	3.00			3.00	0.50		-	-	-	-	-	-	
"	PEL 91 BC03-39		4	116	7.00			7.00	0.50		1	-	-	1	3	-	move to Carrickalinga - drill 7 hrs
12	PEL 107 20,31,33,21,26,22		9	290	12.25			12.25	0.75		1	-	-	2	5	-	
13	" -		0	0	0.00			0.00		10.00	-	-	-	-	-	-	crew change, Trevor out Keith in
14	" 22,29		2	58	3.50			3.50			1	-	-	-	1	-	complete PEL 107
"																	
15																	
Totals			84	2584	122.00	0.25	3.00	125.25	8.00	24.00	11	0	0	12	45	0	

Average Metres per Day = 184.571

Average Metres per Charge Hour = 20.6307

Average Holes per Day = 6

Note: the camp move hours are actually 3.0 more than quoted above but those 3 hrs have been charged to Stuart Petroleum

**APPENDIX III**

**EXPERTEST LVL**  
**STATISTICS**



	Hours
--	-------

[illegible]

**PRODUCTION for EXPERTEST on BEACH PETROLEUM'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY, NOVEMBER, 2003**

								Hours							
Date	Area	Line	Hole #	Strn#	Depth Logged	Wx Depth	Total Holes for Day	Work	Standby	Camp Move	Travel	Down	Total	Km Travelled per day	Comments
8	"	BC03-21	86	380	33	18	9	11.75			0.50		12.25	23	
	"	BC03-21	85	328	34	16									
	"	BC03-27	84	367	29	5									
	"	BC03-29	136	422	33	16									
	"	BC03-29	135	380	29	8									
	"	BC03-27	134	400	29	11									
	"	BC03-26	133	420	29	16									
	"	BC03-29	132	295	39	23									
	"	BC03-32	82	387	34	14									
9	"	BC03-31	144	247	29	6	7	10.00			1.00		11.00	27	
	"	BC03-32	150	307	29	5									
	"	BC03-32	75	290	29	5									
	"	BC03-20	76	295	29	5									
	"	BC03-31	145	267	29	12									
	"	BC03-26	146	319	34	20									
	"	BC03-26	123	347	29	14									
	"	BC03-31	147	313	29	12									
	"	BC03-27	125	326	34	21									
10	"	BC03-31	148	334	29	3	9	11.50			1.00		12.50	45	
	"	BC03-27	78	269	29	4									
	"	BC03-20	77	318	34	18									
	"	BC03-20	79	362	29	5									
	"	BC03-20	80	400	29	5									
	"	BC03-30	142	390	29	3									
	"	BC03-30	141	350	29	11									
	"	BC03-26	122	200	29	11									
	"	BC03-26	140	250	28	10									
11	"	BC03-30	139	304	29	6	6	10.00			1.00		11.00	88	move to Carrickaliga and back.
	"	BC03-30	138	283	29	6									
	"	BC03-32	149	203	29	6									
	"	BC03-33	151	289	39	24									
	"	BC03-30	137	261	29	14									
	"	BC03-39	153	229	29	9									
	"	BC03-39	154	258	29	10									
	"	BC03-39	155	303	29	7									
	"	BC03-39	156	348	29	9									
12	"	BC03-20	73	227	39	24	9	11.25			0.75		12.00	41	
	"	BC03-20	74	252	29	6									

**PRODUCTION for EXPERTEST on BEACH PETROLEUM'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY, NOVEMBER, 2003**

Date	Area	Line	Hole #	Strn#	Depth Logged	Wx Depth	Total Holes for Day	Hours						Km Travelled per day	Comments
								Work	Standby	Camp Move	Travel	Down	Total		
13	"	BC03-31	143	225	34	21									
	"	BC03-33	152	354	29	4									
	"	BC03-21	81	223	29	14									
	"	BC03-26	83	386	29	6									
	"	BC03-2	94	329	29	4									
	"	BC03-22	93	308	38	22									
	"	BC03-22	92	285	34	18									
14	"	-	-	-								10.00	10.00		
14	"	BC03-22	91	227	29	6	2	2.00		3.00	0.50		5.50	95	down due to driller crew change-comp. leave.
15	"	BC03-29	131	235	29	12									complete PEL 107 - move to PEL 92
Totals					2584	997	84	120.00	7.00		9.00	10.00	155.00	697	

Average Depth of Weathering = 11.87  
 Average Depth of Holes = 30.76  
 Average Holes Logged/Day = 6.00  
 Average Kms Travelled per Hole = 8.30

## **APPENDIX IV**

# **LINE PREPARATION STATISTICS**

**LINE PREPARATION PRODUCTION BY DENHAM & O'KEEFE EARTHMOVING on BEACH PETROLEUM'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY: SEPTEMBER, 2003**

Date	AREA	Dozer #6 (Komatsu D65E)						Dozer # 7 (Komatsu D65E)						Grader (CAT12G)			Comments
		Line	Km	Work	Walk/Float	Standby	Charge	Line	Km	Work	Walk/Float	Standby	Charge	Work/Walk	Stby	Charge	
1	Priscilla						0.00						0.00			0.00	*Note: prospect move time is split between Beach & Stuart. working on the Stuart Petroleum Priscilla prospect
2	"						0.00						0.00			0.00	
3	"						0.00						0.00			0.00	
4	PEL 107	-			1.50		1.50	-			1.50		1.50	0.00		0.00	complete Stuart Priscill SS and float dozers to PEL 107*. start line prep at PEL 107; grader down; operator on camp move grader walk Priscilla-PEL 107 4 hrs; charge half Beach/Stuart D#7 build ramp over pipeline. Bill O'Keeffe replaces Bill Bebbington - out on leave. low production due to big dunes. float D#7 north to PEL 91 for BC03-39 complete PEL 107 & 91; float dozers to Chrities.Chg half Stuart grader walk to PEL 92, 4 hrs; chg half to Beach/Stuart; stby s/m
5	"	BC03-27,22,24	8.68	8.00			8.00	BC03-24	8.65	8.00			8.00			0.00	
6	"	BC03-24,26	11.02	11.00			11.00	22,29,24,27	12.88	11.00			11.00	9.00		9.00	
7	"	BC03-25,26	11.00	10.50		0.50	11.00	BC03-28,23	9.19	10.00		0.50	10.50	11.00	0.50	11.50	
8	"	26,27,29	7.70	10.50	0.50		11.00	BC03-23	3.44	11.00			11.00	11.00		11.00	
9	"	29,27,21,26	7.39	11.00			11.00	23,28,21	7.89	10.00	1.00		11.00	11.00		11.00	
10	"	BC03-21,33	6.50	10.00	1.00		11.00	BC03-21,27	9.46	11.00			11.00	11.00		11.00	
11	"	BC03-31,32,33	9.01	9.50	1.50		11.00	31,32,20,27	10.92	11.00			11.00	11.00		11.00	
12	"	30,32,20,33	11.22	9.00	2.00		11.00	27,30,26	11.21	11.00	0.50		11.50	11.00		11.00	
13	"	BC03-30,33	6.26	6.50	2.75		9.25	BC03-39	6.50	7.00	2.25		9.25	11.00		11.00	
14														2.00		2.00	
15																	
16																	
17																	
Monthly Totals			78.78	86.00		0.50	95.75		80.14	90.00		0.50	95.75	88.00	0.50	88.50	

Total Km Cleared = 158.92

Total Dozer Hrs = 191.50

Total Grader Hrs = 88.50

Average Km/Dozer Hr = 0.83

Average Km/day = 17.66

**BEACH PETROLEUM'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY**

# **APPENDIX V**

# **SURVEYING STATISTICS**



# **Survey Production by DYNAMIC SATELLITE SURVEYS - on Beach Petroleum's 2003 PEL 107/91 Albus Seismic Survey: September, 2003**

Date	Area	Lines	Kms	Line Pointer Hrs			Office Hrs			Survey Hrs			Travel	Comments
				L/P Work	L/P Sby	L/P Charge Hrs	Office Work Time	Office Sby Time	Total Office Chg Time	Survey Wk	Survey Sby	Survey Chg Hrs	Total Travel Time	
1	Priscilla					0.00			0.00			0.00		working on the Stuart Priscilla prospect
2	"					0.00			0.00			0.00		"
3	"					0.00			0.00			0.00		"
4	"					0.00			0.00			0.00		complete Priscilla
5	PEL 107			11.00		11.00			0.00	6.00		6.00		move camp to PEL 107
6	"	BC03-22,24,27	18.0750	11.00		11.00	12.00		12.00	11.00		11.00		start PEL 107 surveying; arrange to build ramps.
7	"	22,23,24,25,27,29	22.2750	11.00		11.00	10.00		10.00	12.00		12.00		
8	"	23,24,26,28	23.6250	11.00		11.00	6.00		6.00	16.00		16.00		
9	"	26,27,28,29	20.7375	11.00		11.00	7.00		7.00	15.00		15.00		
10	"	21,26,27,33	18.5250	11.00		11.00	6.00		6.00	16.00		16.00		scout line 39;
11	"	20,27,31,32,33	19.5000	11.00		11.00	6.00		6.00	16.00		16.00		
12	"	20,26,27,30,31,33	17.2125	11.00		11.00	6.00		6.00	16.00		16.00	2.00	static gps for control at BC03-39
13	"	25,23,30,32,33,39	18.9750	11.00		11.00	6.00		6.00	16.00		16.00	2.00	complete survey in PEL 107 and PEL 91
14						0.00			0.00			0.00		
Totals			158.9250	99.00	0.00	99.00	59.00	0.00	59.00	124.00	0.00	124.00	4.00	

Total Survey Charge Hours = 124.0000

Total Line Pointer Charge Hours = 99.0000

Average Km/Survey Hr = 1.2817

Average Km/Line pointer Hr = 1.6053

**BEACH PETROLEUM'S 2003 PEL107/91 ALBUS SEISMIC SURVEY**

# **APPENDIX VI**

## **CREW LIST**

## **TRACE ENERGY SERVICES - CREW LIST.**

	<b><u>NAME</u></b>	<b><u>POSITION</u></b>
1	BOB STEPHENSON	Crew Manager
2	RICHARD BARNES	Crew Manager
3	PAUL ARMSTRONG	Crew Manager
4	JOEL CARRY	Observer
5	PETER O'DONNELL	Observer
6	SHANE GOOSSENS	Junior Observer
7	JOHN PHILIPPSON	Senior Mechanic
8	DENNIS CORBIN	Vibrator Mechanic
9	BRENDAN OLSZOWY	Mechanic
10	ROBERT SMITH	Mechanic
11	RUSSELL GREGG	HSE Rep.
12	NOEL GRAINGER	Cable Tech
13	DARREN REA	Cable Tech
14	DENNIS VINEY	Cook
15	CRAIG CURD	Cooks offsider
16	CHRISTINE SMITH	Line Crew
18	ABBY BANN	Vibe Op
19	DES POSTANS	Vibe Op
20	SHANE BENEKE	Vibe Op
21	ADAM PIPPOS	Vibe Op
22	GUY EBERHARDT	Vibe Op
23	JEFF MILLS	Vibe Op
24	JON TURNER	Line Boss
25	LEETON McHUGH	Line Boss
26	TERRY ERNST	HSE Rep.
27	LIZ GOOLD	Line Crew
28	LIAM SHUTTLEWORTH	Line Crew
29	TONY HUTCHISON	Line Crew
30	RAY AUCKRAM	Line Crew
31	SIMON TOLL	Line Crew
32	DEL HILDRED	Line Crew
33	JUSTIN POPE	Line Crew
34	FIONA HICKS	Line Crew
35	MELINDA LYNHAM	Campy
36	BEN SHAVE	Line Crew
37	KATRINA IRELAND	Line Crew
38	MAT ROBINSON	Line Crew
39	EMMA BURTON	Line Crew
40	JULIEN GOOSSENS	Line Crew
41	MEGAN BANN	Line Crew
42	JOE KEANE	Line Crew
43	ADAM TOTH	Line Crew
44	LIONEL DABE	Line Crew
45	RICKY FOX	Line Crew
46	BRUCE BEER	Client Rep

**BEACH PETROLEUM LIMITED'S 2003 PEL 107/91 ALBUS SEISMIC SURVEY**

# **APPENDIX VII**

# **EQUIPMENT LIST**

# Trace Energy Services Vehicle List

VEHICLE	REGISTRATION	K.M.S.	YEAR	TRAILER TYPE	REGISTRATION
<b>TRUCKS</b>					
KENWORTH	WA - 1AGB177		May-80	KITCHEN	WA - 6UO308
HINO - FUEL	VIC - RMR625		Jun-85	DINER	WA - 6UO309
ISUZU - CABLE	WA - 1AOR420		Jul-84	SHOWER	VIC - N60916
ISUZU JCS	WA - 1AMI165		Apr-85	STORES	VIC- N60915
ISUZU - CRANE	WA - 9DL970		Sep-87	WORKSHOP	WA - 1TAR750
ISUZU - RECORDER	QLD-922FWD		Mar-92	CABLE REPAIR	VIC - N69423
ISUZU SERVICE	WA - 1ALU225		Feb-93	OFFICE	WA- 6WC-169
HINO	WA - BD610		Nov-87	CAVALIER - SLEEPER	WA - 8UW166
HINO	WA - 7DT982		Feb-85	CAVALIER - SLEEPER	WA - 8US595
VIBRATOR	WA - 8XX751		1980	SLEEPER	WA - 8WS627
VIBRATOR	WA - 8XX752		1980	SLEEPER	WA-7TL494
VIBRATOR	WA - 8XX753		1980	SLEEPER	WA-8WS671
VIBRATOR	WA - 8XX754		1980	SLEEPER	WA-9RG657
VIBRATOR	WA - 8XX755		1980	TOILETS - MALE	WA-1TDJ497
PAYSTAR 50000	QLD IFS688		1980	TOILETS - FEMALE	WA-1TBF454
PAYSTAR 50000	QLD IFS686		1980	WASH DOWN	WA -1TBU582
PAYSTAR 50000	QLD IFS685		1980	SIGN	WA -1TDN321
M.A.N	WA - G12833		Jun-76		
<b>TOYOTAS</b>					
TOYOTA - JUG UTE	WA - 1BHD-892		1999		
TOYOTA - JUG UTE	WA - 1BGO-007		1999		
TOYOTA - CABLE UTE	WA - 1BGN-212		1999		
TOYOTA - CABLE UTE	WA - 1BEK-496		1999		
TOYOTA - CABLE UTE	WA - 1BDH-550		1999		
TOYOTA - CABLE UTE	WA - 1AWY557		Jun-97		
TOYOTA - UTE	WA - 1AUI376		Dec-97		
TOYOTA - UTE	WA - 1AFX011		Sep-98		
TOYOTA - UTE	WA - 1AFP393		Jul-95		
TOYOTA - P.C.	WA - 9JH585		Mar-94		
TOYOTA - CREW CAB	WA - 9DX654		Aug-95		
TOYOTA - 80 SERIES	WA - 9GZ035		Mar-96		

## **APPENDIX VIII**

# **RISK IDENTIFICATION & ACCIDENT REPORTS**



# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment : Trace Energy Services		Report Number		RIR- 04	
Location	Spencer 2D	Client	Beach Petroleum	Report Date	26-09-03
Project	Cooper Basin – Crew 401	Name of reporter	T.Ernst	Revision Date	06-10-03

<b>Description of Actual or Potential Loss</b>		Event date	26-09-03	Event Time	1600 hrs
<b>Classification</b>	<b>Category</b> (Check all boxes which apply)			<b>Site</b>	
<input type="checkbox"/> <b>Accident/Failure</b> <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Light <input type="checkbox"/> <b>Near Accident/Failure</b> <input type="checkbox"/> <b>Hazardous situation</b>	<input type="checkbox"/> <b>Personnel</b> <input type="checkbox"/> Health <input checked="" type="checkbox"/> Injury <input type="checkbox"/> Fatality	<input type="checkbox"/> <b>Automotive</b> <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle	<input type="checkbox"/> <b>Environmental</b> <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission	<input type="checkbox"/> <b>Other</b> <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation	<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other <b>Site Name:</b> Spencer 2D
Company Involved	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Industry Recognized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Regulatory Recordable	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Brief description (50 characters maximum) Lacerated middle finger on right hand caused from broken bottle in fridge.					

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls	
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input checked="" type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> <input type="checkbox"/> Very High (Daily or more) <input type="checkbox"/> High (Weekly to Fortnightly) <input type="checkbox"/> Medium (Fortnightly to Quarterly) <input type="checkbox"/> Low (Every 4 – 12 months) <input type="checkbox"/> Very low (Less than once per year)	<b>D2</b> <p>High Risk (Do not take this risk.)</p> <p>Medium Risk (Reduce Risk)</p> <p>Low Risk (Improve)</p> <p>1 2 3 4 5 Light Serious Major Catas. Multi-catas</p> <p>&lt;\$10k \$10-100K \$100-\$1m &gt;\$1m &gt;\$1m+ 1<sup>st</sup> Aid LTI &lt;90 LTI &gt;90 Fatality Fatal +</p> <p><b>Potential severity</b></p>
		What were the potential consequence.	

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

## **26-09-03**

While cleaning the fridge in the dry stores trailer, the QHSE lacerated the middle finger on his right hand.

Currently the crew has a new fridge, which for some reason freezes everyone instead of cooling things down.

Bottles had been left in the fridge and had exploded overnight causing broken glass to be left in the bottom of the fridge.

The QHSE discovered the mess that afternoon and chose to clean out the fridge.

While cleaning inside the bottom, a piece of glass lacerated the middle finger causing a 1cm cut with excessive blood flowing from the wound.

The QHSE showed the camp mechanic what had happened and helped the QHSE clean and dress the wound straight away.

Dish washing rubber gloves were being used at the time of the accident but the glass still cut through causing the injury.

After the injury had been cleaned and dressed, leather gloves were used instead to complete the task.

Signs were placed on the fridge not to use for storing glass.

## **06-10-03**

The injury sustained has almost completely healed with no infection apparent.

# Loss Report

Injury or Illness Information								
(for each person injured)								
Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1 Terry Ernst	30		Trace	QHSE				N
2								
3								
4								

Indicate details on injuries for each of the persons above

Injury	A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease H Mental Illness I Other Illness.	Body parts affected	A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog H Digestiv I Urinary J Sensory K Other	Days lost (estimated)
1 A		C		0
2				
3				
4				

Automotive Accident Information			
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No		Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle		On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No	
Weather Conditions	Road Type	Accident Type	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or icy	<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface	<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? <input type="checkbox"/> Yes <input type="checkbox"/> No		Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph		Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No	
All persons wearing seatbelts? <input type="checkbox"/> Yes <input type="checkbox"/> No		Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Environmental Accident Information			
Result	Details		
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Soil contamination <input type="checkbox"/> Ground water contamination	<input type="checkbox"/> Release to water way <input type="checkbox"/> Released to air <input type="checkbox"/> Marine life damage	Amount spilled or discharged:	Unit
		Material name or code :	
		Duration of discharge	Hrs min

Other Loss Information				
(Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total

Remarks :

Name of Manager leading the investigation	T.Ernst
Names of other team members	R.Smith

### Investigation Section 1 - Contact & Immediate Causes

<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Caught in	<input type="checkbox"/> Caught between <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Struck by	<input type="checkbox"/> Fall on same level <input type="checkbox"/> Caught on <input checked="" type="checkbox"/> Contact with
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Failure to use PPE properly <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Improper position for task <input type="checkbox"/> Servicing equip in operation	<input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Failure to warn <input type="checkbox"/> Failure to secure <input type="checkbox"/> Improper loading <input type="checkbox"/> Using defective equipment	<input type="checkbox"/> Improper placement <input type="checkbox"/> Improper lifting <input type="checkbox"/> Horseplay <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Poor control of Contractor
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Inadequate/excess illumination	<input type="checkbox"/> Pressure exposure <input type="checkbox"/> Slippery surface <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Radiation exposure <input checked="" type="checkbox"/> Poor housekeeping/disorder	<input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Noise exposure <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Inadequate ventilation

### Investigation Section 2 - Basic Causes

(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)

Personal Factors	Job Factors
<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Stress <input type="checkbox"/> Substance Abuse	<input type="checkbox"/> Inadequate leadership/supervision <input type="checkbox"/> Inadequate engineering <input checked="" type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Organizational rules
<input type="checkbox"/> Lack of skills <input type="checkbox"/> Improper motivation <input type="checkbox"/> Fatigue	<input type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Wear and tear <input type="checkbox"/> Conflicting goals/objectives

### Investigation Section 3 - Lack of Control

#### Lack of Control

<input type="checkbox"/> Commitment & Leadership	<input type="checkbox"/> Organization & Resources	<input checked="" type="checkbox"/> Risk Management	<input type="checkbox"/> Implementation & Monitoring
<input type="checkbox"/> Policies & Objectives	<input checked="" type="checkbox"/> Contractor & Supplier Mgmt	<input type="checkbox"/> Design & Planning	<input type="checkbox"/> Assessment & Cont. Improvt.

#### Corrective Action

Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.

Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Cleansed & Dressed Wound	QHSE	26-09-03	26-09-03	Mechanic helped clean & dress wound.
2	Leather gloves worn to complete job	QHSE	26-09-03	26-09-03	
3	Signage placed on fridge	QHSE	26-09-03	26-09-03	"No Glass" signs placed on fridge to warn others.
4	Fridge to be checked by certified person (Contractor)	QHSE	30-10-03		

**Comments by Reviewing Line Manager**  
**To be completed by Area President or VP for all Catastrophic accidents**

**Endorsements**

We accept accountability for implementing the items of this action plan under our responsibility.

Name of Manager	Signature	Date
-----------------	-----------	------

Name of reviewing Line Manager	Signature	Date
--------------------------------	-----------	------

**Diagram or Sketch:**

**APPENDIX IX**

**SAFETY MEETING**  
**MINUTES**





**Trace Energy Services  
Stuart Petroleum  
Cooper Basin**

**Safety Meeting – September 2003**

**Client:** Beach Petroleum  
**Prospect:** PEL 107 2D  
**Date:** 28th Sep 2003  
**Time:** 0615 – 0640 hrs

**Bob Stephenson (Crew Manager)** opened the meeting and thanked the crew for yesterday's production. He then handed the meeting over to Terry.

**Terry Ernst (QHSE)** spoke to the crew about HEALTH & HYGIENE.

As we all know we live in a very close environment here so health & hygiene is a major issue. Some of things that we as individuals can do to prevent diseases being spread throughout the camp are listed below

- Shower at least once a day.
- Change clothes especially underwear & socks regularly.
- Wash hands after using toilets and especially before eating.
- Keep your dirty clothes in your laundry bags and get them washed regularly as well.
- Keep the camp clean from rubbish, food scraps etc.
- Use the brush & deodorizer in toilets after usage.
- Keep your rooms as tidy as possible.

**Bruce Beer (Client Rep)** gave the crew some quiz questions on First Aid.

- **D** – DANGER
- **R** – RESPONSE
- **A** – AIRWAY
- **B** – BREATHING
- **C** – CIRCULATION
- **H** – HEAMARAGE

Other questions asked were:

- Who is the Fire Chief on crew? - **Camp Mechanic.**
- How many points of contact do you need when stepping down from vehicles? - **Three.**
- What is the Speed limit in the Cooper Basin? - **80klm.**

Darren Rea (Cable Repair) brought up an idea about using the Handheld radios for the front and back crew when walking as a preventative measure for snake bite.

Meeting closed.

Crew Manager  
Bob  
Terry Ernst

QHSE  
Stephenson



**Trace Energy Services  
Stuart Petroleum  
Cooper Basin**

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Darren Rea (Cable Repair) brought up an idea about using the Handheld radios for the front and back crew when walking as a preventative measure for snake bite.

Meeting closed.

Crew Manager  
Bob  
Terry Ernst

QHSE  
Stephenson

# **Beach Petroleum Limited**

## **Field Operations Report**

**for the**

**2003 PEL 92 Albus Seismic Survey**

**Cooper Basin, South Australia**

**Conducted by:**

**Trace Energy Services Pty Ltd**

**From**

**October 1<sup>st</sup> – October 2<sup>nd</sup>, 2003**



**(ABN 20 007 617 969)**

**Prepared by: Bruce Beer  
Beach Pet. Representative**

## **CONTENTS**

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# **CONTENTS**

## **Beach Petroleum Limited:** **2003 PEL 92 Albus Seismic Survey**

### **Section**

1.0	Introduction
	Fig. # 1-1: Program Map, 2003 PEL 92 Albus SS
2.0	Timetable of Events
3.0	Parameters
4.0	Recording
5.0	Uphole Drilling & LVL
6.0	Line Preparation, Survey, Permitting and Environment
7.0	Safety
8.0	Remarks & Recommendations

### **Appendices**

- I. Recording Statistics
- II. Drilling Statistics
- III. LVL Statistics
- IV. Line Preparation Statistics
- V. Surveying Statistics
- VI. Personnel List
- VII. Equipment List
- VIII. Risk Identification & Accident Reports
- IX. Safety Meeting Minutes

## **1.0 INTRODUCTION**

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The 2003 PEL 92 Albus Seismic Survey was operated by Beach Petroleum Limited and conducted in the Cooper Basin in north-east South Australia by Trace Energy Services. The crew was billeted in three separate camps that were located 750m west of the Christies #1 well-site. This one camp site served for the whole job.

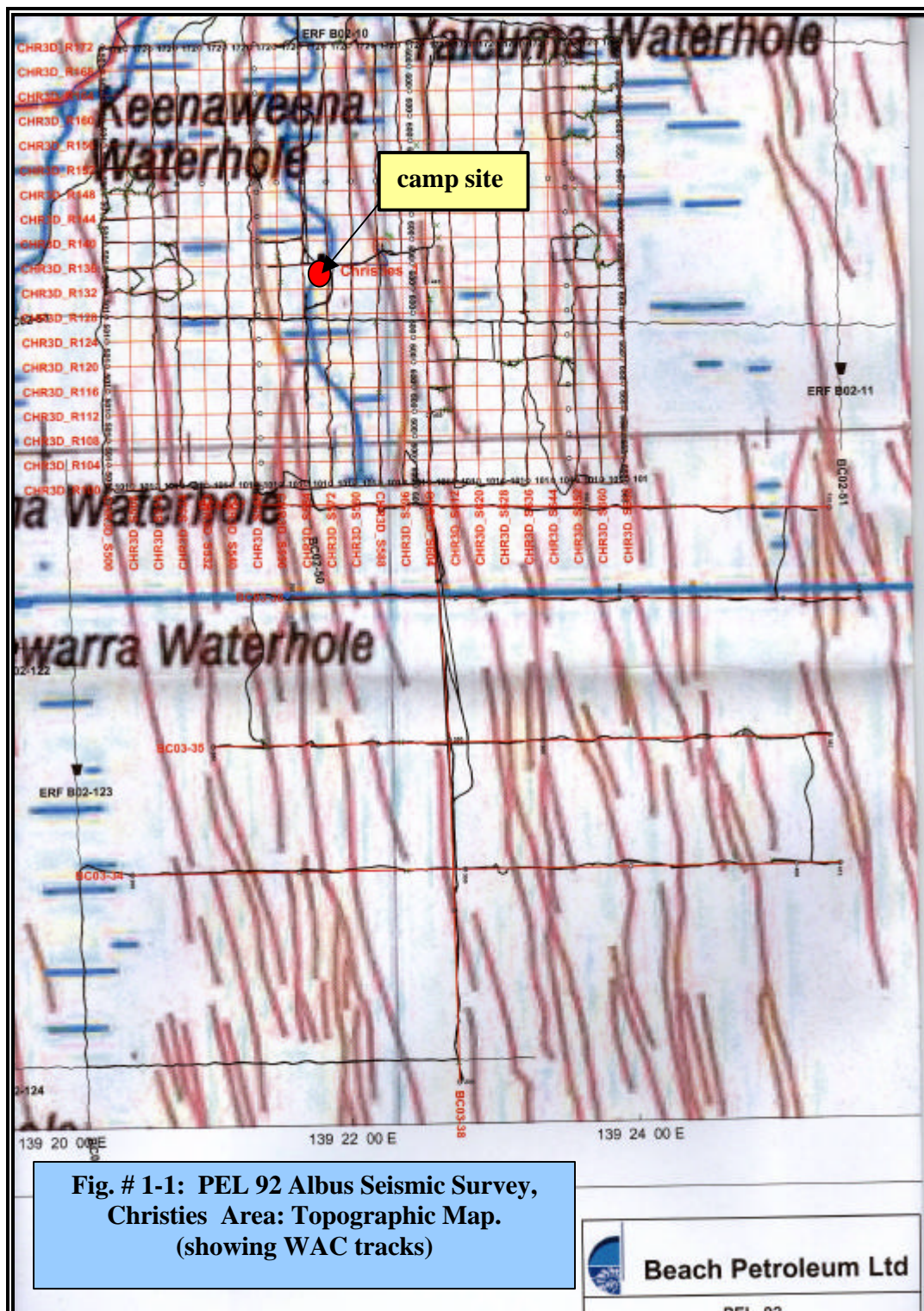
Trace was contracted on a turnkey rate basis. 37.0125 km of 2D seismic data was recorded on 5 lines in one prospect area. This 2D program overlapped the Christies 3D program. Recording began on October 1<sup>st</sup> and was completed on October 2<sup>nd</sup>, 2003.

Trace Energy Services subcontracted Dynamic Satellite Surveys (DSS) to do the surveying, Denham and O'Keeffe (DOK) to do the line preparation, Daly Drilling to do the uphole drilling and Expertest to do the uphole logging.

Doug Roberts was the geophysicist in charge of the project for Beach Petroleum while Bruce Beer was contracted to supervise the field operations.

There were no Lost Time Injuries during the job. Statistics for the project are included in the appendices. A map of the program appears in Fig. # 1-1.

## 1.0 INTRODUCTION





## **2.0 TIMETABLE of EVENTS**

---

Sep 14 Start line preparation at PEL 92

Sep 15 Complete line preparation at PEL 92.

Oct 1 Start recording on PEL 92

Oct 2 Complete recording on PEL 92.

Nov 15 Start uphole drilling at PEL 92

Nov 18 Complete uphole drilling at PEL 92.

### 3.0 - PARAMETERS

---

#### 3.0 RECORDING PARAMETERS

Survey: 2003 PEL 92 Albus Seismic Survey      PEL: 92  
Lines: BC03-34 ? BC03-38                      Area: Christies

##### Instrumentation

Instruments: : Sercel 388  
 No. Channels : 124  
 Tape Format : SEG-D Revision 1 8058IEEE Demultiplexed,  
                  Noise edited correlated summed 4 sec record  
 Filters : Hi cut 125 Hz, ? dB/Octave  
           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

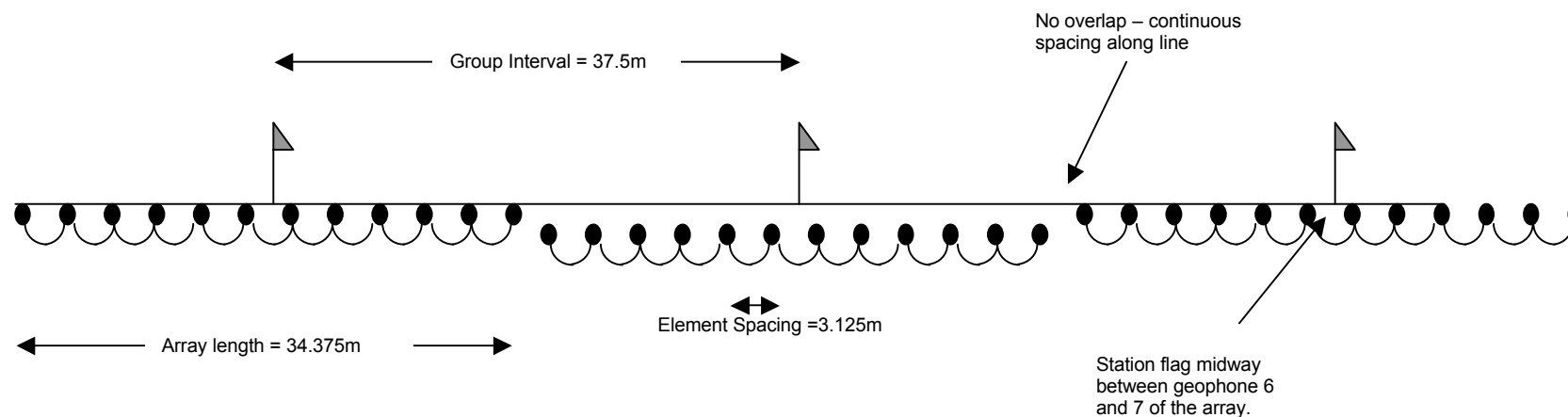
Vibrators : 4 x LRS-315s on Int'l Paystar 6x6 trucks  
 Electronics : Pelton Advance 2  
 Sweep Frequency : Linear 5-90 Hz  
 Sweep Length : 3 seconds  
 No. Sweeps : 2 standing  
 VP Interval : 37.5m  
 Vibrator Array : 4 vibs in line, 12.5m pad to pad standing. No move-up.  
 Sweep Amplitude Taper : 100% (none)  
 Drive Level : Maximum 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 (4 inner traces amplitude reduced)  
 Spread : Split, 2306.25 – 93.75 - 0 – 93.75 – 2306.25  
 Geophones : Sensor SM4 10 Hz  
 Array : 12 in-line, centred on station, 3.125m spacing  
 Connection : Series/Parallel (6x2)  
 Multiplicity : 62 fold (60 fold processed)

### 3.0 - PARAMETERS

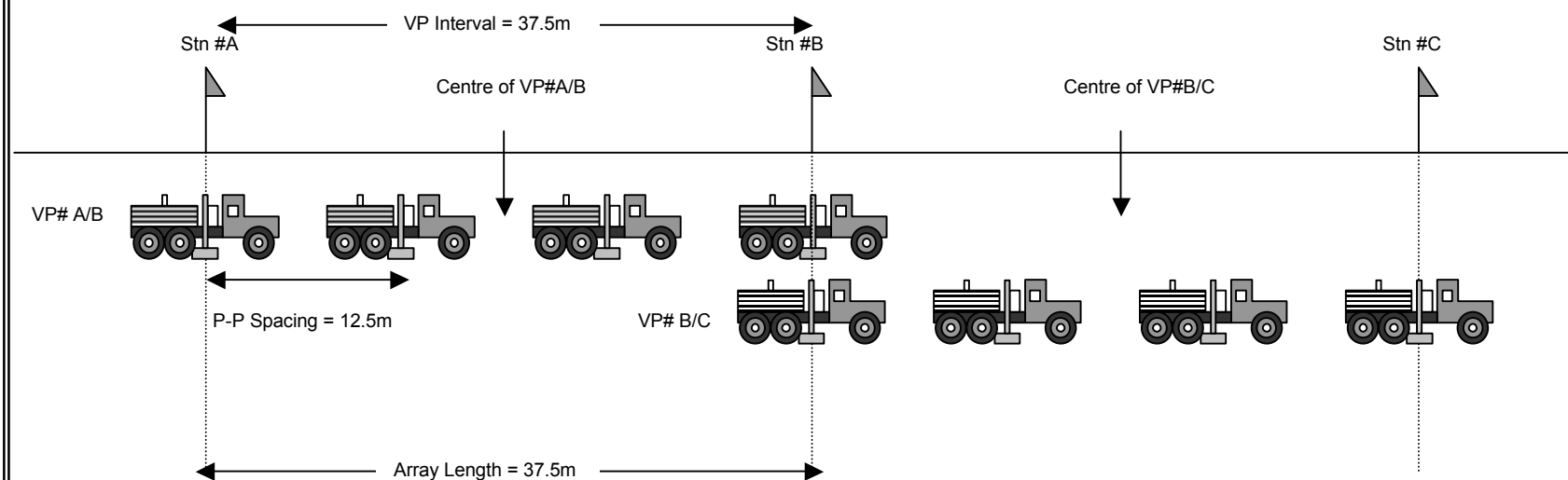
**Fig. # 3-1: Geophone Array for Beach Petroleum's  
2003 PEL 92 Albus Seismic Survey**



**Drawn by: Bruce Beer  
Beach Petroleum Rep.**

### 3.0 - PARAMETERS

**Fig. # 3-2: Vibrator Array for Beach Petroleum's 2003 PEL 92 Albus Seismic Survey**



*Drawn by: Bruce Beer  
Beach Petroleum Rep.*

## **4.0 - RECORDING**

---

### Introduction

The 2003 PEL 92 Albus Seismic Survey was located in the Cooper Basin, in north east South Australia. Trace Energy Services Pty. Ltd carried out the survey. The recording phase was conducted from October 1<sup>st</sup> – October 2<sup>nd</sup>, 2003.

The contract was based on a turnkey or kilometre rate. A total of 37.0125 km of 2D seismic data was recorded on 5 lines in one prospect area. The PEL 92 program was on the southern edge of the Cooper Creek floodplain and merged into the Christies 3D grid which was recorded after this program.

Full production statistics appear in Appendix I.



**Picture # 4- 1: the Trace Energy camp in PEL 92; camped on a claypan!**

### Logistics

Trace Energy Services provided a mobile camp to house the seismic recording crew. The single campsite used as a base for the PEL 92 Albus Seismic Survey was located 750m west of the Christies #1 well-site on a claypan (see Fig. # 1-1).

Section 4.0, Page 1 of 12.

## 4.0 - RECORDING

---

The camp was complete with kitchen and ablution facilities, mechanic's workshop and instrument workshop as well as accommodation vans. The camp equipment was old and, in some cases, in a poor state of repair. Sleeping accommodation was cramped with up to four persons per room.



**Picture # 4- 2: testing geophones prior to the start of the Albus Seismic Survey**

### Start-up Tests

Beach requested that 400 strings of geophones and all Station Units (SU's) be tested before recording operations began on the PEL 110 program in August. This testing was considered sufficient for the PEL 92 operation since the crew had been working continuously since then and on-line testing had kept track of faulty spread.

### Parameters

Parameters are listed in section 3.0. They were selected by Beach Petroleum's exploration team. No experimental program was deemed necessary. The parameters are similar to those used in the Cooper Basin by all operators in the last 10 years and were considered adequate for the survey's objectives.



## **4.0 - RECORDING**

---

### Equipment

Trace Energy Services provided their Sercel 388 telemetric recording system along with a field deployment of 500 x 12 strings of Sensor SM4 10 hz geophones. There were four vibrators on line with a fifth as spare.

The Trace vibrators were Litton LRS-315's mounted on International Paystar 6x6 trucks. These units were 20 years old but performed well. There were no instances of having to go down to three vibrators on line during the survey.



**Picture # 4- 3: vibrators on Line BC03-36.**

There was one Station Unit (SU) every 6 stations and a battery unit (PSU) every 48 stations. The batteries lasted 2 days between charges. Since the takeout interval on the cables was 32m, they had to be used in back to back configuration with only each second takeout being used. This setup caused a certain amount of inconvenience for the observers in working out where bad stations were located and also led to cosmetic display problems in pre-first-break noise on monitor records.

### Recording Crew Strength

## 4.0 - RECORDING

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

**Table 1: Trace Energy Crew Strength and Disposition**

<b><u>Contract Requirement</u></b>	<b><u>Actually on Crew</u></b>
Crew Manager	Bob Stephenson (1)
HSE Representative	Terry Ernst (1)
Geophone Repair	Noel Grainger (1)
2 Senior Vehicle Mechanic	Rob Smith, vacant position (1)
Supply Driver	Brendon Olszowy (1)
Camp Cook	Craig Curd (1)
Kitchen Hand	Sacha Techendorf (1)
Camp attendant	Del Hildred (1)
Senior Vibe Tech	Jon Philipppson (1)
Lead Vibe Op	Abbey Bann (1)
4 Vibe Operators	Des, Adam, Shane, Jeff (4)
Senior Observer	Joel Cary (1)
Observer	Peter O'Donnell (1)
Line Boss	Leeton McHugh (1)
6 cable personnel	6 people on 3 cable trucks (6)
2 Jug truck drivers	Only 1 jug truck driver (1)
12 line crew	Only 6 on line crew (6)
<b>Total Contract Requirement = 38</b>	<b>Actually on crew = 30</b>

From Table #1, it can be seen that the crew strength was well below contract requirements. Trace argued that it was difficult to recruit new crewmembers and that accommodation was not available on the crew even if they could. This situation was tolerated on the basis that it was a turnkey contract so any production loss as a result of short-handedness was Trace's problem. However, there were OHS issues to consider and Beach strongly recommended that Trace increase crew strength to avoid undue pressure being placed on their crewmembers.

### Polarity

Polarity on this crew proved to be a problem in 2002. The 2D data gathered proved to 90 degrees out of phase with previously recorded data in the Cooper Basin. The polarity of the system, including geophones and write-to- tape, were tested to be correct SEG standard. This left only the vibrators. The vibe polarity is controlled by switch positions on the recorder sweep generator, the ESG, and the vibrator sweep generators, the VSGs. In attempt to get it right, the polarity of the ESG was set to +90 degrees before recording the Albus Seismic Survey. This setting has proven to be the correct one.

## **4.0 - RECORDING**

---

### Terrain

The terrain in the PEL 92 Albus Seismic Survey was a blend of sand dunes and floodplain. It was located on the southern margin of the Cooper Creek floodplain. The northern parts of the program had a good cover of trees in the interdunal corridors while the terrain became more barren to the south. The sand dunes were north-south in orientation with steeper eastern lee face. The pale orange to white sand was of a particularly soft consistency that made access difficult.



**Picture # 4- 4: back juggy Katrina Ireland on Line BC03-38; note the proper PPE covering of boots, long trousers, long sleeve shirt, hat and safety glasses.**

### Operations

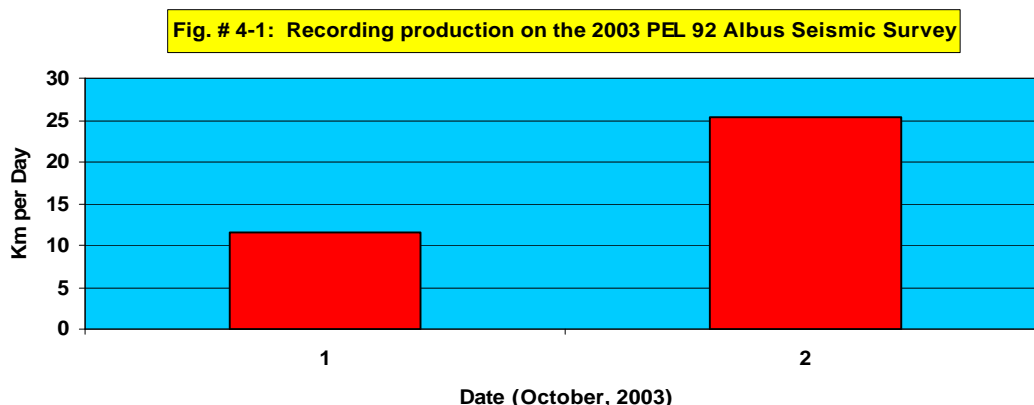
There were no pipelines or fences to hinder production. The only terrain aspects affecting production were the soft dunes that caused vibrators and line crew some difficulty in crossing.

Travel time averaged 0.7 hour per day and this is a fairly low figure.

### Production

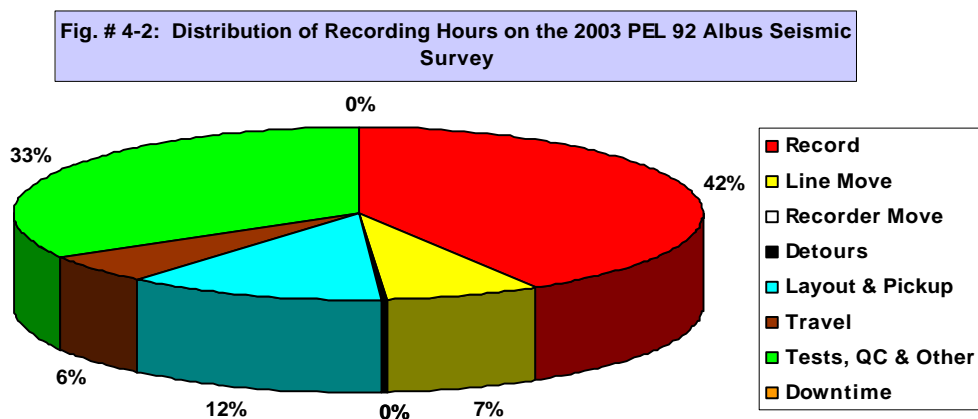
#### 4.0 - RECORDING

Fig. #4-1 below details daily production in the 2003 PEL 92 Albus Seismic Survey:



The average daily production was 18.51 km. The above chart shows that the highest daily production was 25.35 km on the 2<sup>nd</sup>. This is pretty meaningless for a two day job.

Fig. #4-2 shows the distribution of recording hours in percentage terms for the 2003 PEL 92 Albus Seismic Survey:



Note that “Tests, QC and Other” includes trouble shooting spread, time for the vibrators to fuel up and warm up, time to do daily tests and any miscellaneous time that cannot be registered under any of the other categories.

The outstanding feature of the above pie chart is the large percentage of time (33%) spent on “Tests, QC and Other”. Most of this time was spent sorting out troublesome



## 4.0 - RECORDING

cables. If it were an hourly rate contract it would probably have been put in the “downtime” category which, at 0% in the above chart, is misleadingly flattering.



**Picture # 4- 5: vibrator on Line BC03-38**

Table #4-2 below details the statistics:

**Table 4-2: Statistical Summary of the 2003 PEL 92 Albus Seismic Survey**

Total Recorded Chargeable Kms	37.0125
Total Chargeable Hours	0.0
Total Overall Hours	24.7
Total Down Hours	0.0
Total Chargeable Standby Hours	0.0
Total Recording Days	2
Average Km/Day	18.51
Total Recording Hours	10.2
Average Km/Recording Hr	3.63
Average Km/Total Hours	1.5
Total VPs	984
Total Skips	7
Percentage Skips/Possible VPs	0.7 %

Section 4.0, Page 7 of 12.

#### **4.0 - RECORDING**

---

Average Cycle Time	37.05 seconds/VP
Efficiency Factor (Rec Hr/Tot Hr)	41.3%

The low efficiency factor is due to the excessive Tests, QC & Other time and the Layout and Pickup time.

##### Data Quality

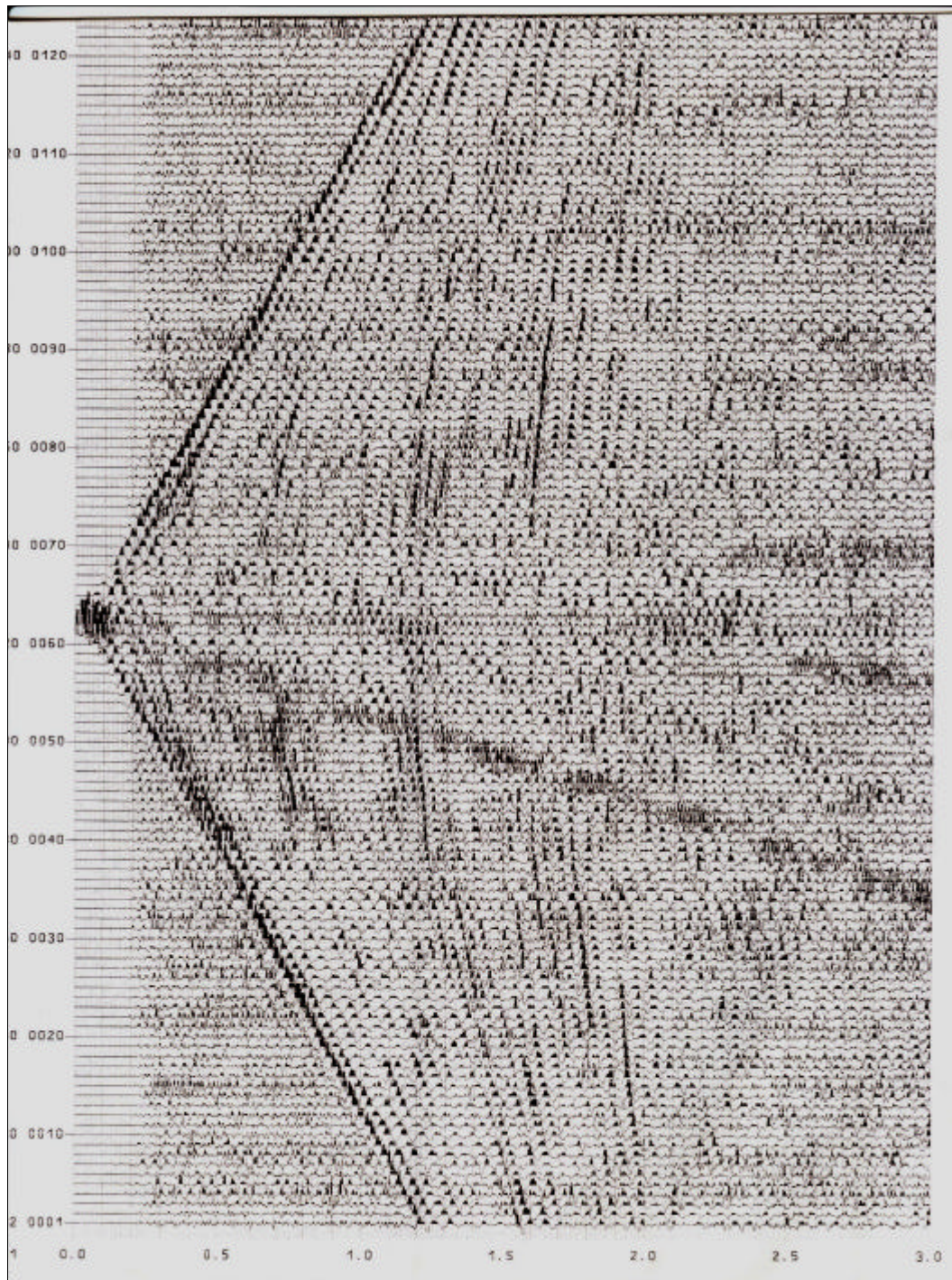
Data quality was good. Signal extended down to 1.8 seconds. There were only fragments of Permian evident. Signal/noise was high and there was no evidence of ground roll.

Sample paper monitor records are shown in Sample Monitor # 4-1, 4-2, 4-3, 4-4.



## 4.0 - RECORDING

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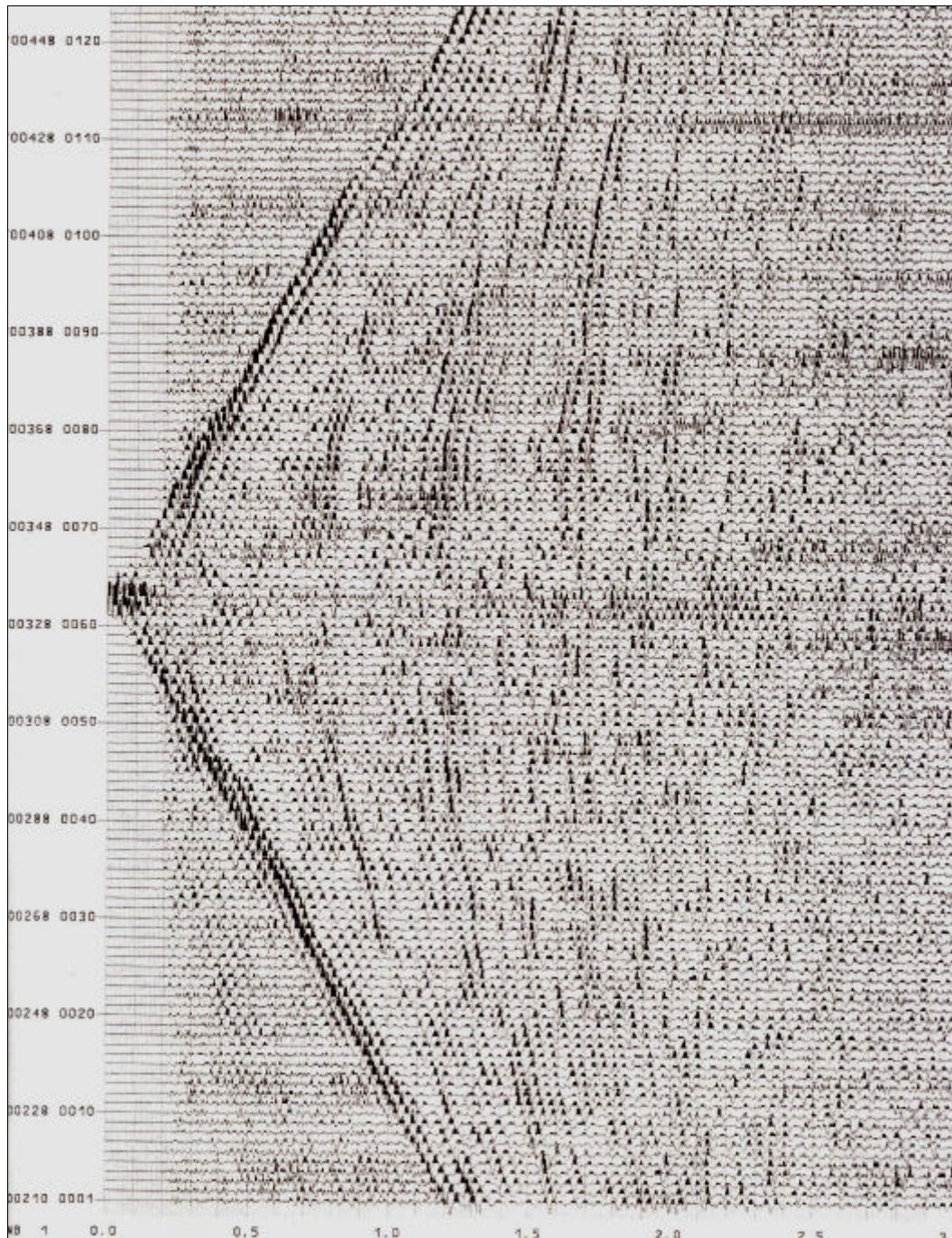


**Sample Monitor # 4- 1: Line BC03-38 VP# 262.5**

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## 4.0 - RECORDING



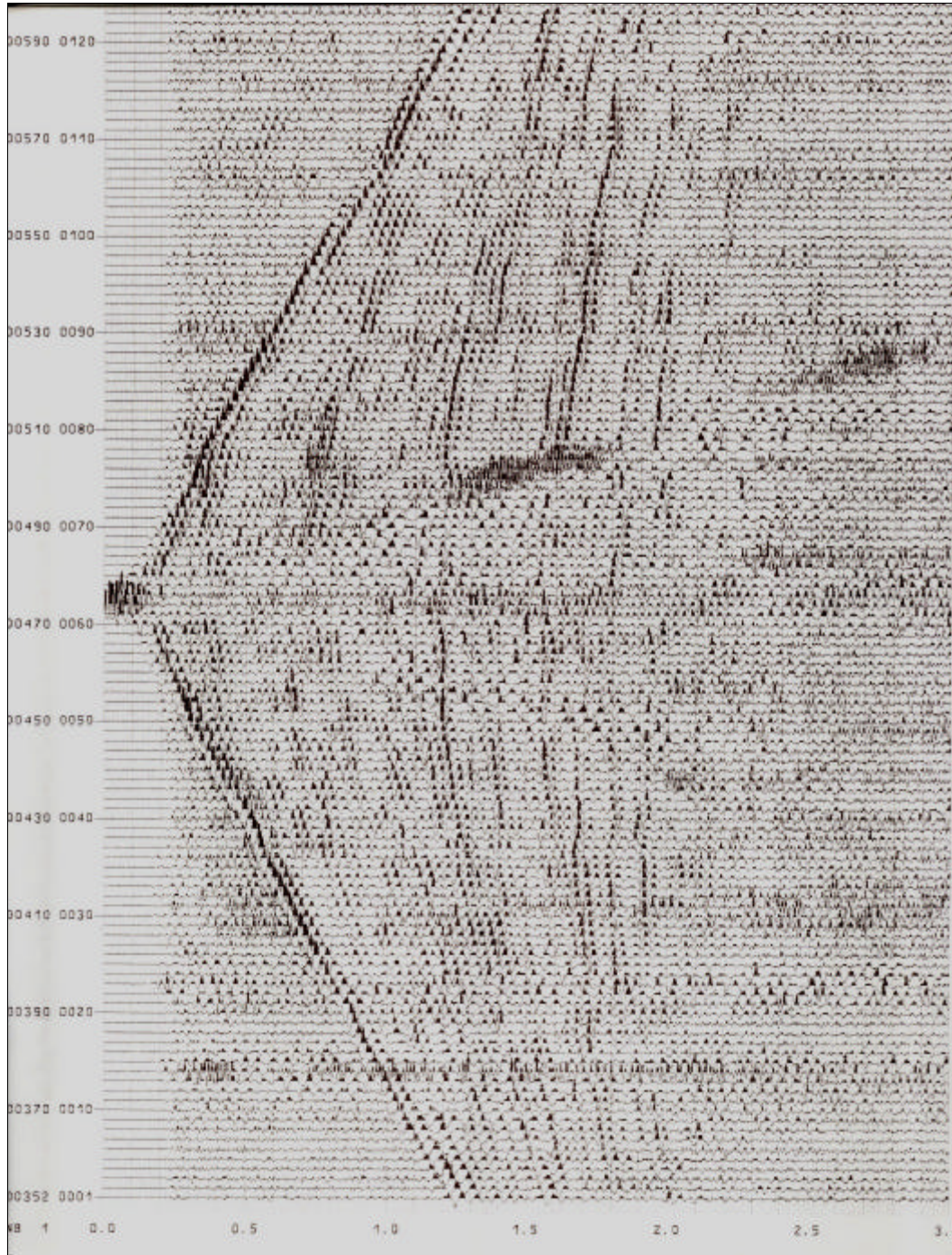
Sample Monitor # 4- 2: Line BC03-36 VP# 266.5

Section 4.0, Page 10 of 12.

G:\Technical Data\SA Cooper\_Eromanga\Seismic Programs\Albus 2003 Seismic\Final Reports\PEL92\_field\_report\4.0.  
Recording PEL 92 Albus 03.doc



## 4.0 - RECORDING



**Sample Monitor # 4- 3: Line BC03-34 VP# 337.5**

Section 4.0, Page 11 of 12.

## 4.0 - RECORDING

---

### Observer & Line Boss

The observers on this job were Joel Carry and Peter O'Donnell. Leeton McHugh was the line boss while John Turner was the trouble-shooter. They all have a professional approach to their jobs and are rigorous in repairing bad traces quickly and encouraging the line crew to strive for better jug plants.



**Picture # 4- 6: Observer Joel Cary shows John Iredale a monitor record; second observer Peter O'Donnell looks on.**

### Summary

Production in the 2003 PEL 92 Albus Seismic Survey was hard to gauge since the program only lasted 2 days. It was affected by the layout and pickup time and by the abnormally high test and QC time. Nevertheless, the Trace Energy crew lived up to its reputation of being hard workers and are recommended for future contracts.



## 5.0 DRILLING & LVL

---

### Introduction

The uphole program for the 2003 PEL 92 Albus Seismic Survey consisted of 21 holes at an average spacing of 1.76 km (see Map # 5-1). Drilling began on November 15<sup>th</sup> and was completed on November 18<sup>th</sup>, 2003.

Daly Drilling from Perth WA was contracted to do the drilling while Expertest was contracted to log the holes. The drilling contract was let on an hourly rate (+ consumables) basis while the Expertest contract was for a daily rate (plus a km rate for the logging truck). Full production statistics appear in Appendix II and III.

### Equipment

Daly Drilling provided one Mayhew 1000 drilling rig mounted on a M.A.N. 6 x 6 truck and three water trucks with a support vehicle. One of the water trucks was also a M.A.N. 6 x 6 with a 10,000 litre tank on it. The other two trucks were M.A.N. 4 x 4

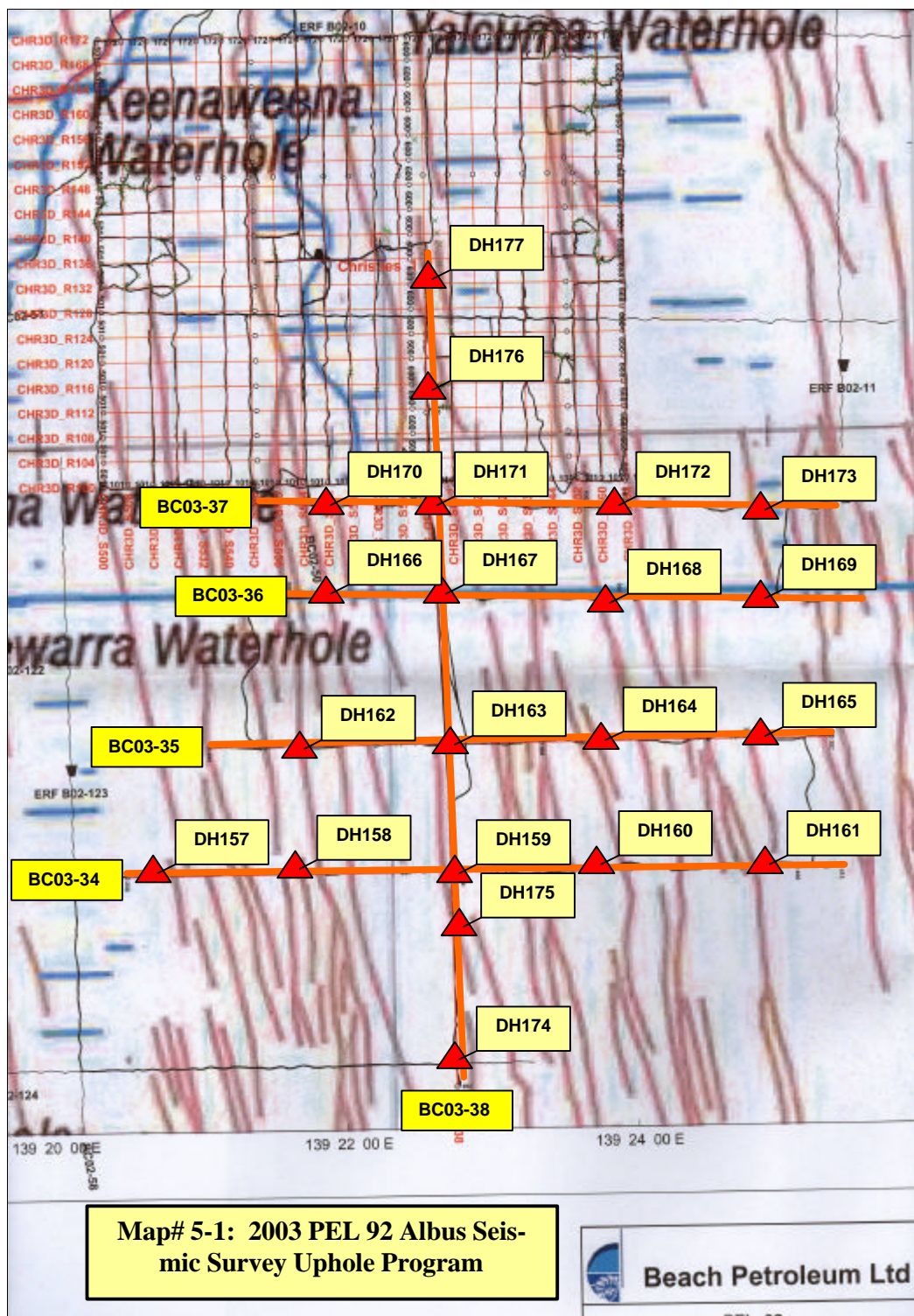


**Picture # 5- 1: the Daly Drilling camp.**

trucks with 6,000 litre tanks. Daly Drilling also provided a self-contained camp consisting of a kitchen/diner van, an accommodation/shower van and a third accommodation van. There were two generators.

Expertest provided a single logging unit, one operator and an accommodation/office van.

## 5.0 DRILLING & LVL





## 5.0 DRILLING & LVL

### Drilling

Drilling was straight-forward with mud being used in 30-35m holes exhibiting sand, mudstone and clay lithologies. Organically compatible additives such as Lo-Loss, Bentonite and Hi-Seal were used so as to preserve the organic accreditation of the property. Hole depths were increased for locations on dunes on the (correct) assumption that weathering depth would increase. The statistics for Expertest in Appendix III list the hole and weathering depths.

Full drilling and LVL statistics appear in Appendix II.

### Production

Fig. #5-1 shows daily production:

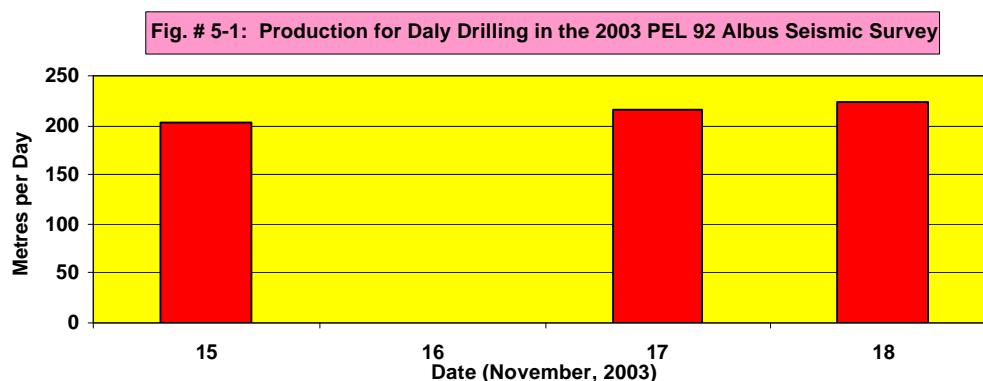


Fig. # 5-1 illustrates that production was good on days without downtime. The three production days exceeded 200m.

Fig. # 5-2 below shows the distribution of hours on the drill crew:

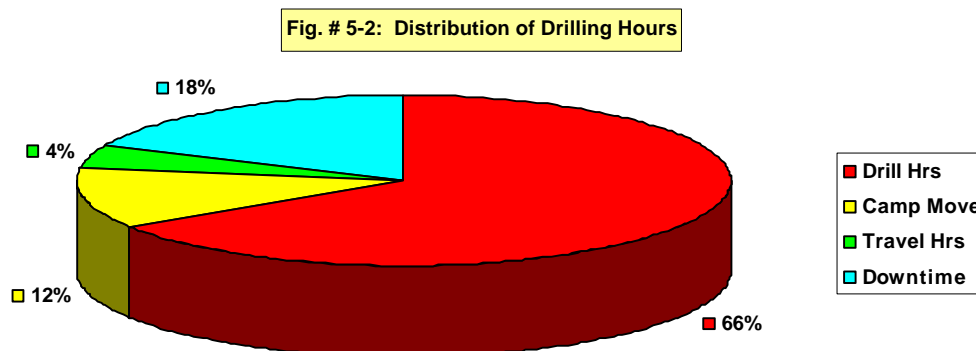


Fig. # 5-2 shows that downtime occupied 18%. The reason for the downtime was illness suffered by driller Keith Daly. Keith, who came in as an emergency replacement when regular driller Trevor Edwards had to go out on compassionate leave, suffers from vertigo and had an episode when he mounted the driller's step on November 16<sup>th</sup>. He decided (wisely) to rest for the remainder of the day.

## 5.0 DRILLING & LVL

The table below gives the statistics:

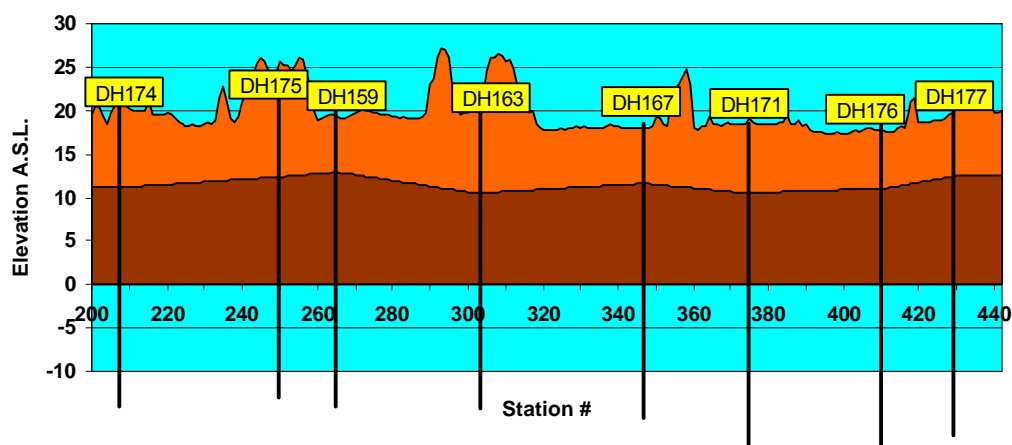
**Table 5- 1: Statistics for Daly Drilling on 2003 PEL 92 Albus Seismic Survey**

Start Date	November 15 <sup>th</sup> , 2003
End date	November 18 <sup>th</sup> , 2003
Total Days	4
Total Holes Drilled	21
Total Metres Drilled	643
Average Holes/Day	5.25
Average Metres/Day	160.75
Total Charge Hours	40.0
Average Metres/Charge Hr	16.075
Total Drill Hours	34.0
Average Metres/Drill Hour	18.91
Daly Drilling Driller	Keith Daly
Expertest Logger(s)	Don Blick & Mark Smale
Total 4 <sup>3</sup> / <sub>4</sub> " Regular bits used	3
Total 4 <sup>3</sup> / <sub>4</sub> " Chevron bits used	0
Total TCI bits used	0
Total drums of Lo-Loss used	3
Total bags of Bentonite used	12
Total Bags of Hi-Seal used	0

The metres/charge hr above is distorted by the camp move time. The most revealing figure is the metres/drill hr. At 18.91 metres/hr this is quite respectable, without being spectacular.

### Sample Weathering Profiles

**Fig. # 5-3: Elevation of Surface vs. Elevation of Base Weathering on Line BC03-38 in the PEL 92 Albus Seismic Survey**



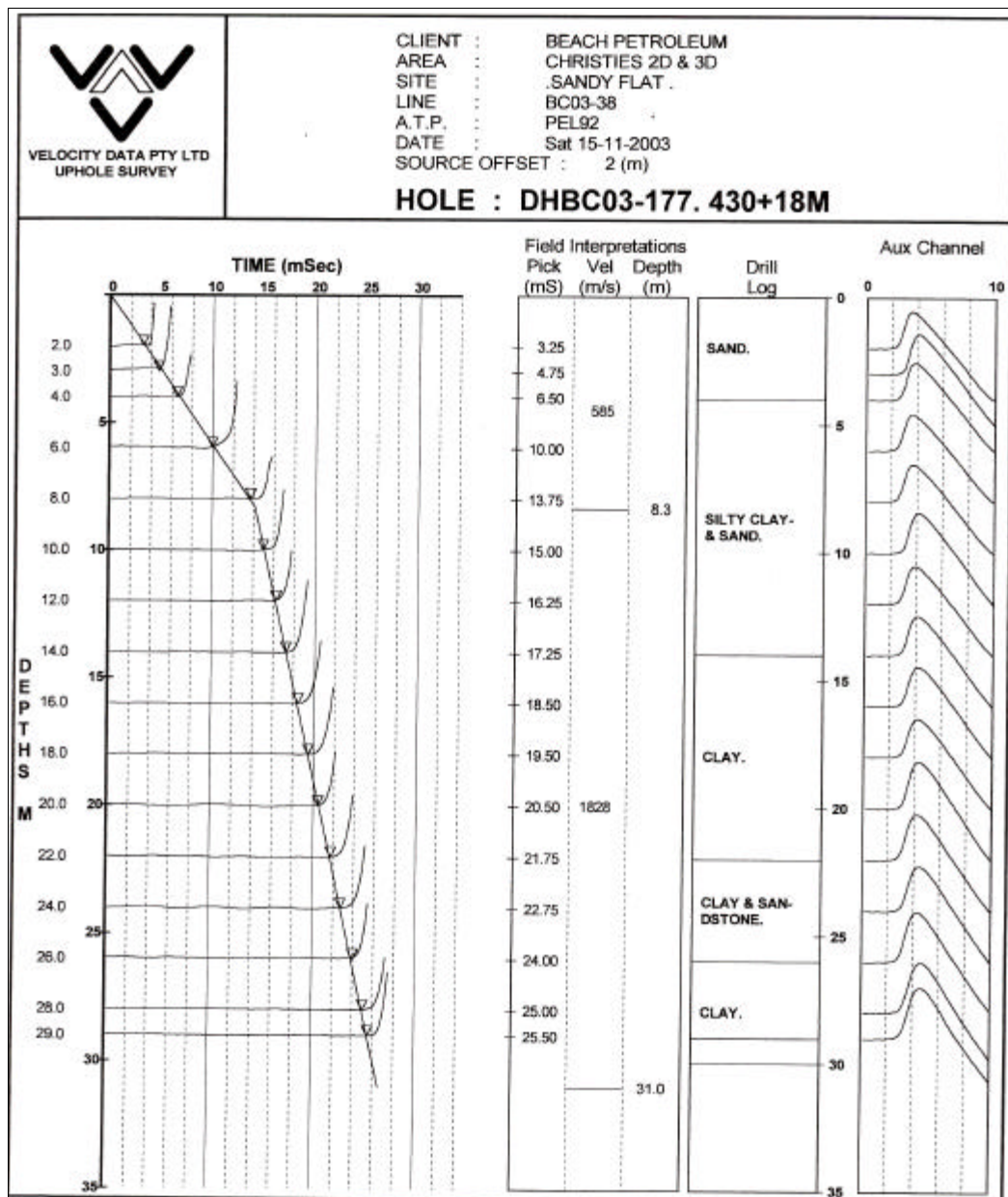
## 5.0 DRILLING & LVL

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In order to give a snapshot of the weathering picture, a sample line was chosen as being representative of the whole. This line was BC03-38 which runs through the whole north-south extent of the program. Using elevations provided by DSS and taking the weathering depths as interpreted from the Expertest plots, 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. # 5-3 shows that the base of weathering on line BC03-38 is fairly flat with the depth of weathering 6-8m in the swales. This figure also shows the upholes that were used to construct the plot. Sample Uphole Plot #1 shows the plot for DHBC03-177 at stn# 430+18m on this line. It shows a sub-weathering velocity of 1828 m/s and a depth of weathering of 8.3m. Generally speaking, the sub-weathering velocities were in the range 1750 – 1900 metres/second.

## 5.0 DRILLING & LVL



Sample Uphole Plot # 5- 1: Line BC03-38

## **5.0 DRILLING & LVL**

---

### Uphole Restoration

Emphasis was given to uphole restoration since this was an area of weakness in the 2002 surveys. In the sandy areas the cuttings were spread and sand thrown over the clay to disguise the colour.



**Picture # 5- 2: Example of an uphole site; cuttings are spread but mud is still evident.**

However, this is not completely effective because the cuttings and mud are wet at the time of logging. To be completely effective (if this is what we are aiming for) a follow-up the next day when the mud is dry would be the best way to cover the cuttings. This may involve another dedicated person and vehicle.

### GPS Locations

Beach Petroleum supplied the Expertest loggers with a hand-held gps. The reason for this was to be able to pinpoint the location of any holes that had to be moved from the pre-programmed positions pegged by DSS surveyors. The procedure was to provide DSS a post-drilling set of locations so that they could update their pre-plots to come up with a final uphole location file. This was done.



## 5.0 DRILLING & LVL

---



**Picture # 5- 3: Expertest Observer Don Blick pushing a hole-hat into a restored uphole using a long-handled shovel.**

### Summary

Daly Drilling had some misfortune during this survey with downtime due to the temporary illness of owner/driller Keith Daly. Apart from this, the production rate was good. They are recommended for future work due to their workman-like efforts and also because they are one of the few contractors available in Australia who can field all-wheel drive trucks and a remote operations camp.

Expertest loggers Don Blick and Mark Smale (Mark relieved Don towards the end of the job) did their usual professional job and did not have any downtime. They are recommended for future work. However, the parent company, Expertest, showed little in the way of support for the field operation and were uncooperative when requested by Beach to field two units so that a second rig could be employed to keep the drilling operation in touch with recording. As it was, the drilling finished 1.5 months later than recording thus putting pressure on processing, interpretation and timing commitments. They are not recommended for future contracts.



## 5.0 DRILLING & LVL

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**Picture # 5- 4: Offsiders Mick Delaney and Ian Wyatt doing some rig maintenance.**



**Picture # 5- 5: Expertest's uphole logger Don Blick in the rec'ording unit with the Seistat II in the background**

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

### Introduction

Denham & O’Keeffe Earthmoving (DOK) was contracted to conduct the line preparation. Dynamic Satellite Surveys (DSS) was contracted to do the surveying. Line preparation started on September 14<sup>th</sup> and was completed on September 15<sup>th</sup>, 2003.

### Line Preparation

Denham and O’Keeffe provided an abbreviated version of the crew and camp equipment that was fielded in 2002. The reason for this was the difficulty DOK had in finding experienced personnel due to the stop-start nature of the seismic industry in 2003. They had a crew of five people including two dozer operators, a grader operator, a cook and a mechanic. This is two less than last year. The camp had only two trains compared to the three provided last year.



**Picture # 6- 1: One of the Komatsu D65EX's in action**

The DOK crew list is as follows:

<u>Position Held</u>	<u>Name</u>
Dozer Operator	Bill O’Keeffe (co-owner)
Dozer Operator	Mick Jonas
Grader Operator	John Talbot
Cook	Mark Gill
Mechanic	Kim Townsend

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

The following table details production.

**Table 6- 1: Line Preparation Statistics for Denham & O’Keeffe Earthmoving on PEL 92**

Start Date for Line Preparation	September 14 <sup>th</sup> , 2003
End Date for Line Preparation	September 15 <sup>th</sup> , 2003
Total Kms Cleared	37.0125
Total Days	2
Average Km/day	18.51
Total Chargeable Dozer Hours	42.5
Average Km/Dozer Charge Hour	0.87
Total Grader Hours	19.5

The production rate of 0.87 km/charge hr is lower than usual and can be attributed to some steep and soft dunes, an inexperienced dozer operator on one dozer and the effect of the move time from PEL 107.



**Picture # 6- 2: Mick Jonas in a Komatsu D65EX walking, blade up, across a swale.**

All DOK operators have a keen eye for aboriginal sites. This was important because it was often necessary to divert outside the narrow +/- 10m clearance corridor given by the WAC team to make the line safely negotiable. Thus the operators frequently saw virgin terrain not covered by the WAC team.

### Surveying

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

DSS had only three surveyors on their crew this year compared to four last year. The reasoning behind this was that Beach decided on going to a turnkey rate instead of an hourly rate. Consequently, DSS decided to cut the staff by one person in an effort to make the same revenue. The Line Pointer was still charged out at an hourly rate. With only two other surveyors, one was employed full-time in the field while the other (Ron Weekes) divided his time between the field and the office. The relatively low rate of dozer production made this a viable option.

DSS fielded an office/accommodation van and also rented sleeping space from DOK.

The DSS crew list is as follows:

<u>Position</u>	<u>Name</u>
Head Surveyor	Ron Weekes
Line Pointer	Lyn Baker
Surveyor	Craig Davey.

Annotated wooden pegs were used every 5<sup>th</sup> station with alternating blue and pink pin flags in between. These pegs and pin flags were picked up by the recording crew and recycled.

One of the duties of the Line Pointer was to install Environmental Monitoring Points (EMPs). These EMPs are locations marked by permanent markers and appropriately tagged. They are supposed to be in easily accessible sites in terrain that is representative of that throughout the prospect area. In this survey, one EMP was installed. It was on line BC03-35 at station # 277. 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 EMP. 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 EMP also served as a permanent marker (PM).

Another duty of the Line Pointer was to photograph and register the cultural heritage sites found during the cultural heritage clearance process. ERF reports were prepared and formatted by Bruce Beer using photos and coordinates supplied by Lyn Baker. These ERF reports are incorporated in the Environmental Report.

The following table details production:

**Table 6- 2: DSS Surveying Production Statistics for the 2003 PEL 92 Albus Seismic Survey**

Start of Surveying	September 15 <sup>th</sup> , 2003
End of Surveying	September 16 <sup>th</sup> , 2003
Total Km Surveyed	37.0125
Total Survey Crew Hours	33.0 (1 surveyor + 1 vehicle with gps)
Average Km/Survey Crew Hr	1.12
Total Line Pointer Hours	18.5
Total Office Hrs	4.0



## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

The above table shows that a healthy rate of survey production (1.12 km/hr) was maintained. This was well in excess of the dozing rate.

### **Permitting**

The PEL 92 Albus Seismic Survey was located on Mungeranie Station. Mungeranie is owned by Graham Betts and managed by Rodney Fullarton. The area of this survey is at the eastern extremity of the property and access to the homestead on the Birdsville Track was difficult. There were no cattle in the area. Permitting was left to Beach Petroleum office staff but telephone contact was established in the field with Rodney Fullarton who had no concerns with the survey.

### **Environment**

The environmental impact of the PEL 92 Albus Seismic Survey was typical of that in dune and floodplain terrain. The standard practices were observed, i.e. dune cuts were minimised, sand was left on dune shoulders and not ramped into the swale and no windrows were left in swales or across clay floodplains. Ongoing monitoring of the EMP will establish how well rehabilitation is taking place. A separate environmental report has been written and submitted to PIRSA. It contains an EMP report, a GAS audit report and ERF reports.



**Picture # 6- 3: Line BC03-35 station 277 looking west. Grey clay floodplain merging into low dunes with sand-dune wattle.**

## **6.0 – LINE PREPARATION, SURVEYING, PERMITTING & ENVIRONMENT**

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### Summary

DOK did a workman-like job for this short program. They are recommended for future work.

DSS did their usual professional job. They are recommended for future work.



## **7.0 – SAFETY**

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### Introduction

Safety received a high priority from both Trace Energy Services and Beach Petroleum on the 2003 PEL 92 Albus Seismic Survey. Safety management plans were a pre-condition for all the sub contractors to bid on the job.

Trace had a dedicated HSE officer in Russell Gregg. Russell is also a senior first aider and acted as the crew's defacto paramedic. However, Russell was on leave for the PEL 92 program and his place was taken by Terry Ernst. Terry (Scooter) is a former WesternGeco employee and a trained QHSE officer. His experience was invaluable to the crew.

The basic tenets of the HSE policy were:

- ❑ A start-up induction meeting prior to the start of operations at which potential hazards were identified and discussed. Inductions by Trace 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 at 0615 hrs. They provided a forum for any safety or operational issues to be aired.
- ❑ Weekly safety meetings: these were held on Sunday mornings and were more focused on purely safety issues. The QHSE officer would review the week's safety performance and often include a first aid demonstration. The Crew Manager and Bird-dog added their views on crew safety performance and any other comments from the crew were invited.

Minutes for safety meetings and toolbox meetings are contained in the appendices.

All vehicles were equipped with first aid kits and fire extinguishers. About 30% of the crew were trained first aiders.

There were no Lost Time Injuries on this job. However, there was one incident that required medical attention and led to the writing of a Risk Identification and Accident Report (RIR). RIR-05 appears in the appendices. A fire started inside the oven in the kitchen. It was quickly extinguished but served as a stark reminder of the dangers inherent in this area of the camp.

A joint Stuart Petroleum/Stuart Petroleum induction was held prior to the start of line preparation and again before the start of recording. Doug Roberts represented Beach and John Iredale represented Stuart. Several members of PIRSA also attended. An induction for the drill crew was given by Bruce Beer who also gave inductions to all new crewmembers upon arrival.

### Audit

## **7.0 – SAFETY**

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The Trace crew was audited in March 2003 by Santos and Beach personnel. Several issues were highlighted in that audit. The Trace Energy Services response is as follows:

## **7.0 – SAFETY**

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# ***Response to the:***

## **Trace Energy EHS Review**

27 - 28 March 2003

***Written by Bruce Beer, based on answers provided by Trace Energy relief QHSE Officer Terry Ernst on 16-9-03***

### **Background**

Santos are planning to use Trace Energy to conduct 2D seismic in April 2003 and as part its due diligence process decided to review Trace Energy's EHS systems. Trace Energy are currently conducting seismic work for Beach Petroleum north east of Tarbat in South West Queensland. Beach were approached by Santos and have kindly allowed Santos to conduct this review.

Trace Energy were unsuccessful in an initial prequalification assessment of 32% conducted in August 2002 and were subsequently pre-qualified in relation to EHS later in 2002 achieving an assessment score of xx%.

### **Purpose**

After considering previous injuries in seismic crews it was determined that the purpose of this review was to evaluate Trace Energy's approach to preventing injuries relating to land transportation, cable and geophone handling, working in hot environments stress.

### **Process**

The review team included the following Santos and Beach Petroleum representatives:  
Brian Willcocks (Review Leader – Santos)  
Alan Jones (Santos)  
John Allen (Bird Dog, Santos)  
Doug Roberts (Beach Petroleum)

Discussions and field visits were conducted involving the following Trace Energy Representatives  
Andy Brett (Operations Manager, Trace Energy)  
Bob Stevenson (Party Chief, Trace Energy)  
Russell Gregg (QHSE Advisor, Trace Energy)

Field visits included reviews of the workshop, uphole recording unit, drilling rig, geophone handling crews (front crew and back crew), vibrator operations and recording truck.

## **7.0 – SAFETY**

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### **Key Findings**

Trace Energy have a similar belief to Santos that EHS is a line management responsibility. Both Andy Brett and Bob Stevenson who are the line managers were actively involved in the whole review process.

Corporate EHS policies have been established relating to HSE, Training, Transportation, PPE, Alcohol and Drugs, Medical and First Aid, Anti-discrimination and Security/Civil Unrest.

These policies are communicated to all crew members at the start of each new seismic job as part of the contractual agreement with each Trace crew member.

A basic one hour informal pre-job orientation is provided to new employees prior to commencing work. The process is brief and doesn't meet all of the Trace HSE manual requirements.

*Recommendation: Ensure all pre-job orientations meet Trace Energy requirements.*

***Response: this is 80% complete. Some training in things such as hazardous materials storage and transport has yet to be done.***

Towards the end of day one of the review it was highlighted that the Review Team had not been provided with a Visitor safety orientation as required by Trace HSE Manual requirements.

*Recommendation: Develop a basic visitor induction checklist and use for all visitors.*

***Response: this has been done***

It appeared during discussion with crew members that most had recently conducted driver training either with Trace Energy or with their previous employer, however the training register is currently being developed.

*Recommendation: Finish developing the training register and use for all employees and all competencies required.*

***Response: a training register has been made and its updating is ongoing.***

The emergency response details in the crew vehicles were either not available or outdated. Although verbally people had a basic understanding of who to report emergencies to, the process was not documented.

*Recommendation: Ensure the emergency response procedure is documented and updated for each job and available for all crews.*

## **7.0 – SAFETY**

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***Response: An emergency response plan is contained within the Site Specific Safety Plan. We are awaiting the return of Russell Gregg (and his computer) to see what documentation he has on the ERP drill conducted at Conus in March. A drill is being planned here. The crew were quizzed by Bruce Beer at the weekly safety meeting on 7-9-03 on the ERP and did well in answering.***

The Seismic crew has recently purchased a tanker for supply of diesel for the crew's vehicles. There are many dangerous goods requirements that arise when transporting bulk dangerous goods including, placarding, licensing, emergency procedures, spill control etc.

***Recommendation: Review dangerous goods requirements and ensure compliance for the diesel tanker.***

***Response: Trace claim to have investigated the regulations for signage etc on diesel storage and found there are no specific requirements.***

All portable electrical equipment, extension leads and residual current devices RCDs are legally required to be inspected and tagged by an electrician in accordance with Australian Standard 3760. Many of the electrical leads had either not been tested or out of date.

***Recommendation: Set up register for all portable electrical equipment, extension leads and RCDs and ensure ongoing compliance.***

***Response: this needs to be addressed and will be when the crew's only qualified electrician, Peter O'Donnell returns from leave.***

### **Other observations:**

The requirements as to which jobs require an ambulance or onsite medic should be clarified from Santos perspective based on a risk assessment approach considering likely scenarios and likely response times from local medical services.

***Response: no plans are in place to provide an ambulance or medic. The current risk assessment is that medical facilities in Moomba provide an adequate backup.***

The journey management system is a good initiative particularly when working in remote locations such as the Cooper Basin. It was noted on day 1 of the review that not all personnel were using the journey management system. It is important that any systems implemented are used by all crew members and in particular site management for the system to be sustainable.

***Response: a journey management system is in place and working well but is used only by people going outside the area of operations covered by VHF radio.***

## **7.0 – SAFETY**

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It was noted that a vehicle inspection checklist has been drafted. Documented Vehicle inspections are mandatory for work conducted with Santos to ensure vehicles are road worthy and fit for purpose prior to use.

***Response: QHSE has consulted with mechanics on crew and vehicle service records (history book) exist. Vehicles are checked from air filter through to test drive every 5000 km.***

The re-engineering of the cable truck and jug truck to improve manual handling is a good initiative. We look forward to seeing all vehicles modified when Trace work for Santos.

***Response: all Trace cable and jug trucks have been converted to have safety cages.***

It was noted that additional crew members are scheduled for First Aid training to meet the Trace requirement of 50% trained in First Aid.

***Response: this is ongoing and Russell Gregg will be consulted on the current status.***

Good lightening precautions were observed in the recording crew. The recording crew stopped operations when lightening was nearing the operation. However, the drilling crew was not as quick to shutdown work. Suggest a review of the requirements be conducted to ensure the drilling crew maintain the same high standards as the recording crew.

***Response: a different drilling contractor, Daly Drilling, is currently on the crew. Precautions for lightning storms were covered in the driller's induction***

One of the cable crew had cuts in his hands from pulling dusty cable for extended periods of time. Suggest a review be conducted to consider whether light weight gloves that provide a good level of dexterity should become a mandatory requirement.

***Response: this suggestion has been left to the discretion of line crew members who can request gloves as needed.***

A number of crew members were wearing shorts or had long sleeves rolled up. For Santos work all crew members must wear trousers and long sleeve cotton shirts. Sleeves must be down at all times whilst outdoors.

***Response: Beach and Stuart do not insist on long pants and long sleeved shirts. It is left to the individual's discretion although warnings of possible consequences are regularly given at safety and toolbox meetings. It is noted however, that most of the crew do comply with the preferred dress code. They are aware that on Santos jobs there will be no discretion allowed.***

Although not under the direct control of Trace Energy, the drilling contractor water truck requires modification. Currently employees are accessing the rear of the truck



## **7.0 – SAFETY**

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by climbing up the back of the vehicle without an appropriate ladder. The crew supervisor understands the problem and will be taking action to resolve.

***Response: the Daly Drilling water trucks will be inspected on the weekend for compliance.***

### ***General Comment by Birddog:***

***In my time on the Trace Energy crew, I have noted a high level of safety awareness and induction by management and HSE officers. This level is not always reflected in documentation and to some extent this has been a deliberate ploy to avoid a paper bureaucracy. The emphasis is far more on practical application. The issue of lack of crew participation in safety meetings has been recognised by management and is being addressed by requiring each department to present a safety hazard on a rotational basis at morning toolbox meetings. In addition to this the crew is often given a quiz at weekly safety meetings to test and increase their knowledge of safety issues and emergency procedures. The HSE officers often give first aid demonstrations at these meetings.***

***The effectiveness of the approach to safety adopted on this crew is reflected in the low incidence of injury. I believe that a comparison of injury incidence on this crew with any other contractor in the Cooper Basin over the past 5 years would be more than favourable.***

***Bruce Beer***

## **7.0 – SAFETY**

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An audit of the camp was conducted by Bruce Beer and Terry Ernst. Even though it was conducted after the PEL 92 Albus survey was completed, the comments are equally applicable. The results of that audit, as written by Terry, are as follows:



### **GENERAL CAMP INSPECTION**

**DATE: 05-10-03**

#### **CAMP - HEALTH & HYGIENE:**

- Is camp in a suitable location to allow for wastewater drainage? **No, contract states where to camp, more “lay flat” hose required.**
- Does the camp have adequate shower facilities? **Yes**
- Are showers cleaned daily and disinfected? **Yes**
- Are toilets cleaned daily and disinfected? **Yes**
- Are there sufficient sunscreens, soap, and creams available for the crew? **Yes**
- Are rooms cleaned daily? **Yes**
- Are sheets, pillowcases washed regularly? **Needs reiterating to Campy**
- Are there adequate bins with lids provided? **More bins required**
- Is garbage bagged, covered and disposed of adequately? **Yes**
- Does the camp have adequate lighting? **More lighting required for outer perimeter of camp, muster point etc.**
- Does the camp have sufficient accommodation? **No, not really, tents supplemented for couples**
- Is the camp free from Litter & Rubbish? **Yes, ongoing**

#### **SAFETY**

- Does the crew have a QHSE Representative? **Yes**
- Is there a Muster point on site with First Aid Kit, Camp layout & Personnel list? **Yes**

## **7.0 – SAFETY**

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- Is there an ERP in place, is it displayed to everyone? **Yes, in place but needs to be displayed more**
- Do accommodation blocks have smoke detectors fitted? **Some, QHSE to order more detectors**
- Is there information displaying Fire Team & ERP for Fire. **No, needs to be displayed**
- Does the camp have adequate fire extinguishers; are they in appropriate positions around camp? **Yes, need to check and make clamps inside rooms to store on camp moves**
- Are there first aid kits available in camp? **Yes, no RFDS Box**
- Are there no smoking signs displayed where smoking is prohibited? **Yes**
- Are stairs and handrails adequate at door entrances? **No, some stairs are cracked. Perhaps landings on Diner, Kitchen & Shower to be made.**

### **KITCHEN**

- Does the Cook & Cook's Offsider wear gloves, appropriate & clean clothing? **Yes**
- Is the kitchen free from dust & insects? **Yes, as best as possible.**
- Does the kitchen have adequate ventilation? **Yes, ventilation fan should be redesigned to extract fumes properly**
- How is food thawed? **Overnight in chiller**
- Are cutting utensils in good condition and cleaned regularly? **Yes**
- Are Cook & Offsider current with Hepatitis vaccinations? **Yes**
- Do Cook & Offsider have Long Hair, if so; do they wear a hat or net? **Yes**
- Is Temperature on chiller room below required setting? **Yes**
- Is chiller room floor in clean condition? **Yes, needs minor fixing on floor**
- Are all meats, poultry etc rotated frequently? **Yes**
- Does chiller room have adequate shelving? **Yes, chiller racks to be completed when camp moving**
- Is there a first aid kit present, is it up to date? **Yes**

## **7.0 – SAFETY**

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### DINER

- Is diner cleaned regularly? **Yes**
- Are there vermin, insects, dust present? **Ongoing, as best as possible**
- Do bins have lids and are they emptied & cleaned regularly? **Yes**
- Is there sufficient lighting inside? **Yes, more spare fluoro lights to be ordered.**
- Is there sufficient room to prepare lunches etc? **Yes, need Bainne Marie**
- Is fridge in good working condition? **Yes**
- Are eating utensils clean? **Yes**
- Are sauce bottles etc wiped daily? **Yes**
- Is hot water Urn cleaned and refilled daily? **Yes**
- Is fire extinguisher present & in working condition? **Yes**

### DRY STORES

- Are food tins & dry stores on shelving? **Yes, needs more shelving.**
- Is there vermin, insects, dust present? **No Vermin present needs to be cleaned daily.**
- Is there sufficient lighting? **Yes, more spare fluros needed**
- Are freezers & fridges in good working condition? **Yes**
- Is fire extinguisher present & in working condition? **Yes**
- Is there adequate storage space? **Yes, requires better storage shelving.**

### ELECTRICAL

- Are all electrical cables in good condition, are they tagged? **No**
- Are Aggreko boxes in good working condition? **Yes**
- Is generator adequate to supply power to camp? **Yes**
- What is general appearance of generator & power outlets? **Good**

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## **7.0 – SAFETY**

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### MECHANICS

- What is general cleanliness of Mech's Workshop? Ongoing, have started cleaning and redesigning benches etc.
- Is First Aid Kit present? Yes
- Is eye wash station available? No
- Are fire extinguishers present & in working condition? Yes
- Are mechanics wearing appropriate PPE? Yes
- Are MSDS available? No

Other recommendations by Client representative were:

1. Chain handrail – convert to both sides, solid detachable handrail
2. Fuel Tanker – Fire extinguishers to be rechecked, Drip tray & appropriate signage

Inspection performed by

Client Rep: Bruce Beer

QHSE Rep: Terry Ernst

## **7.0 – SAFETY**

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### Summary

Trace Energy Services have elevated their safety awareness greatly in the past two years since winning Cooper Basin contracts. The rigorous emphasis placed in safety by all Cooper Basin operators has led to much higher levels of safety performance. This is a direct result of the continuous review of safety procedures and incidents at morning toolbox and weekly safety meetings. The elevation of Terry Ernst to relief QHSE advisor and Assistant Crew Manager had an overall beneficial effect on the crew. Terry had extensive QHSE training with his former employer WesternGeco and has transferred much of that training to Trace Energy Services.

There were no LTI's on the PEL 92 Albus Seismic Survey. This was more than a matter of good fortune, it was in large part due to the strong emphasis placed on safety by both Trace Energy and Beach Petroleum managements.



## **8.0 – REMARKS & RECOMMENDATIONS**

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- 1) The average recording rate for the PEL 92 seismic Survey was 18.51 km/day. This low figure was due to the shortness of the program (2 days) and the effect of layout and pickup time
- 2) Data quality was good in all areas.
- 3) Only one campsite was used for the operation. All three camps, line preparation, drilling and recording used this site. It was Camp# 5, about 750m west of Christies #1 well on Mungeranie Station. It was on a claypan, which would have been disastrous if there was serious rain. A criticism from the crew management was the choosing of camp locations by the WAC team prior to the job. This takes away the right of the Crew Manager to choose the best and safest location for his company's equipment and gives responsibility to people not qualified to make such decisions. This is an area we should look into for future surveys. One positive aspect of this year's programs was that all camps were located in one place for each survey. This makes control and auditing easier. The camp coordinates were:
  - Easting: 339360
  - Northing: 6903790
  - Latitude -27° 58' 52.8"
  - Longitude +139° 21' 59.8"



**Picture # 8- 1: the Trace Energy camp at PEL 92**

- 4) The line preparation operation went smoothly and took only 2 days. DOK are recommended for future work.

## **8.0 – REMARKS & RECOMMENDATIONS**

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- 5) DSS were surprised to have the turnkey option thrust upon them rather than the hourly rate. Due to the low rate of dozer production they quickly concluded that revenue would be lower than it would have been on hourly rate. They responded by withdrawing one of their surveyors leaving only three. This put extra pressure on personnel but was sustainable due to the low rate of production. DSS are a professional company who do good work. They are recommended for future contracts.
- 6) Uphole drilling went reasonably well with the exception of some downtime due to illness to driller (and owner) Keith Daly. Keith had to rush in to replace driller Trevor Edwards who had to depart on compassionate leave. Keith suffers from vertigo and had an attack one day when he mounted the drill step. He took the rest of the day off. Keith has retired from active field work but finds it hard to get replacement drillers when Trevor Edwards goes on leave. Daly Drilling is recommended for future work.
- 7) Expertest provided a professional service despite their aging equipment. This is due to the competence of their loggers, Mark Smale and Don Blick. However, Expertest management proved to be uncooperative when asked to provide a second unit so that another drilling rig could be fielded. This refusal meant that the drilling operation fell far behind recording and put pressure on Beach's timing schedules and commitments. They are not recommended for future work unless an alternative is unavailable.
- 8) The provision of excellent maps by Beach was appreciated by the whole crew. The colour topographic maps were particularly popular.
- 9) The provision of an information CD by Doug Roberts at the start of the 2003 program was a great help. It contained everything from landholder contacts to contracts to pdf maps and much more. It was a constant source of reference for the client rep (me).
- 10) An innovation this year has been the equipping (by Beach) of the Expertest logger with a hand-held gps. This is used to check the coordinates given by DSS surveyors in the pre-plotted uphole program (N.B. one of the duties of the DSS surveyors was to place pegs at all uphole locations). It is also used to report the coordinates of any new location changed by the drillers due to inaccessibility of the pre-programmed location. Although the surveyors are getting better at choosing uphole locations, they still don't see them through drillers eyes and it is sometimes (rarely it must be said) necessary to shift the location a few stations. With no pegs left in the ground to guide them, the only way to pinpoint the new location is with gps. A post-programme listing is sent to DSS to update their pre-plots to a final uphole listing. It is suspected that failure to do this in past years may have led to a few instances of apparently anomalous uphole plots. For example, if an uphole is shifted from the top of a dune to the bottom, the elevation changes and the weathering depth appears not to fit the profile. Processing centres should pick this up but often do not.

## **8.0 – REMARKS & RECOMMENDATIONS**

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- 11) Communication with the drill camp when the main camp moved away was difficult. It was not considered economically viable to have a bird-dog on the drill crew so they relied on faxing their reports to Beach in Adelaide on a daily basis. This was not always reliable. They have the satellite phone setup and driller Trevor Edwards has a new computer so it would not be difficult to get email working. This would improve reporting and allow the opportunity for fbr files being emailed on a daily basis if necessary. It is recommended that the next contract specify email capability as a pre-requisite.
- 12) Trace Energy's Crew Manager, Bob Stephenson, did his usual excellent job. He was assisted by newly-promoted Terry (Scooter) Ernst as Assistant Crew Manager. Terry was a former crew manager with WesternGeco and brings a lot of valuable experience to Trace, particularly in the QHSE department.
- 13) Trace Energy's Senior Mechanic John Philippon remains one of their major assets. He is more a mechanical engineer than mechanic. His ability to keep the old vibrators (which were close to their final tour of duty before being replaced) going is legendary.
- 14) The Trace Energy camp was inadequate in several aspects. First, many of the vans were in a poor state of repair. Second, there was not enough accommodation. There were some rooms where four people were crammed in. Three couples had their own tents and camped apart from the main camp. Without this the accommodation the situation would have been (more) intolerable. Although everyone admires Trace Energy's ability to survive when other larger organisations have gone under, it is sad that in 2003 we cannot provide better accommodation for seismic personnel. Trace is reputedly working on replacing some of the accommodation units. This cannot happen too quickly.
- 15) This 2003 round of work represented the first time Trace Energy's Australian operation has operated on a continuous basis with regular crew changes every 2 weeks. Normally, they operate with a single crew and shut down between jobs for a break. The continuous operation is new and caused some problems in leave scheduling. There were situations where 10 people would go out and only 5 come in, leaving the crew critically short-handed. It has also meant Trace having to hire extra crewmembers. They seemed to have trouble doing this.
- 16) Despite the obvious camp deficiencies and the crew short-handedness, the work ethic of Trace personnel is second to none and they are recommended for future work.

**APPENDIX I**

**RECORDING  
PRODUCTION**

**RECORDING PRODUCTION by Trace Energy Services: Beach Petroleum's 2003 PEL 92 Albus Seismic Survey: October, 2003.**

		Line Details & Kms								Hours											Comments
Date	Area	Line	First Stn	Last Stn	# Stns	# VPs	# Skips	Chg Kms	Daily Total Km	Record	Line Move	Rec Move	Detours	Wait on Spread	Layout & Pickup	Standby	Travel	Tests, QC & Other	Down	Total Daily Hrs	Comments
1	PEL 92	BC03-38	442	200	242	242	1	9.0750	11.6625	3.10	0.70				2.30		0.30	6.30		12.70	move camp from PEL 107 to Christies
	"	BC03-34	200	269	69	68	2	2.5875													
2	"	BC03-34	269	414	145	143	2	5.4375	25.3500	7.10	1.10		0.10		0.70		1.10	1.90		12.00	complete PEL 92 2D and p/u spread
	"	BC03-35	386	200	186	186	1	6.9750													(transfer phones to the adjoining
	"	BC03-36	200	371	171	171		6.4125													Christies 3D)
3	"	BC03-37	374	200	174	174	1	6.5250													
Totals					987	984	7	37.0125	37.0125	10.2	1.8		0.1		3.0		1.4	8.2		24.7	

Total Hours = 24.7  
 Overall Average Kms/Total Hr = 1.50  
 Overall Average Kms/Rec Hr = 3.63  
 Average Km/Day = 18.51

**BEACH PETROLEUM'S 2003 PEL 92 ALBUS SEISMIC SURVEY**

# **APPENDIX II**

# **DRILLING STATISTICS**



PRODUCTION for DALY DRILLING on BEACH PETROLEUM'S 2003 PEL 92 ALBUS SEISMIC SURVEY, NOVEMBER, 2003

Date	Prospect	Line Details			Drill Hours						Consumables						Comments
		Lines	# Holes	Metres	Work	Stby	Camp Move	Charge	Travel	Down	43/4 Regular	4 3/4" Chev	TCI	Lo-Loss (drums)	Bentonite (bags)	Hi-Seal (bags)	
13	"	PEL 92 - 38,37,36,35,34 - 34,35,38 34,36,37,	0	0	0.00		6.00	6.00									Driller is Keith Daly complete PEL 107 move to PEL 92 start drilling at PEL 92 down due driller illness Expertest crew change complete PEL 92 2D upholes start Christies 3D upholes
14	"																
"																	
15	"		7	203	10.50			10.50	0.25		1	-	-	1	4	-	
16	"		0	0	0.50			0.50	0.50	9.50	-	-	-	-	-	-	
17	"		7	217	11.75			11.75	1.00		1	-	-	1	4	-	
18	"		7	223	11.25			11.25	0.50		1	-	-	1	4	-	
"																	
Totals			21	643	34.00	0.00	6.00	40.00	2.25	9.50	3	0	0	3	12	0	

Total Charge Hours = 40.00

## **APPENDIX III**

# **EXPERTEST LVL STATISTICS**

PRODUCTION for EXPERTEST on BEACH PETROLEUM'S 2003 PEL 92 ALBUS SEISMIC SURVEY, NOVEMBER, 2003

								Hours						Km Travelled per day	Comments
Date	Area	Line	Hole #	Strn#	Depth Logged	Wx Depth	Total Holes for Day	Work	Standby	Camp Move	Travel	Down	Total		
14														95	complete PEL 107 - move to PEL 92
15	PEL 92	BC03-38	177	431	29	8	7	10.25			0.50		10.75	25	
	"	BC03-38	176	411	29	7									
	"	BC03-37	171	253	29	8									
	"	BC03-36	167	244	29	6									
	"	BC03-35	163	271	29	10									
	"	BC03-34	159	297	29	6									
	"	BC03-38	175	250	29	13									
16	"	-	-	-							0.50		0.50	27	driller down with illness

## **APPENDIX IV**

# **LINE PREPARATION STATISTICS**

LINE PREPARATION PRODUCTION BY DENHAM & O'KEEFE EARTHMOVING on BEACH PETROLEUM'S 2003 PEL 92 ALBUS SEISMIC SURVEY: SEPTEMBER, 2003

		Dozer #6 (Komatsu D65E)						Dozer # 7 (Komatsu D65E)						Grader			
Date	AREA	Line	Km	Work	Walk/Float	Standby	Charge	Line	Km	Work	Walk/Float	Standby	Charge	Work/Walk	Stby	Charge	Comments
12	PEL 107																complete PEL 107 & 91; float dozers to Christies.Chg half Stuart grader walk to PEL 92, 4 hrs; chg half to Beach/Stuart; stby s/m complete Christies 2D
13	PEL 92																
14	"	37,36,35	9.34	10.00		0.50	10.50	38,36,37	11.74	10.00		0.50	10.50	8.00	0.50	8.50	
15	"	BC03-35	4.30	4.00	1.50		5.50	BC03-34,38	11.63	10.00	1.00		11.00	11.00		11.00	

**BEACH PETROLEUM'S 2003 PEL 92 ALBUS SEISMIC SURVEY**

**APPENDIX V**

**SURVEYING STATISTICS**



**Survey Production by DYNAMIC SATELLITE SURVEYS - on Beach Petroleum's 2003 PEL 92 Albus Seismic Survey: September, 2003**

Date	Area	Lines	Kms	Line Pointer Hrs			Office Hrs			Survey Hrs			Travel	Comments
				L/P Work	L/P Siby	L/P Charge Hrs	Office Work Time	Office Siby Time	Total Office Chg Time	Survey Wk	Survey Siby	Survey Chg Hrs	Total Travel Time	
13													2.00	complete survey in PEL 107 and PEL 91
14	PEL 92 -		0.0000	11.00	0.50	11.50	4.00		4.00	10.00	1.00	11.00	10.00	move camp to Christies; stby for weekly safety meeting.
15	"	BC03-35,36,37,38	16.2000	7.00		7.00			0.00	11.00		11.00		Mark out on leave; Lyn Baker in.
	Christ3D													Line Pointer on 3D
16	PEL 92	BC03-34,35,36,37,38	20.8125	0.00		0.00	0.00		0.00	11.00		11.00		complete PEL 92 2D program. start Christies 3D survey.

**BEACH PETROLEUM'S 2003 PEL 92 ALBUS SEISMIC SURVEY**

# **APPENDIX VI**

## **CREW LIST**

## **TRACE ENERGY SERVICES - CREW LIST.**

	<b><u>NAME</u></b>	<b><u>POSITION</u></b>
1	BOB STEPHENSON	Crew Manager
2	RICHARD BARNES	Crew Manager
3	PAUL ARMSTRONG	Crew Manager
4	JOEL CARRY	Observer
5	PETER O'DONNELL	Observer
6	SHANE GOOSSENS	Junior Observer
7	JOHN PHILIPPSON	Senior Mechanic
8	DENNIS CORBIN	Vibrator Mechanic
9	BRENDAN OLSZOWY	Mechanic
10	ROBERT SMITH	Mechanic
11	RUSSELL GREGG	HSE Rep.
12	NOEL GRAINGER	Cable Tech
13	DARREN REA	Cable Tech
14	DENNIS VINEY	Cook
15	CRAIG CURD	Cooks offsider
16	CHRISTINE SMITH	Line Crew
18	ABBY BANN	Vibe Op
19	DES POSTANS	Vibe Op
20	SHANE BENEKE	Vibe Op
21	ADAM PIPPOS	Vibe Op
22	GUY EBERHARDT	Vibe Op
23	JEFF MILLS	Vibe Op
24	JON TURNER	Line Boss
25	LEETON McHUGH	Line Boss
26	TERRY ERNST	HSE Rep.
27	LIZ GOOLD	Line Crew
28	LIAM SHUTTLEWORTH	Line Crew
29	TONY HUTCHISON	Line Crew
30	RAY AUCKRAM	Line Crew
31	SIMON TOLL	Line Crew
32	DEL HILDRED	Line Crew
33	JUSTIN POPE	Line Crew
34	FIONA HICKS	Line Crew
35	MELINDA LYNHAM	Campy
36	BEN SHAVE	Line Crew
37	KATRINA IRELAND	Line Crew
38	MAT ROBINSON	Line Crew
39	EMMA BURTON	Line Crew
40	JULIEN GOOSSENS	Line Crew
41	MEGAN BANN	Line Crew
42	JOE KEANE	Line Crew
43	ADAM TOTH	Line Crew
44	LIONEL DABE	Line Crew
45	RICKY FOX	Line Crew
46	BRUCE BEER	Client Rep

**BEACH PETROLEUM LIMITED'S 2003 PEL 92 ALBUS SEISMIC SURVEY**

# **APPENDIX VII**

## **EQUIPMENT LIST**

# Trace Energy Services Vehicle List

VEHICLE	REGISTRATION	K.M.S.	YEAR	TRAILER TYPE	REGISTRATION
<b>TRUCKS</b>					
KENWORTH	WA - 1AGB177		May-80	KITCHEN	WA - 6UO308
HINO - FUEL	VIC - RMR625		Jun-85	DINER	WA - 6UO309
ISUZU - CABLE	WA - 1AOR420		Jul-84	SHOWER	VIC - N60916
ISUZU JCS	WA - 1AMI165		Apr-85	STORES	VIC- N60915
ISUZU - CRANE	WA - 9DL970		Sep-87	WORKSHOP	WA - 1TAR750
ISUZU - RECORDER	QLD-922FWD		Mar-92	CABLE REPAIR	VIC - N69423
ISUZU SERVICE	WA - 1ALU225		Feb-93	OFFICE	WA- 6WC-169
HINO	WA - BD610		Nov-87	CAVALIER - SLEEPER	WA - 8UW166
HINO	WA - 7DT982		Feb-85	CAVALIER - SLEEPER	WA - 8US595
VIBRATOR	WA - 8XX751		1980	SLEEPER	WA - 8WS627
VIBRATOR	WA - 8XX752		1980	SLEEPER	WA-7TL494
VIBRATOR	WA - 8XX753		1980	SLEEPER	WA-8WS671
VIBRATOR	WA - 8XX754		1980	SLEEPER	WA-9RG657
VIBRATOR	WA - 8XX755		1980	TOILETS - MALE	WA-1TDJ497
PAYSTAR 50000	QLD IFS688		1980	TOILETS - FEMALE	WA-1TBF454
PAYSTAR 50000	QLD IFS686		1980	WASH DOWN	WA -1TBU582
PAYSTAR 50000	QLD IFS685		1980	SIGN	WA -1TDN321
M.A.N	WA - G12833		Jun-76		
<b>TOYOTAS</b>					
TOYOTA - JUG UTE	WA - 1BHD-892		1999		
TOYOTA - JUG UTE	WA - 1BGO-007		1999		
TOYOTA - CABLE UTE	WA - 1BGN-212		1999		
TOYOTA - CABLE UTE	WA - 1BEK-496		1999		
TOYOTA - CABLE UTE	WA - 1BDH-550		1999		
TOYOTA - CABLE UTE	WA - 1AWY557		Jun-97		
TOYOTA - UTE	WA - 1AUI376		Dec-97		
TOYOTA - UTE	WA - 1AFX011		Sep-98		
TOYOTA - UTE	WA - 1AFP393		Jul-95		
TOYOTA - P.C.	WA - 9JH585		Mar-94		
TOYOTA - CREW CAB	WA - 9DX654		Aug-95		
TOYOTA - 80 SERIES	WA - 9GZ035		Mar-96		

## **APPENDIX VIII**

# **RISK IDENTIFICATION & ACCIDENT REPORTS**



# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment : Trace Energy Services		Report Number		RIR-05	
Location	Christies	Client	Beach Petroleum	Report Date	06-10-03
Project	Crew 401 – Cooper Basin	Name of reporter	T.Ernst	Revision Date	10-10-03

<b>Description of Actual or Potential Loss</b>		Event date	06-10-03	Event Time	1100 hrs
<b>Classification</b>	<b>Category</b> (Check all boxes which apply)			<b>Site</b>	
<input type="checkbox"/> <b>Accident/Failure</b> <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input type="checkbox"/> Light <input checked="" type="checkbox"/> <b>Near Accident/Failure</b> <input checked="" type="checkbox"/> <b>Hazardous situation</b>	<input type="checkbox"/> <b>Personnel</b> <input type="checkbox"/> Health <input type="checkbox"/> Injury <input type="checkbox"/> Fatality	<input type="checkbox"/> <b>Automotive</b> <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle	<input type="checkbox"/> <b>Environmental</b> <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission	<input type="checkbox"/> <b>Other</b> <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation	<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other <b>Site Name:</b> Christies
Company Involved	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Industry Recognized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Regulatory Recordable	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Brief description (50 characters maximum) Fire in Kitchen					

## Training


Hazard Category (check one only)	Risk Classification Refer to Risk Classification Tool.xls
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input checked="" type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure <input type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> <input checked="" type="checkbox"/> Very High (Daily or more) <input type="checkbox"/> High (Weekly to Fortnightly) <input type="checkbox"/> Medium (Fortnightly to Quarterly) <input type="checkbox"/> Low (Every 4 – 12 months) <input type="checkbox"/> Very low (Less than once per year) <b>What were the potential consequence.</b>

**D1**

E					
D					
C					
B					
A					
	1	2	3	4	5

Light Serious Major Catas. Multi-catas

<\$10k \$10-100K \$100-\$1m >\$1m >\$1m+

1<sup>st</sup> Aid LTI <90 LTI >90 Fatality Fatal +

Potential severity

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

**6<sup>th</sup> Oct**

While preparing lunch in the kitchen, the cooks offsider noticed a burning smell coming from the oven. He then decided to open the oven doors and saw inside a small fire that had started.

The offsider then closed the doors immediately and switched off the oven. He then informed everyone inside the diner and went to get help from the cook.

After they both had returned, the kitchen had filled with smoke leaving visibility minimal.

They then re-opened the oven doors and found that the fire was almost out. By the time they had the fire blanket out the fire had already extinguished itself.

It was determined that the cause of the fire had started from a BBQ rib sauce that had boiled over the pan and mixed with the fat on the element in the bottom of the oven.

# Loss Report

Injury or Illness Information (for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1									
2									
3									
4									

Indicate details on injuries for each of the persons above

Injury	Body parts affected	Days lost (estimated)
1		
2		
3		
4		

A Light Trauma      H Mental Illness  
 B Heavy Trauma      I Other Illness.  
 C External exposure.  
 D Internal exposure.  
 E Tumoral Illness  
 F Vascular Illness  
 G Infectious disease

A Head      H Digestiv  
 B Torso      I Urinary  
 C A/H/F      J Sensory  
 D L/F/T      K Other  
 E Resp  
 F Cardio  
 G Neurolog

Automotive Accident Information			
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No		Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle		On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No	
Weather Conditions	Road Type	Accident Type	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy	<input type="checkbox"/> Paved <input type="checkbox"/> Unpaved <input type="checkbox"/> Off road <input type="checkbox"/> Curve <input type="checkbox"/> Up a grade <input type="checkbox"/> Down grade <input type="checkbox"/> Narrow <input type="checkbox"/> Poor surface	<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Sideswipe <input type="checkbox"/> Hit from behind <input type="checkbox"/> Passing <input type="checkbox"/> Backed into <input type="checkbox"/> Being passed <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Hit animal <input type="checkbox"/> Rollover <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? <input type="checkbox"/> Yes <input type="checkbox"/> No		Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph		Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No	
All persons wearing seatbelts? <input type="checkbox"/> Yes <input type="checkbox"/> No		Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Environmental Accident Information			
Result	Details		
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Release to water way <input type="checkbox"/> Soil contamination <input type="checkbox"/> Released to air <input type="checkbox"/> Ground water contamination <input type="checkbox"/> Marine life damage	Amount spilled or discharged:		Unit
	Material name or code :		
	Duration of discharge	Hrs	min

Other Loss Information (Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days Temp Staff Medical Costs Litigation/Other Total	Replacements Repairs 3 <sup>rd</sup> Party Repairs Litigation/Other Total	Lost Products Remediation Litigation Other Total	Replacements Repairs Lost Products Lost Revenue Total
Remarks :			

Name of Manager leading the investigation	T.Ernst
Names of other team members	C.Curd, S.Teschendorf

Investigation Section 1 - Contact & Immediate Causes			
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Caught in	<input type="checkbox"/> Caught between <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Struck by	<input type="checkbox"/> Fall on same level <input type="checkbox"/> Caught on <input type="checkbox"/> Contact with
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Failure to use PPE properly <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Improper position for task <input type="checkbox"/> Servicing equip in operation	<input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Failure to warn <input type="checkbox"/> Failure to secure <input type="checkbox"/> Improper loading <input type="checkbox"/> Using defective equipment	<input type="checkbox"/> Improper placement <input type="checkbox"/> Improper lifting <input type="checkbox"/> Horseplay <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Poor control of Contractor
<b>Substandard Conditions</b>	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> Inadequate guards or barriers  <input type="checkbox"/> Inadeq/improper protect equip  <input type="checkbox"/> Defective tools, equip, or mat.  <input type="checkbox"/> Congestion or restricted action  <input type="checkbox"/> Inadequate warning system  <input type="checkbox"/> Inadequate/excess illumination         </div> <div style="width: 33%;"> <input type="checkbox"/> Pressure exposure  <input type="checkbox"/> Slippery surface  <input type="checkbox"/> Improper storage/removable media  <input type="checkbox"/> Improper physical security/network  <input type="checkbox"/> Radiation exposure  <input type="checkbox"/> Poor housekeeping/disorder         </div> <div style="width: 33%;"> <input checked="" type="checkbox"/> Fire and explosion hazards  <input type="checkbox"/> Noise exposure  <input checked="" type="checkbox"/> Temperature extremes  <input checked="" type="checkbox"/> Inadequate ventilation         </div> </div>		

Investigation Section 2 - Basic Causes	
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)	
Personal Factors	Job Factors
<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Stress <input type="checkbox"/> Substance Abuse <input type="checkbox"/> Lack of skills <input type="checkbox"/> Improper motivation <input type="checkbox"/> Fatigue	<input type="checkbox"/> Inadequate leadership/supervision <input checked="" type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Organizational rules <input type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Wear and tear <input type="checkbox"/> Conflicting goals/objectives

Investigation Section 3 - Lack of Control					
Lack of Control					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Policies & Objectives	<input type="checkbox"/> Organization & Resources <input type="checkbox"/> Contractor & Supplier Mgmt <input type="checkbox"/> Risk Management <input checked="" type="checkbox"/> Design & Planning <input type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Assessment & Cont. Improvt.				
Corrective Action					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Fire extinguished	Cook	06-10-03	06-10-03	No damage or injuries sustained
2	Camp Inspection performed	QHSE	05-10-03	05-10-03	Kitchen inspection performed 1 day prior to fire.
3	Improve ventilation system	Perth	30-12-03		Perth to supply adequate ventilation system to extract smoke etc whilst cooking.
4	Placed on RWP	QHSE	30-12-03		QHSE to ensure this gets placed on a RWP to get fixed.

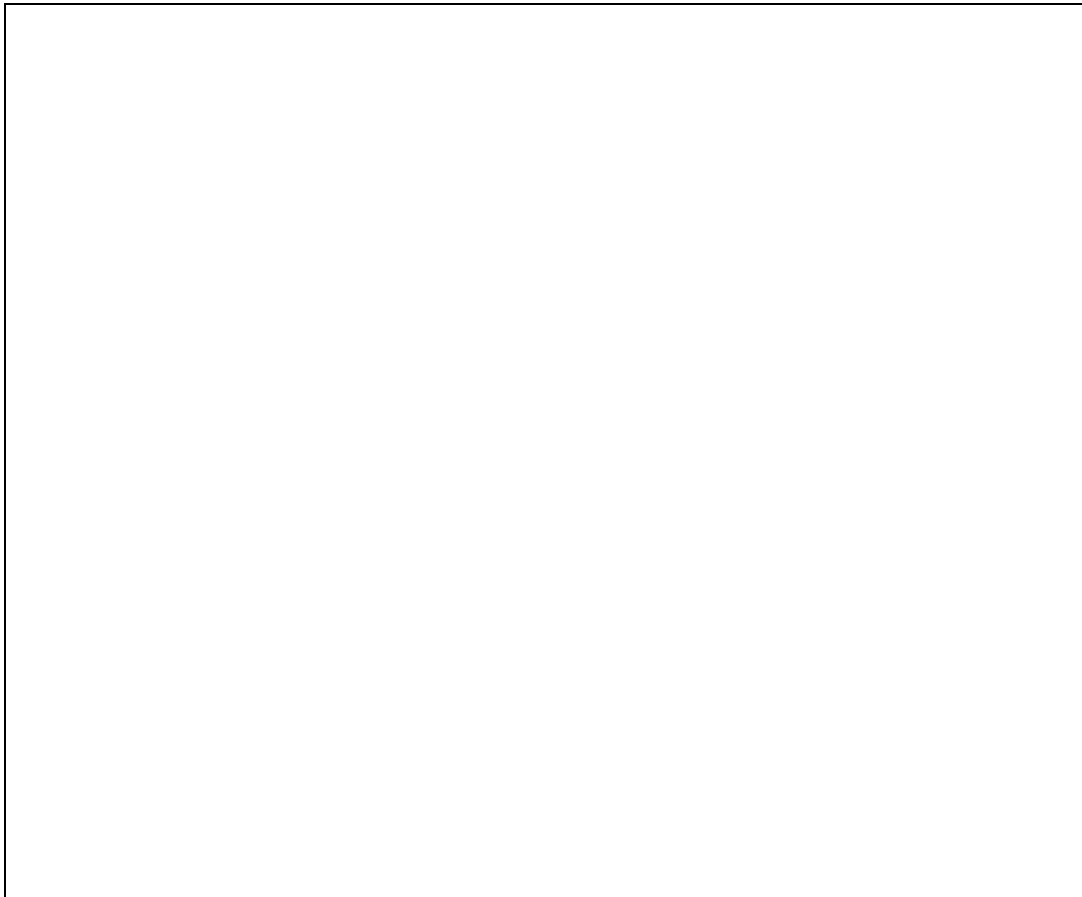
**Comments by Reviewing Line Manager**  
**To be completed by Area President or VP for all Catastrophic accidents**

**Endorsements**

We accept accountability for implementing the items of this action plan under our responsibility.

Name of Manager	Signature	Date
Name of reviewing Line Manager	Signature	Date

**Diagram or Sketch:**



**APPENDIX IX**

**SAFETY MEETING**  
**MINUTES**





Trace Energy Services  
Beach Petroleum  
Cooper Basin

## Safety Meeting – October 2003

**Client:** Beach Petroleum  
**Prospect:** Christies 2D – 3D  
**Date:** 5th Oct 2003  
**Time:** 0600 – 0625 hrs

**Bob Stephenson (Crew Manager)** opened the meeting and discussed with the crew about waiting on the 3D spread to arrive today. Everyone is to work 8 hours so there are plenty of jobs etc to be done around camp. He then handed the meeting over to Bruce.

**Bruce Beer (Client Rep)** gave the crew some quiz questions on the last four safety meetings in September.

**What do the initials “QHSE” stand for?**  
QUALITY, HEALTH, SAFETY & ENVIRONMENT.

**What do the initials “DRABCH” stand for?**  
DANGER, RESPONSE, AIRWAY, BREATHING, CIRCULATION & HEMARAGHE

**What is the most deadliest snake in Australia?**  
INLAND TAIPAN – COMMONLY KNOWN AS THE FIERCE SNAKE

**What do we “NOT” do with Pin Flags & Pegs.**  
THROW THEM IN THE BUSH

**What are the 3 stages of Heat Stress?**  
HEAT CRAMPS, HEAT EXHAUSTION & HEAT STROKE.

**What factors help prevent Heat Stress?**  
RFDS TRAINING, SUNSCREEN, HATS, LONG SLEEVE SHIRTS & PANTS, FLUID INTAKE, BUDDY SYSTEM & REDUCING AMOUNT OF ALCOHOL INTAKE AT NIGHT. All these factors and many more can reduce the effects of Heat Stress.

**Terry Ernst (QHSE)** spoke to the crew about alcohol & drug abuse and the effects it can have on your life.

Craig Curd (Cook) asked the crew to stay out of the kitchen, only the cooks and certain staff should be inside, it also brings in flies while trying to prepare meals.

Meeting closed.

Crew Manager  
Bob Stephenson

QHSE  
Terry Ernst

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**APPENDIX 2**

**ACQUISITION CONTRACTOR REPORT  
TRACE ENERGY SERVICES**

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## **2003 ALBUS SEISMIC SURVEY**



**OPERATIONS REPORT**  
**FOR**  
**BEACH PETROLEUM LTD.**  
**BY**  
**TRACE ENERGY SERVICES**

**SEPTEMBER-OCTOBER 2003**

**TRACE ENERGY SERVICES  
U2 / 37 HOWSON WAY  
BIBRA LAKE  
WESTERN AUSTRALIA 6163**

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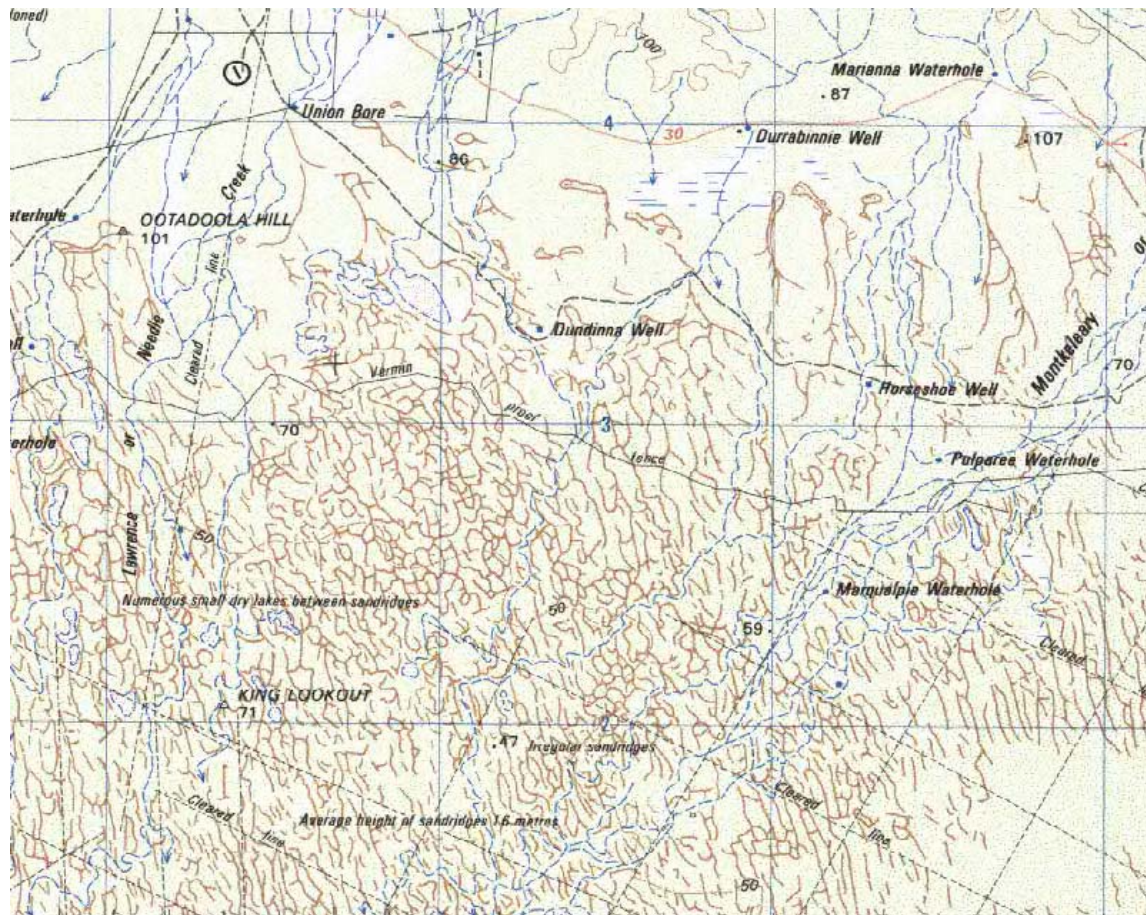
## 1. INTRODUCTION

Trace Energy Services was contracted by Beach Petroleum Ltd. to conduct the 2003 Albus Seismic Survey on PEL's 91,92,107 & 110 in the Cooper Basin in South Australia. Recording commenced on the 27<sup>th</sup> of August 2003 on PEL 110 and was completed on the 3<sup>rd</sup> of October 2003 on PEL 92. There were 39 lines in all totaling 652.9125 km's.

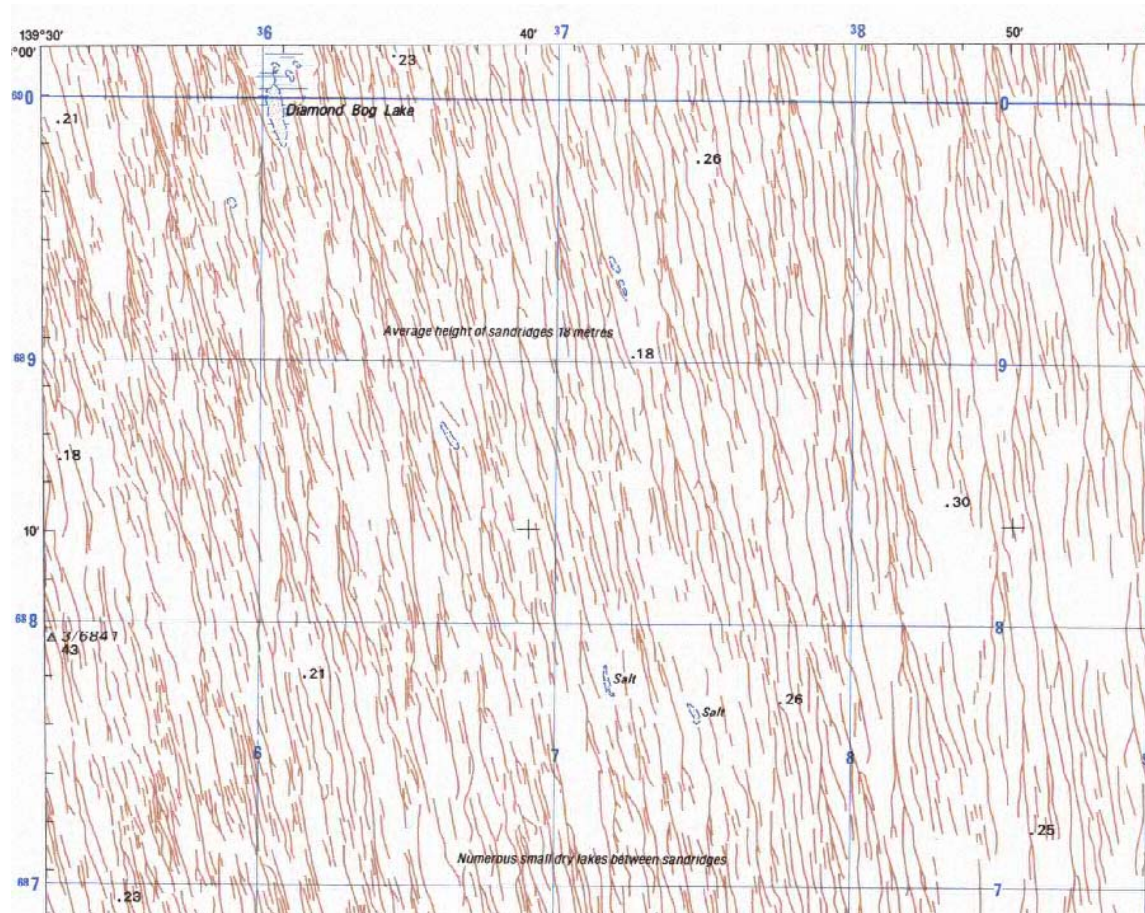
### 1.1 Geographical Area

The Seismic Program was located in three areas-Cordillo, Tantanna and Christies. The Cordillo area was on Cordillo Downs and Innamincka Stations, Tantanna was on Mulka Station and Christies was on Mungerannie Station.

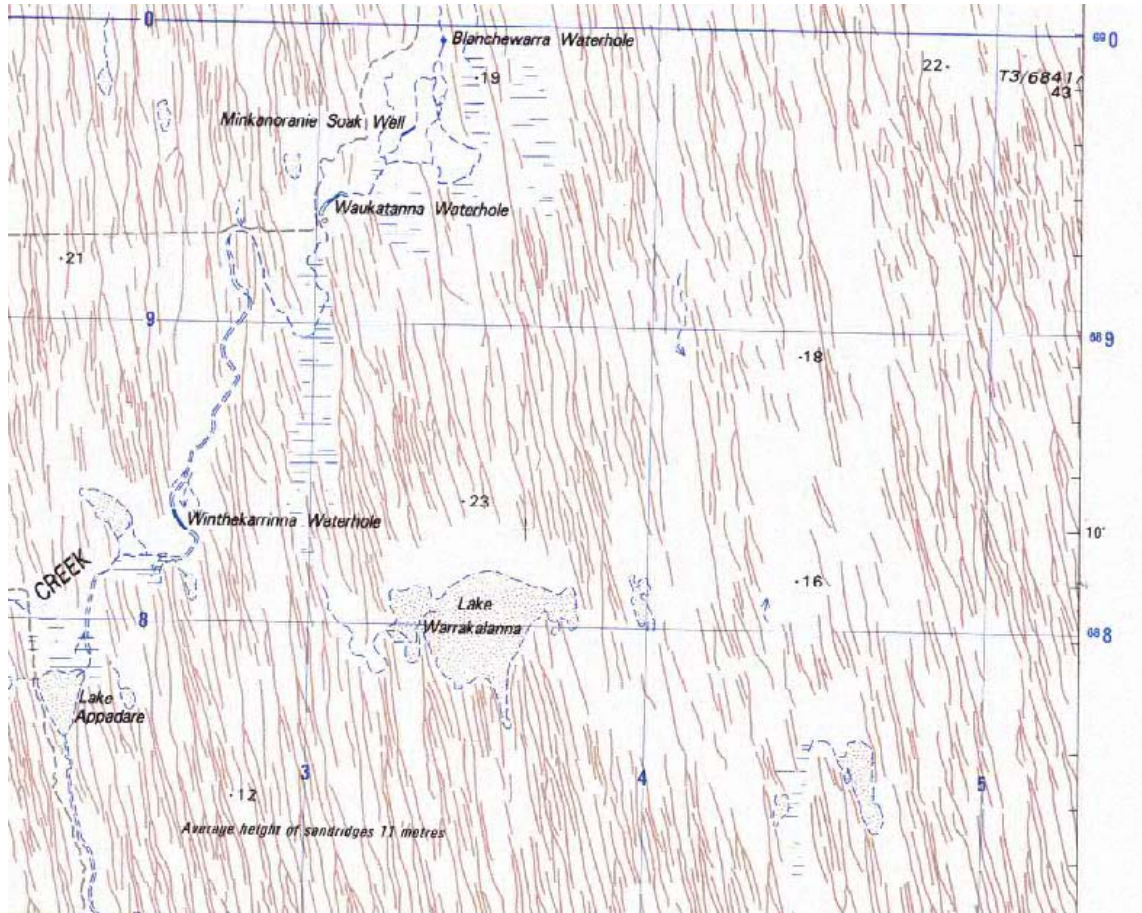
#### Cordillo Area





**Tantanna Area**

## Christies Area



## 1.2 Weather

The weather was fine during this survey, with some very windy days. Some rainfall was experienced during the mobilization to Cordillo Downs, however this did not affect the crew.

### 1.3 Logistics

Crew 401 operated from a mobile camp for this survey.

Supplies were trucked in to Moomba from Adelaide and Brisbane and collected by Trace Energy in supply trucks.

Water was sourced from local bores and Moomba.

Personnel were flown in and out using National Jet from Moomba and private charter flights to local airstrips.



## **SURVEYING**

### **2.1 RANGING / CHAINING / SURVEYING**

Line ranging, chaining and survey were contracted to Dynamic Satellite Surveys of Yeppoon Queensland. See Dynamic Satellite Surveys Final Report.

### **2.2 LINE CLEARING**

Line clearing was contracted to Denham and O'Keefe of Toowoomba. They supplied two Komatsu D6 dozers and one Caterpillar Grader. Line Clearing commenced on the 11<sup>th</sup> of August and was completed on the 14<sup>th</sup> of September 2003.

### **2.3 PERMITTING**

Beach Petroleum Ltd. conducted the Permitting, Cultural Heritage, Route Investigation and Landowner Liaison for the entire survey with the assistance of Dynamic Satellite Surveys personnel.

## **3. DRILLING / UPHOLE RECORDING**

### **3.1 DRILLING**

Uphole drilling was contracted to Daly Drilling of Perth who completed 177 upholes.

### **3. UPHOLE RECORDING**

Uphole recording was conducted by Expertest who supplied one recording unit and one operator for the contract.



## 4. RECORDING

The first production profile was recorded on PEL110 on line BE03-15 on the 29<sup>th</sup> of August 2003.

Before the commencement of production hardwire similarities were run on the vibrators and all system test were performed on the Sercel 388 SU6 units. PEL92 was completed on 2<sup>nd</sup> of October 2003 with a total of 652.9125 km recorded.

Overall, recording progressed well and good production rates were obtained although shifting the spread and vibrators between the different areas did slow progress down.



## **EQUIPMENT SPECIFICATIONS**

### **RECORDING EQUIPMENT**

#### Acquisition System:

- 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 3480 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) 1996 Pelton Adv 2 Model 5 VIBSIG Real Time Similarity System
- One (1) 10 metre 6 DB Boost High Gain Antenna on Recording Truck
- 1996 Sensor SM4 10Hz High Specification Superphones
- One Thousand Hundred (1000) Geophone strings with 6 ph/group
- One (1) Sensor SMT100 Geophone Tester

### **SOURCE EQUIPMENT**

Five (5) Litton LRS315 40000lb Peak Force 6x6 Paystar Truck  
mounted Vibrators:

- Peak force is 40600lbs per Vibe and
- Hold-Down weight is 42400lbs per Vibe
- Five (5) Pelton Advance 2 Model 5 VCEs plus various spare boards.
- One (1) Pelton Advance 2 Model 5 ESG for Recording Truck.
- Four (4) Vibrators operating Online and One (1) on Standby.  
Vibrators are equipped with Force Control and Ground Force Phase Lock  
using M5I High Performance accelerometers.  
Electronics are capable of Trade Marked Varisweep.



## VEHICLES

1996	Toyota Wagon	Crew Manager
1997	Toyota P.C.	Line Crew
1996	Toyota Crew Cab	Line Crew
1997	Toyota Cable	Line Crew
1999	Toyota Cable	Line Crew
1999	Toyota Cable	Line Crew
1999	Toyota Cable	Line Crew
1999	Toyota Jug	Line Crew
1997	Toyota Line Boss	Line Crew
1998	Toyota Checker	Line Crew
1997	Toyota Ute	Mechanics
1999	Toyota Ute	Supply
1992	Isuzu Recorder	Sercel SN 388
1993	Isuzu Service	
1984	Isuzu Cable	
1987	Isuzu Crane	Cable repair shop
1987	Hino	
1980	Kenworth	Mechanics work shop
1980	International Paystar 5000	Litton 315 Vibrator
1980	International Paystar 5000	Litton 315 Vibrator
1980	International Paystar 5000	Litton 315 Vibrator
1980	International Paystar 5000	Litton 315 Vibrator
1980	International Paystar 5000	Litton 315 Vibrator



## **OCCUPATIONAL HEALTH AND SAFETY STANDARDS**

- ❖ Crew startup induction / safety meeting / Santos Ltd. Induction
- ❖ DTEC Driving Course for all crew personal as required by Santos
- ❖ Weekly senior personnel performance/operational meeting
- ❖ Sunday crew safety meeting
- ❖ Long sleeve shirts and covered footwear must be worn by field crew at all times
- ❖ Sunscreen supplied
- ❖ Reflective vests for all recording personnel were needed working along roads
- ❖ Satellite Phone in recorder
- ❖ Portable Handheld Satellite Phone
- ❖ Functional UHF Radio fitted in all line vehicles
- ❖ Site specific safety and evacuation plan
- ❖ Random drug and alcohol tests
- ❖ Vehicles fitted with First Aid kits
- ❖ Vehicles fitted with dry powder fire extinguishers
- ❖ Vehicles fitted with high visibility Pole with flag on top

## **FIRE PREVENTION EQUIPMENT**

- ❖ One (1) 2.5kg Dry Powder Fire Extinguisher for each Toyota
- ❖ Two (2) 9.0kg Dry Powder Fire Extinguisher for each Vibrator
- ❖ Fire Blanket and Wet Chemical Extinguisher for kitchen
- ❖ Smoke detectors fitted to all sleeping accommodation
- ❖ Dry powder type extinguishers fitted around camp area

**3480E TAPE LISTING**

<b>PELA 110</b>				
<b>LINE</b>	<b>TAPE</b>	<b>Stn - Stn</b>	<b>File - File</b>	<b>Comments</b>
BC03-04	8000A			TESTS
BC03-04	1A	362.5 - 200.5	1 - 161	
BC03-05	2A	200.5 - 359.5	1 - 160	
BC03-06	3A	386.5 - 200.5	1 - 186	
BC03-16	4A	200.5 - 457.5	1 - 250	
BC03-01	5A	200.5 - 427.5	1 - 220	
BC03-02	6A	406.5 - 200.5	1 - 203	
BC03-03	7A	200.5 - 432.5	1 - 233	
BC03-08	8A	370.5 - 200.5	1 - 169	
BC03-07	9A	200.5 - 519.5	1 - 310	
BC03-09	10A	522.5 - 200.5	1 - 309	
BC03-17	11A	200.5 - 332.5	1 - 129	
BC03-10	12A	200.5 - 720.5	1 - 504	
BC03-19	13A	336.5 - 200.5	1 - 118	
BC03-11	14A	200.5 - 385.5	1 - 186	
BC03-18	15A	338.5 - 200.5	1 - 135	
BC03-15	16A	200.5 - 505.5	1 - 302	
BC03-12	17A	387.5 - 200.5	1 - 186	
BC03-13	18A	434.5 - 200.5	1 - 231	
BC03-14	19A	203.5 - 480.5	1 - 262	
BC03-27	22A	521.5 - 200.5	1 - 315	Line Completed
BC03-26	23A	200.5 - 608.5	1 - 401	Line Completed
BC03-25	24A	408.5 - 200.5	1 - 209	Line Completed
BC03-24	25A	200.5 - 800.5	1 - 583	Line Completed
BC03-23	26A	532.5 - 200.5	1 - 315	Line Completed
BC03-22	27A	444.5 - 200.5	1 - 242	Line Completed
BC03-29	28A	448.5 - 200.5	1 - 237	Line Completed
	29A	-	-	Tape does not exist
BC03-30	30A	200.5 - 399.5	1 - 196	Line Completed
BC03-20	31A	407.5 - 200.5	1 - 203	Line Completed
BC03-31	32A	200.5 - 373.5	1 - 172	Line Completed
BC03-32	33A	417.5 - 200.5	1 - 218	Line Completed
BC03-33	34A	200.5 - 413.5	1 - 214	Line Completed
BC03-21	35A	200.5 - 563.5	1 - 356	Line Completed
BC03-28	36A	200.5 - 530.5	1 - 327	Line Completed
				PEL 107 Completed
BC03-39	37A	374.5 - 200.5	1 - 172	Line Completed
				PEL 91 Completed
BC03-38	38A	442.5 - 200.5	1 - 242	Line Completed
BC03-34	39A	200.5 - 414.5	1 - 211	Line Completed
BC03-35	40A	386.5 - 200.5	1 - 186	Line Completed
BC03-36	41A	200.5 - 371.5	1 - 172	Line Completed
BC03-37	42A	373.5 - 200.5	1 - 174	Line Completed
				Christies 2D completed

## Monthly Injury Summary

Month:	September
Year:	2003
Client:	Beach Petroleum Ltd.
Location:	South Australia
Permit Area:	PEL's 91,92,107,110
Total Personnel on Crew:	32
Total Hours Worked (a)	178.4
Total Exposed Hours (b)	5708.8
No of Minor Injuries (c)	9
No of Medical Treatments (d)	2
No of LTI's (e)	0

(a) Total Number of Hours Worked in the Permit area per person

(b) Total exposed Hours = (a) x total number of personnel

(c) Number of injuries that required treatment by first aide/medic

(d) Number of injuries that required treatment by medical practitioner Not LTI's

(e) Number of LTI's as identified by Australian Standard 1885

**SAFETY REPORT****QHSE - END OF CONTRACT REPORT****TRACE**  
TRACE ENERGY SERVICES**STUART / BEACH PETROLEUM****SEP – OCT / 2003****QHSE**

<b>QHSE Location:</b>	<b>Cordillo, Mentone, Merty Merty, Spencer &amp; Christies 2D &amp; 3D</b>
QHSE Meetings	5
Toolbox Meetings	38
Incidents:	6 Incident, Accident Reports (RIR)
LTI's:	0

The crew started at Cordillo Downs in Late September 2003, with the temperature being relatively moderate to cool conditions.

At the start of the Cordillo Downs 2D, local hazards such as driving, snakes and third party traffic were identified as the major hazards.

After completion of the Cordillo Downs 2D the crew moved camp approximately 160 klm south to the next prospect, "Mentone 2D" being approximately 50 klm North of Innaminka.

While camped at Mentone, the temperature started to increase slowly and so water runs and cold fruit were taken to the field for line crew on a daily basis.

Three RIR's (Risk Identification Reports) were completed while at Mentone.

▪ **RIR-01 / Skin Irritation – Treated on crew (See Report)**

Two people were taken to Moomba Medical Centre for further treatment.

▪ **RIR-02 / Left Ear Ache (See Report)**

▪ **RIR-03 / Skin Irritation (See Report)**

The next proposed camp move was to be approximately 205 klm South towards Merty Merty Station. The move proved to be too much for one accommodation van with it demolishing 2 rear springs on one rear axle. The mechanic and QHSE managed to limp the van to Moomba (Mansells) whereby they were able to fix the van to enable them to continue to the next camp site that late afternoon.

The camp site at Merty Merty was mostly sand and salt bush (Crab hole).

Water drainage at the site was particularly bad, as quite some water lay about close to camp in big puddles.

Several drainage drains had to be dug by hand using a mattock & shovel to enable adequate water drainage.

While at “Merty Merty” John Iredale from “Stuart” arrived and thanked the crew for their efforts in regards to the recent success of what “Seismic Acquisition” has done for their company.

Windy conditions proved to be more than frustrating for all the crew and continued for several days with the camp move day being the worst from “Merty Merty” to “Spencer 2D”

While at Spencer the heat slightly decreased with a cool change from the south but winds increased again causing further frustration to the crew.

An inspection of all “First Aid Kits and Fire Extinguishers” in all vehicles was completed, with all vehicles current with First Aid Kits.

Training on Snake Bite, Health and Hygiene, and Heat Stress was performed on site at three separate Safety Meetings.

Beach Petroleum representatives Danny Burns, Neil Gibbins and Janet Skinner arrived on crew on the 24<sup>th</sup> Sep and awarded caps to the crew for their contribution.

Adequate water drainage again was a major issue at “Spencer” and a grader was used to scarify the soil to enable a more hygienic solution to the waste water drainage problem.

One RIR was completed while at Spencer.

▪ **RIR-04 / Laceration to middle finger (See Report)**

After the completion of “Spencer”, the crew then moved 70 klm west to “Christies 2 & 3D” The camp was set up in the middle of a clay pan, which again proved too much for adequate water drainage leaving the crew with a possible Health and Hygiene problem.

A camp inspection was performed by the Client Representative & QHSE, with a RWP (Remedial Work Plan) started. (See **RWP for details**)

Some reports of snakes were seen and toolbox meetings were held to inform the crew about snakes in the area.

Two RIR's were completed while at Christies.

- **RIR-05 / Fire in Kitchen (See Report)**
- **RIR-06 / Injury to left wrist (See Report)**

Acquisition of the Christies 3D was completed on the 10<sup>th</sup> Oct.



**Other activities during the month were:**

Other QHSE Training	# Attendees	Duration (hrs)
Santos SABU Inductions	2	0.80
Snake Bite	35	0.30
Heat Stress	35	0.30
Health & Hygiene	35	0.30

**Medical Statistics:**

Medical Statistical Summary	Per Month
Total initial patients	15
Total illness cases	0
Total patients referred to Moomba	2
Total patients evacuated to RFDS	0
Total restricted days	0
Total First Aid Cases	15

Break down of cases	Per Month	Year Total
Abdominal pain	0	0
Allergic conditions	2	2
Bites and stings	0	0
Burns	0	0
Dental conditions	0	0
Ear injuries/conditions	1	1
Eye injuries/conditions	5	5
Fractures	0	0
Gastrointestinal - diarrhea, nausea, vomiting	0	0
Gynecological	0	0
Headaches	0	0
Heat related conditions	0	0
Miscellaneous	0	0
Muscle & skeletal	1	1
Respiratory conditions - Asthma,	0	0
Skin conditions - chapped lips etc	2	2
Respiratory tract infections / Cold / Flu	0	0
Urinary tract infections	0	0
Wounds, include lacerations, blisters,	4	4
<b>Case total</b>	<b>15</b>	<b>15</b>
<b>QHSE</b>		
<b>Terry Ernst</b>		

# **Risk Identification and Accident Report**

for Accidents, Failures, Near Accidents and Hazardous Situations

## **SAFETY MEETINGS**

### **Start of Survey Contract Meeting** **For Beach Petroleum and Stuart Petroleum.**

On Thursday the 28<sup>th</sup> of August 2003 the Trace Energy Services Seismic Crew arrived at PEL 110, approximately 35kms South East of Cordillo Downs Pastoral Station in South Australia.

Once the crew arrived the main mobile camp was assembled and put in place ready for living conditions, minor damage had occurred to the camp in the drive in as the roads were very wet and rough, this damage will be fixed in the near future, as usual communications were made available straight away.

After the camp was set-up, the Clients from Beach and Stuart as well as Alan Lance who is a Cultural and Heritage Expert, gave the crew a Contract Induction.

#### **The Topics discussed were as follows.**

- Field Procedures.
- Individual Responsibilities.
- Cultural and Heritage Review,
- Beach Corporate Issues.
- Stuart Corporate Issues.
- Seismic Contractor HSE inductions
  - Site Specific Plan.
  - Emergency Response Plan.
  
- Also Rob Langley from the South Australian Government explained issues on why Beach and Stuart are classed as a High Supervision Operator.

All Trace Personal as well as Daily Drilling and Expertest personal were present for this Induction.

This meeting ran for approximately 2 hours.

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

**Client:** Stuart Petroleum  
**Prospect:** Mentone 2D  
**Date:** 7<sup>th</sup> Sep 2003  
**Time:** 0630 – 0700 hrs

**Richard Barnes (Crew Manager)** opened the meeting and told the crew it was a successful camp move with no major hazards and no incidents. He then handed the meeting over to Terry Ernst, QHSE.

**Terry Ernst (QHSE Officer)** asked the crew if they knew what “QHSE” stood for. Quality, Health, Safety & Environment. These four key words are today’s main topic and will be talked about to give the crew and new personnel an understanding of what Health & Safety is really about.

QUALITY - We need quality in our work being performed to ensure that we can obtain further work in the future. There are also many other quality issues, just to name some are quality of equipment, personnel, vehicles etc.

HEALTH - Everyone on crew is responsible for their own health & well being. Shower regularly and wash your hands, this will help in preventing diseases being spread throughout the camp.

SAFETY - Safety is everyone’s responsibility, the safety officer is like a “Tool” for people to use on crew, to ensure the best possible working environment for all.

ENVIRONMENT - We work and live in a great country, with very little pollution and we need to keep it that way. So use the bins and cigarette tins provided in camp.

In summarizing what we are trying to do for everyone on crew, is to try to maintain a safe working Environment and to better living conditions.

A couple of outstanding camp Inductions for people will be done in the next day or so.

Terry then handed the meeting over to the client representative, Bruce Beer.

**Bruce Beer (Client Rep)** asked the crew some questions about the ERP and the crew did quite well in answering them. Some training or even an ERP drill would greatly benefit the crew to help them deal with a real life scenario if something happened.

**Craig Curd (Cooks Offsider)** asked the crew if they use the mess room late at night then to turn off the lights as insects are attracted.

**Ben Shave (Line Crew)** brought up the subject of whether jacking plates can be made to change tyres with, as it is pretty difficult in the soft sandy regions.

Meeting closed.

Crew Manager  
Richard Barnes

QHSE Officer  
Terry Ernst

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

**Client:** Stuart Petroleum  
**Prospect:** Mentone 2D  
**Date:** 14<sup>th</sup> Sep 2003  
**Time:** 0615 – 0645 hrs

**Paul Armstrong (Crew Manager)** opened the meeting and informed the crew about the rough terrain that we are currently driving over. Be careful and take your time. Camp move tomorrow down to Merty Merty. He then handed the meeting over to Bruce Beer, Client Rep.

**Bruce Beer (Client Rep)** spoke to the crew about fire in camp and asked some questions about what to do, where to go, who is in the fire team etc. Some good points were mentioned and addressed.

Bruce also had two other specific points to tell the crew.

The first point was to remember to pick up all the pin flags and pegs and do not throw them in the bushes.

The second point was to remember to stay on the seismic lines, under no circumstances should anyone drive off the lines.

Bruce then handed the meeting over to Terry Ernst, QHSE.

**Terry Ernst (QHSE Officer)** performed a snake bite demonstration using practical first aid. Also asked the crew numerous questions in relation to snake bites, what to do, how to bandage, DRABC etc. There is also a poster in the diner now which shows not only the venomous but the non-venomous species as well.

In summary, if someone is bitten then try to keep the patient as comfortable as possible and reassure them often.

A couple of other issues were raised, long pants and long sleeved shirts will have to be worn if we work for Santos. Plus long pants act as extra protection against snake bites.

I need to order more shirts as we have none in camp, so I will need you all to write down shirt sizes and I will send to the office.

**Denis Viney (Cook)** asked the crew to come to breakfast dressed properly and not just in boxer shorts and a singlet, otherwise you will not be served.

Remember to wash your hands as well before eating.

Meeting closed.

Crew Manager  
Paul Armstrong

QHSE Officer  
Terry Ernst

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

**Client:** Stuart Petroleum  
**Prospect:** Priscilla 2D  
**Date:** 21st Sep 2003  
**Time:** 0615 – 0645 hrs

**Bob Stephenson (Crew Manager)** opened the meeting and thanked the crew for yesterday's production. He then handed the meeting over to Terry.

**Terry Ernst (QHSE)** asked the crew what was last week's meeting about before starting on the main topic this week being "Heat Stress". Presentation material for the crew about snakes and first aid are being made up and will be available for the crew soon.

Heat stress is a deadly serious health hazard.

It is a potentially dangerous condition that occurs when the body is unable to regulate its temperature. It is the loss of body fluid, caused by an increase in body temperature, during periods of extreme hot weather or during strenuous activities.

Three stages of Heat Stress are:

- **HEAT CRAMPS** – Painful cramps in larger muscle groups that have been used during work.

**Symptoms:**

Cramps, Tiredness, Weakness, Fainting, Nausea / Vomiting, Dizziness, Moist cool skin.

- **HEAT EXHAUSTION** – The body's heat control mechanism goes over active.

**Symptoms:**

Headache, Thirst, Stomach and Muscle cramps, profuse sweating, pale, cool and clammy skin, Weakness, Fatigue, Nausea, Shortness of breath, Rapid pulse, confusion and irritability.

- **HEAT STROKE** – A serious condition that can cause death or permanent injury to the brain & kidneys.

**Symptoms:**

Headaches, Nausea, Vomiting, Visual disturbance, Mental confusion, Aggression, Seizures, Loss of consciousness, Temperature of body greater than 40 C, Strong pounding pulse, Hot, dry, flushed skin, Cardiac arrest.

**Factors which help prevent Heat Stress:**

Drink plenty of fluids (water), wear loose fitting clothes, wear a hat, sunglasses and sunscreen, have rest periods, rotate people through different jobs and limit alcohol intake at night.

In summary, use the buddy system and look after each other.

Craig Curd (Cooks Offsider) asked the crew if they could turn off lights in diner when finished, as it attracts bugs.

Leeton McHugh (Line Boss) talked about sand dunes and to check air pressures in tyres.

Guy Eberhardt (Supply driver) asked the crew to check all tow hitches for next camp move.

Meeting closed.

Crew Manager  
Bob Stephenson

QHSE  
Terry Ernst

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

**Client:** Beach Petroleum  
**Prospect:** Spencer 2D  
**Date:** 28th Sep 2003  
**Time:** 0615 – 0640 hrs

**Bob Stephenson (Crew Manager)** opened the meeting and thanked the crew for yesterday's production. He then handed the meeting over to Terry.

**Terry Ernst (QHSE)** spoke to the crew about HEALTH & HYGIENE.

As we all know we live in a very close environment here so health & hygiene is a major issue. Some of things that we as individuals can do to prevent diseases being spread throughout the camp are listed below

- Shower at least once a day.
- Change clothes especially underwear & socks regularly.
- Wash hands after using toilets and especially before eating.
- Keep your dirty clothes in your laundry bags and get them washed regularly as well.
- Keep the camp clean from rubbish, food scraps etc.
- Use the brush & deodorizer in toilets after usage.
- Keep your rooms as tidy as possible.

**Bruce Beer (Client Rep)** gave the crew some quiz questions on First Aid.

- **D** – DANGER
- **R** – RESPONSE
- **A** – AIRWAY
- **B** – BREATHING
- **C** – CIRCULATION
- **H** – HEAMARAGE

Other questions asked were:

- Who is the Fire Chief on crew? - **Camp Mechanic.**
- How many points of contact do you need when stepping down from vehicles? - **Three.**
- What is the Speed limit in the Cooper Basin? - **80klm.**

Darren Rea (Cable Repair) brought up an idea about using the handheld radios for the front and back crew when walking as a preventative measure for snake bite.

Meeting closed.

Crew Manager  
Bob Stephenson

QHSE  
Terry Ernst



# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

## TOOLBOX MEETINGS

Sep-03		Toolboxes	
No.	Month	Subjects	# Crew
1			
2			
3			
4	4-Sep	More input from crew personnel needed at toolboxes.	31
5	5-Sep	Camp move tomorrow, glass on crew - need to switch to cans.	31
6	6-Sep	Camp move day, everyone to help pack up & clean old camp site.	31
7	7-Sep	Safety Meeting (See minutes)	31
8	8-Sep	First aid kits & extinguishers to be checked and brought in if need refilling.	31
9	9-Sep	Flynets, sunscreen, lipbalm & gloves available from office. Incidents & accidents - please report me that same day. Snakes have been seen in the area. Time sheets to be filled in by everyone.	30
10	10-Sep	Santos inductions - everyone to complete form that was handed out and sent to Adelaide for ID numbers, all crew personnel will have to be inducted at Moomba at some point in time. Wearing of sun protection to avoid skin cancer.	31
11	11-Sep	Contractor Forms - Please complete and hand back to me so that I can take in to Santos Security. Deet found in some repellents, for mosquitoes, flies etc - contains a carcinogenic which causes cancer over a prolonged period of time and usage, use at your discretion and apply it only if and when needed. Vehicles - need to clean behind the seats and in cabs, a lot of rubbish, cans etc floating around. Dazzle jackets - please bring to me in office so that they can be washed and stored for the next job when needed. First aid kits and extinguishers are ongoing.	33
12	12-Sep	Paul Armstrong emphasized the fact to stay on the existing seismic lines and not to drive across the gibber plains to the road. This causes environmental damage impact to the surrounding area. Keep fluid intake up on the line and use sunscreens, hats etc. Ice for the line crew in large eskies if needed. Tyres - if you have to change one through the day, remember to change out at the days end or get it fixed. Also make sure that it has the correct stud match for that vehicle.	33
13	13-Sep	Washing - only put designated washing in on the days that are allocated for you. A rather large snake was seen at the new camp site, keep a look out for them. A few pegs and pinflags were found on an old line by the drillers. It looks like they were tossed into the bushes by someone, please do not throw them in the bush. Good production yesterday.	33
14	14-Sep	Safety Meeting (See minutes)	33
15	15-Sep	Camp Move - Hazards are dust, other vehicles, cattle on road, road works. Lights on, channel 3. Mud maps are supplied for next camp site.	33
16	16-Sep	Sand Dunes - Blown in, be careful driving. Use proper PPE, hats, Long sleeve shirts etc. Cooks spoke about health & hygiene, wash hands before eating.	33
17	17-Sep	Pegs & Pinflags - Make sure they are all getting picked up. Sand Dunes - May have to detour them along another line if you can not get vehicle up,	35

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

18	18-Sep	Welcome back people from break - Excellent days recording for crew change day. Drink plenty of water, at least 8-10l per day. Snakes - increasing hot weather so keep an eye out for them. ERP sheets with ph numbers on them in vehicles. Will make up key ring cards when I get time.	35
19	19-Sep	Rubbish - Clean out vehicles, behind seats especially. Jacking plates have been made for some vehicles that require them. Scoota & Darren putting in cable crossings along the Adelaide - Moomba RD for cable trucks.	35
20	20-Sep	People in tents - Remove burning log from fire every morning, possible embers floating across and on tents, could destroy tent and personal belongings. Visitor - John Iredale on crew, thanked the crew for the job they had performed so far and upcoming work. Ice for line crew available, Take a short break if feeling tired, it is only going to get hotter. Wildlife - be careful when walking or driving around for bird nests, lizards etc.	36
21	21-Sep	Safety Meeting (See minutes)	35
22	22-Sep	Preparing for camp move. Windy conditions.	35
23	23-Sep	Camp move day, everyone to help pack up & clean old camp site.	35
24	24-Sep	Three visitors from Beach Petroleum - Danny Burns, Neil Gibbins & Janet Skinner arriving on crew today & will spend the night. Snakes - A few sightings of taipans in the area, be careful. Ciggy Butts & rubbish, use bins provided.	35
25	25-Sep	Bob thanked Beach for their kind donation of handing out a hat for each crew member. Windy conditions - Hang on to doors so they do not fly back and bend hinges. Keep rubbish behind seats or in a bag inside cab. Dunes - some may have blown in, drive carefully when going over crests.	35
26	26-Sep	Dunes - No access up one dune because of blown in, QHSE to look at and find alternative route. Dune poles - Some vehicles without flags, replace with flagging or rag so it makes them more visible. Stepping - Watch footing where rabbit warrens are present & driving into the sun in morning & evening.	35
27	27-Sep	PPE- Try to wear appropriate PPE, Finishing off shirt & pant sizes. Windy conditions again today, geophone plants have to be good.	35
28	28-Sep	Safety Meeting (See minutes)	35
29	29-Sep	Finish laying spread & picking up to move to last line. Hazards - Snakes, sand dunes & third party traffic.	35
30	30-Sep	Camp getting ready to camp move to Christies. Line crew to get vehicles ready etc for tomorrows camp move.	35

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Oct-03

## Toolboxes

No.	Month	Subjects	# Crew
1	1-Oct	Camp Move to Christies 2 & 3D. Hazards discussed, dust, third party traffic etc. Line crew to go ahead and lay 2 D line.	30
2	2-Oct	Time sheets to filled in. No 3 D spread arrived on crew, finish picking up 2 D spread. Clean out vehicles, check first aid kits & Fire extinguishers. Intersections on 3D have poor visibility, keep an eye out for oncoming vehicles.	30
3	3-Oct	Time sheets must be filled in if you wish to be paid. Still no 3D spread, finish laying geophones and cable, stand by.	32
4	4-Oct	Supply run today to Moomba, put orders in supply box if you wish to purchase things. Employee Emergency Info Forms to be completed. These are confidential and will be kept in the office. Time sheets, some people still have completed.	32
5	5-Oct	Safety Meeting (See Minutes)	32
6	6-Oct	Crew standing by for spread truck to arrive, look for jobs to do around camp until arrival of truck.	32
7	7-Oct	Back to normal routine, laying out 3D cables & clipping up phones. Vibrator ops helping out of unrolling neck rolls for cable trucks to pull on.	32
8	8-Oct	Incident reporting, report any injuries, incidents etc that may happen. Eyes - a few people on crew with sore eyes from dusty conditions, please see me as I have eye drops, saline solution etc that people can use.	32
9	9-Oct	Supply run being done to Moomba. Injury sustained to wrist, be extra careful when unloading and loading cables, equipment in and out of vehicles.	31
10	10-Oct	Good days production. Complacency - end of job, think about what may and can happen to you. Keep mind on the job until it is over, then you can relax. Injuries, please report so we can treat them before they get worse.	31
11	11-Oct	Finished production yesterday. Bob & Bruce both complemented the crew on a job well done. QHSE arrived on crew, take over from Terry. Leeton explained to the line crew on how we are picking up the spread. Des Postans gave an excellent talk about First Aiders on crew.	31

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

## INCIDENT REPORTS

Bus. Segment : Trace Energy Services		Report Number		RIR-01 - 030903	
Location		Client		Report Date	
Cordillo Downs 2D		Beach Petroleum		03-09-03	
Project		Name of reporter		Revision Date	
Cooper Basin – Crew 401		T.Ernst		12-09-03	

<b>Description of Actual or Potential Loss</b>		Event date 03-09-03		Event Time 1200 hrs																					
<b>Classification</b>		<b>Category</b> (Check all boxes which apply)																							
<input type="checkbox"/> Accident/Failure <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Light <input type="checkbox"/> Near Accident/Failure <input type="checkbox"/> Hazardous situation		<table border="0"> <tr> <td><input type="checkbox"/> Personnel</td> <td><input type="checkbox"/> Automotive</td> <td><input type="checkbox"/> Environmental</td> <td><input type="checkbox"/> Other</td> </tr> <tr> <td><input type="checkbox"/> Health</td> <td><input type="checkbox"/> Light Vehicle</td> <td><input type="checkbox"/> Spill/Leak</td> <td><input type="checkbox"/> Information</td> </tr> <tr> <td><input checked="" type="checkbox"/> Injury</td> <td><input type="checkbox"/> Heavy Vehicle</td> <td><input type="checkbox"/> Disposal</td> <td><input type="checkbox"/> Assets</td> </tr> <tr> <td><input type="checkbox"/> Fatality</td> <td></td> <td><input type="checkbox"/> Air Emission</td> <td><input type="checkbox"/> Process</td> </tr> <tr> <td></td> <td></td> <td></td> <td><input type="checkbox"/> Reputation</td> </tr> </table>				<input type="checkbox"/> Personnel	<input type="checkbox"/> Automotive	<input type="checkbox"/> Environmental	<input type="checkbox"/> Other	<input type="checkbox"/> Health	<input type="checkbox"/> Light Vehicle	<input type="checkbox"/> Spill/Leak	<input type="checkbox"/> Information	<input checked="" type="checkbox"/> Injury	<input type="checkbox"/> Heavy Vehicle	<input type="checkbox"/> Disposal	<input type="checkbox"/> Assets	<input type="checkbox"/> Fatality		<input type="checkbox"/> Air Emission	<input type="checkbox"/> Process				<input type="checkbox"/> Reputation
<input type="checkbox"/> Personnel	<input type="checkbox"/> Automotive	<input type="checkbox"/> Environmental	<input type="checkbox"/> Other																						
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			<input type="checkbox"/> Reputation																						
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<input type="checkbox"/> Traveling	<input type="checkbox"/> Rig or Vessel	<input type="checkbox"/> Other																							
		<b>Site Name:</b> Cordillo Downs																							
Company Involved		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Industry Recognized	<input checked="" type="checkbox"/> Yes																				
		<input type="checkbox"/> No	<input type="checkbox"/> No	Regulatory Recordable	<input type="checkbox"/> Yes																				
		<input checked="" type="checkbox"/> No	<input type="checkbox"/> No		<input type="checkbox"/> No																				
Brief description (50 characters maximum)																									
Skin irritation / reaction to tops of hands caused from using a hazardous washing powder.																									

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls																																											
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input checked="" type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> Very High (Daily or more) High (Weekly to Fortnightly) Medium (Fortnightly to Quarterly) Low (Every 4 – 12 months) Very low (Less than once per year)	<b>C2</b> <table border="1"> <tr> <td>E</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>Light</td> <td>Serious</td> <td>Major</td> <td>Catas.</td> <td>Multi-catas</td> </tr> </table> <p>High Risk (Do not take this risk.)</p> <p>Medium Risk (Reduce Risk)</p> <p>Low Risk (Improve)</p> <p>What were the potential consequence.</p> <p>&lt;\$10k \$10-100K \$100-\$1m &gt;\$1m &gt;\$1m+ 1<sup>st</sup> Aid LTI &lt;90 LTI &gt;90 Fatality Fatal + Potential severity</p>	E						D						C						B						A							1	2	3	4	5		Light	Serious	Major	Catas.	Multi-catas
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	1	2	3	4	5																																								
	Light	Serious	Major	Catas.	Multi-catas																																								

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

The camp attendant duties on crew involve washing clothes and using certain chemicals to kill bacteria and germs, this is to aid in the prevention of spreading diseases.

On the 3<sup>rd</sup> Sep, the camp attendant showed to me her hands, which were red in colour with blisters apparent on tops of hands.

The Immediate actions taken were to define what was actually causing this.

The QHSE Officer concluded that a chemical called "Blue Brite" (a powder which is used to wash clothes) was more than likely the main cause for the skin irritation. Also several other crew personnel were experiencing similar problems with developing skin irritations of a similar nature.

The chemical was removed and a different washing powder is being used instead.

The camp attendants hands gradually improved over the next week with the QHSE monitoring them every day.

The washing powder "Blue Brite" has since been removed from site and no reports of developing rashes from other crew personnel have been reported.

12<sup>th</sup> Sep

The camp attendants hands have recovered completely and no visible rash developments are apparent.

At the time of the incident the camp attendant had been using gloves.

# Loss Report

Injury or Illness Information									
(for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1	Christine Smith		Aug-03	Trace	Camp				N
2									
3									
4									

Indicate details on injuries for each of the persons above							
	Injury	A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease	H Mental Illness I Other Illness.	Body parts affected	A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog	H Digestiv I Urinary J Sensory K Other	Days lost (estimated)
1	A			C			0
2							
3							
4							

Automotive Accident Information							
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No				Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle				On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No			
Weather Conditions		Road Type		Accident Type			
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy		<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface		<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road			
Was alcohol/drugs involved?		<input type="checkbox"/> Yes <input type="checkbox"/> No		Driving Licence held?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Speed when accident occurred		<input type="checkbox"/> kph <input type="checkbox"/> mph		Charged by Police?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
All persons wearing seatbelts?		<input type="checkbox"/> Yes <input type="checkbox"/> No		Defensive Driving Training Up-To-Date?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
				Driver Commentary Drive Up-To-Date?		<input type="checkbox"/> Yes <input type="checkbox"/> No	

Environmental Accident Information				
Result		Details		
<input type="checkbox"/> Vegetation damage	<input type="checkbox"/> Release to water way	Amount spilled or discharged:		Unit
<input type="checkbox"/> Soil contamination	<input type="checkbox"/> Released to air			
<input type="checkbox"/> Ground water contamination	<input type="checkbox"/> Marine life damage			
		Material name or code :		
		Duration of discharge	Hrs	min

Other Loss Information				
(Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total
Remarks :			

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Name of Manager leading the investigation		T.Ernst			
Names of other team members		C.Smith			
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>					
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Caught between <input type="checkbox"/> Fall on same level <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Caught on <input type="checkbox"/> Caught in <input type="checkbox"/> Struck by <input checked="" type="checkbox"/> Contact with				
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper placement <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper lifting <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Horseplay <input type="checkbox"/> Failure to use PPE properly <input checked="" type="checkbox"/> Failure to warn <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Failure to secure <input type="checkbox"/> Poor control of Contractor <input type="checkbox"/> Improper position for task <input type="checkbox"/> Improper loading <input type="checkbox"/> Servicing equip in operation <input type="checkbox"/> Using defective equipment				
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Pressure exposure <input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Slippery surface <input type="checkbox"/> Noise exposure <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Inadequate/excess illumination <input type="checkbox"/> Poor housekeeping/disorder				
<b>Investigation Section 2 - Basic Causes</b>					
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)					
<b>Personal Factors</b>			<b>Job Factors</b>		
<input checked="" type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of skills <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Improper motivation <input type="checkbox"/> Stress <input type="checkbox"/> Fatigue <input type="checkbox"/> Substance Abuse			<input type="checkbox"/> Inadequate leadership/supervision <input checked="" type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Wear and tear <input type="checkbox"/> Organizational rules <input type="checkbox"/> Conflicting goals/objectives		
<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Organization & Resources <input checked="" type="checkbox"/> Risk Management <input checked="" type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Policies & Objectives <input type="checkbox"/> Contractor & Supplier Mgmt <input type="checkbox"/> Design & Planning <input type="checkbox"/> Assessment & Cont. Improvt.					
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Provided first Aid	QHSE	03-09-03	03-09-03	Hands red, swollen with blisters.
2	Remove "Blue Brite" washing powder Using alternative washing powder	QHSE	04-09-03	04-09-03	Blue Brite washing powder removed from site
3	Monitored hands over 1 week period	QHSE	12-09-03	12-09-03	Hands have healed
4	Purchase only leading brands of washing powder.	Camp Attendant	12-09-03	12-09-03	



# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment :		Trace Energy Services		Report Number		RIR-02 – 08-09-03	
Location		Mentone 2D		Client		Stuart Petroleum	
Project		Cooper Basin – Crew 401		Name of reporter		T.Ernst	
Report Date		08-09-03		Revision Date		12-09-03	

<b>Description of Actual or Potential Loss</b>			Event date		08-09-03		Event Time		1930 hrs		
<b>Classification</b>			<b>Category</b> (Check all boxes which apply)						<b>Site</b>		
<input type="checkbox"/> Accident/Failure <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Light <input type="checkbox"/> Near Accident/Failure <input type="checkbox"/> Hazardous situation			<input type="checkbox"/> Personnel <input type="checkbox"/> Health <input checked="" type="checkbox"/> Injury <input type="checkbox"/> Fatality		<input type="checkbox"/> Automotive <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle		<input type="checkbox"/> Environmental <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission		<input type="checkbox"/> Other <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation		<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other
									<b>Site Name:</b>		
									Mentone 2D		
Company Involved		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Industry Recognized		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Regulatory Recordable		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Brief description (50 characters maximum)											
Left Earache – possibly caused from insect entering ear											

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls	
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input checked="" type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> Very High (Daily or more) High (Weekly to Fortnightly) Medium (Fortnightly to Quarterly) Low (Every 4 – 12 months) Very low (Less than once per year)	<b>B2</b> <p>High Risk (Do not take this risk.)</p> <p>Medium Risk (Reduce Risk)</p> <p>Low Risk (Improve)</p> <p>1 2 3 4 5 Light Serious Major Catas. Multi-catas</p> <p>What were the potential consequence.</p> <p>&lt;\$10k \$10-100K \$100-\$1m &gt;\$1m &gt;\$1m+ 1<sup>st</sup> Aid LTI &lt;90 LTI &gt;90 Fatality Fatal + Potential severity</p>

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

A vibrator operator reported to me on the 8<sup>th</sup> Sep at night, complaining of dullness and slight aching in his left ear.

QHSE looked into ear to determine if there was something in it. Nothing could be seen inside, saline solution was administered whilst left ear was pointed towards the ground.

9<sup>th</sup> Sep he was taken to Moomba Medical Centre for a proper examination of left ear.

He was cleared by the nurse at Moomba and told that there was nothing in his eardrum that could be visibly seen.

Eardrops were given to him and ear is slowly improving.

10<sup>th</sup> Sep Qhse still monitoring Vibe operator, ear is feeling significantly better.

12<sup>th</sup> Sep no complaints of dullness or aching in left ear, continuing with ear drops.

No Lost Work days involved.

# Loss Report

Injury or Illness Information									
(for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1	Adam Pippos		Nov-02	Trace	Vibe Op				N
2									
3									
4									

Indicate details on injuries for each of the persons above					
	Injury		Body parts affected		Days lost (estimated)
1	A	A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease H Mental Illness I Other Illness.	A	A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog H Digestiv I Urinary J Sensory K Other	0
2					
3					
4					

Automotive Accident Information					
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No           Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle           On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No					
<b>Weather Conditions</b>		<b>Road Type</b>		<b>Accident Type</b>	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy		<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface		<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? Speed when accident occurred		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> kph <input type="checkbox"/> mph		Driving Licence held? Charged by Police? Defensive Driving Training Up-To-Date? Driver Commentary Drive Up-To-Date?	
All persons wearing seatbelts?		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Environmental Accident Information					
Result			Details		
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Soil contamination <input type="checkbox"/> Ground water contamination			<input type="checkbox"/> Release to water way <input type="checkbox"/> Released to air <input type="checkbox"/> Marine life damage		
			Amount spilled or discharged:		Unit
			Material name or code :		
			Duration of discharge	Hrs	min

Other Loss Information				
(Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total
Remarks :			

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Name of Manager leading the investigation		T.Ernst			
Names of other team members		A.Pippos			
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>					
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Caught between <input type="checkbox"/> Fall on same level <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Caught on <input type="checkbox"/> Caught in <input type="checkbox"/> Struck by <input checked="" type="checkbox"/> Contact with				
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper placement <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper lifting <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Horseplay <input type="checkbox"/> Failure to use PPE properly <input type="checkbox"/> Failure to warn <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Failure to secure <input type="checkbox"/> Poor control of Contractor <input type="checkbox"/> Improper position for task <input type="checkbox"/> Improper loading <input type="checkbox"/> Servicing equip in operation <input type="checkbox"/> Using defective equipment				
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Pressure exposure <input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Slippery surface <input type="checkbox"/> Noise exposure <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Inadequate/excess illumination <input type="checkbox"/> Poor housekeeping/disorder				
<b>Investigation Section 2 - Basic Causes</b>					
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)					
<b>Personal Factors</b>			<b>Job Factors</b>		
<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of skills <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Improper motivation <input type="checkbox"/> Stress <input type="checkbox"/> Fatigue <input type="checkbox"/> Substance Abuse			<input type="checkbox"/> Inadequate leadership/supervision <input type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Wear and tear <input type="checkbox"/> Organizational rules <input type="checkbox"/> Conflicting goals/objectives		
<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Organization & Resources <input checked="" type="checkbox"/> Risk Management <input checked="" type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Policies & Objectives <input type="checkbox"/> Contractor & Supplier Mgmt <input type="checkbox"/> Design & Planning <input type="checkbox"/> Assessment & Cont. Improvt.					
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Flushed with saline solution	A.Pippos	08-09-03	08-09-03	Adam flushed left ear by himself.
2	Taken to Moomba Medical Centre	QHSE	09-09-03	09-09-03	All clear given – Ear drops administered by himself
3	Ongoing with ear drops, monitoring each day by QHSE	A.Pippos	12-09-09	12-09-03	No complaining of ear dullness or aching anymore, still using ear drops.

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment :		Trace Energy Services		Report Number		RIR- 03	
Location		Mentone 2D		Client		Stuart Petroleum	
Project		Cooper Basin – Crew 401		Name of reporter		T.Ernst	
Report Date		08-09-03		Revision Date		13-09-03	

<b>Description of Actual or Potential Loss</b>				Event date		08-09-03		Event Time		2030 hrs	
<b>Classification</b>		<b>Category</b> (Check all boxes which apply)						<b>Site</b>			
<input type="checkbox"/> <b>Accident/Failure</b> <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input type="checkbox"/> Light <input type="checkbox"/> <b>Near Accident/Failure</b> <input checked="" type="checkbox"/> <b>Hazardous situation</b>		<input checked="" type="checkbox"/> <b>Personnel</b> <input type="checkbox"/> Health <input type="checkbox"/> Injury <input type="checkbox"/> Fatality		<input type="checkbox"/> <b>Automotive</b> <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle		<input type="checkbox"/> <b>Environmental</b> <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission		<input type="checkbox"/> <b>Other</b> <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation		<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other	
								<b>Site Name:</b>			
								Mentone 2D			
Company Involved		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Industry Recognized		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Regulatory Recordable		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Brief description (50 characters maximum)											
Skin Irritation (Eczema)											

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls																																											
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input checked="" type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> Very High (Daily or more) High (Weekly to Fortnightly) Medium (Fortnightly to Quarterly) Low (Every 4 – 12 months) Very low (Less than once per year)	<b>B2</b> <table border="1"> <tr> <td>E</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>Light</td> <td>Serious</td> <td>Major</td> <td>Catas.</td> <td>Multi-catas</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>High Risk</b> (Do not take this risk.)                 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Medium Risk</b> (Reduce Risk )                 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Low Risk</b> (Improve)                 </div>	E						D						C						B						A							1	2	3	4	5		Light	Serious	Major	Catas.	Multi-catas
E																																													
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	1	2	3	4	5																																								
	Light	Serious	Major	Catas.	Multi-catas																																								
		<b>What were the potential consequence.</b>	<table border="1"> <tr> <td>&lt;\$10k</td> <td>\$10-100K</td> <td>\$100-\$1m</td> <td>&gt;\$1m</td> <td>&gt;\$1m+</td> </tr> <tr> <td>1<sup>st</sup> Aid LTI</td> <td>LTI &lt;90</td> <td>LTI &gt;90</td> <td>Fatality</td> <td>Fatal +</td> </tr> </table> <b>Potential severity</b>	<\$10k	\$10-100K	\$100-\$1m	>\$1m	>\$1m+	1 <sup>st</sup> Aid LTI	LTI <90	LTI >90	Fatality	Fatal +																																
<\$10k	\$10-100K	\$100-\$1m	>\$1m	>\$1m+																																									
1 <sup>st</sup> Aid LTI	LTI <90	LTI >90	Fatality	Fatal +																																									

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

On the 8<sup>th</sup> Sep a female field assistant approached the QHSE and asked if he could examine a skin irritation that had started several days ago and had spread quite extensively over the torso of her body.

After discussion with her she informed the QHSE that she sometimes gets this particular rash and is known as "Eczema" (pronounced XMA)

Tea Tree soothing cream was given to her by QHSE to relieve itching.

9<sup>th</sup> Sep

Taken to the Moomba Medical Centre whereby she was told that the irritation was probably due to a chemical reaction from both the heat and the washing powder "Blue Brite".

Sorbalene and Sigmacorte cream was given to her and advice on drinking plenty of fluids as well to help getting rid of the irritation.

Applied creams.

10<sup>th</sup> Sep

Informed the QHSE that the itching had subsided but no change in the rash itself.

The QHSE suggested that she stay in camp and perform camp attendant duties whereby she could be monitored and have cold showers when needed.

Still applying creams.

11<sup>th</sup> Sep

No itching and rash had started to disappear. QHSE monitoring her and has performed camp attendant duties again today.

Still applying creams.

12<sup>th</sup> Sep

No itching and rash has almost disappeared completely. Informed QHSE that evening that she would go back to the field as of tomorrow morning.

Still applying creams.

13<sup>th</sup> Sep

No itching or rash present.

Still applying creams.

Resumed to the field.

# Loss Report

Injury or Illness Information (for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1	Melinda Lynham		Jun-03	Trace	Field Asst				N
2									
3									
4									

Indicate details on injuries for each of the persons above

	Injury	A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease H Mental Illness I Other Illness.	Body parts affected	A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog H Digestiv I Urinary J Sensory K Other	Days lost (estimated)
1	A		B		0
2					
3					
4					

Automotive Accident Information			
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No		Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle		On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Weather Conditions</b>	<b>Road Type</b>	<b>Accident Type</b>	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy	<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface	<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? <input type="checkbox"/> Yes <input type="checkbox"/> No		Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph		Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No	
All persons wearing seatbelts? <input type="checkbox"/> Yes <input type="checkbox"/> No		Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Environmental Accident Information			
<b>Result</b>		<b>Details</b>	
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Soil contamination <input type="checkbox"/> Ground water contamination	<input type="checkbox"/> Release to water way <input type="checkbox"/> Released to air <input type="checkbox"/> Marine life damage	Amount spilled or discharged: Material name or code : Duration of discharge	Unit Hrs min

Other Loss Information (Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total
Remarks :			



# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Name of Manager leading the investigation		T.Ernst			
Names of other team members		M.Lynham			
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>					
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Caught between <input type="checkbox"/> Fall on same level <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Caught on <input type="checkbox"/> Caught in <input type="checkbox"/> Struck by <input checked="" type="checkbox"/> Contact with				
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper placement <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper lifting <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Horseplay <input type="checkbox"/> Failure to use PPE properly <input checked="" type="checkbox"/> Failure to warn <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Failure to secure <input type="checkbox"/> Poor control of Contractor <input type="checkbox"/> Improper position for task <input type="checkbox"/> Improper loading <input type="checkbox"/> Servicing equip in operation <input type="checkbox"/> Using defective equipment				
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Pressure exposure <input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Slippery surface <input type="checkbox"/> Noise exposure <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Inadequate/excess illumination <input type="checkbox"/> Poor housekeeping/disorder				
<b>Investigation Section 2 - Basic Causes</b>					
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)					
<b>Personal Factors</b>			<b>Job Factors</b>		
<input checked="" type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of skills <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Improper motivation <input type="checkbox"/> Stress <input type="checkbox"/> Fatigue <input type="checkbox"/> Substance Abuse			<input type="checkbox"/> Inadequate leadership/supervision <input checked="" type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Wear and tear <input type="checkbox"/> Organizational rules <input type="checkbox"/> Conflicting goals/objectives		
<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Organization & Resources <input checked="" type="checkbox"/> Risk Management <input checked="" type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Policies & Objectives <input type="checkbox"/> Contractor & Supplier Mgmt <input type="checkbox"/> Design & Planning <input type="checkbox"/> Assessment & Cont. Improvt.					
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Provided first aid (Tea Tree cream)	QHSE	08-09-03	08-09-03	Tea Tree soothing cream was provided to relieve itching
2	Referred to Moomba Medical Centre	QHSE	09-09-03	09-09-03	Determined Eczema – Two different creams were given to relieve itching and rash.
3	Monitoring of patient over the next 5 days.	QHSE	13-09-03	13-09-03	Ezema appears to have cleared.

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment : Trace Energy Services		Report Number		RIR- 04	
Location	Spencer 2D	Client	Beach Petroleum	Report Date	26-09-03
Project	Cooper Basin – Crew 401	Name of reporter	T.Ernst	Revision Date	06-10-03

<b>Description of Actual or Potential Loss</b>		Event date	26-09-03	Event Time	1600 hrs
<b>Classification</b>	<b>Category</b> (Check all boxes which apply)			<b>Site</b>	
<input type="checkbox"/> Accident/Failure <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Light <input type="checkbox"/> Near Accident/Failure <input type="checkbox"/> Hazardous situation	<input type="checkbox"/> Personnel <input checked="" type="checkbox"/> Health <input type="checkbox"/> Injury <input type="checkbox"/> Fatality	<input type="checkbox"/> Automotive <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle	<input type="checkbox"/> Environmental <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission	<input type="checkbox"/> Other <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation	<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other <b>Site Name:</b> Spencer 2D
Company Involved	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Industry Recognized	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Regulatory Recordable					
Brief description (50 characters maximum) Lacerated middle finger on right hand caused from broken bottle in fridge.					

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls																																											
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input checked="" type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> Very High (Daily or more) High (Weekly to Fortnightly) Medium (Fortnightly to Quarterly) Low (Every 4 – 12 months) Very low (Less than once per year)	<b>D2</b> <table border="1"> <tr> <td>E</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>Light</td> <td>Serious</td> <td>Major</td> <td>Catas.</td> <td>Multi-catas</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>High Risk</b> (Do not take this risk.)         </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Medium Risk</b> (Reduce Risk )         </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Low Risk</b> (Improve)         </div>	E						D						C						B						A							1	2	3	4	5		Light	Serious	Major	Catas.	Multi-catas
E																																													
D																																													
C																																													
B																																													
A																																													
	1	2	3	4	5																																								
	Light	Serious	Major	Catas.	Multi-catas																																								
		<b>What were the potential consequence.</b> <\$10k \$10-100K \$100-\$1m >\$1m >\$1m+ 1 <sup>st</sup> Aid LTI <90 LTI>90 Fatality Fatal + <b>Potential severity</b>																																											

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

## **26-09-03**

While cleaning the fridge in the dry stores trailer, the QHSE lacerated the middle finger on his right hand.

Currently the crew has a new fridge, which for some reason freezes everyone instead of cooling things down. Bottles had been left in the fridge and had exploded overnight causing broken glass to be left in the bottom of the fridge.

The QHSE discovered the mess that afternoon and chose to clean out the fridge.

While cleaning inside the bottom, a piece of glass lacerated the middle finger causing a 1cm cut with excessive blood flowing from the wound.

The QHSE showed the camp mechanic what had happened and helped the QHSE clean and dress the wound straight away.

Dish washing rubber gloves were being used at the time of the accident but the glass still cut through causing the injury.

After the injury had been cleaned and dressed, leather gloves were used instead to complete the task.

Signs were placed on the fridge not to use for storing glass.

## **06-10-03**

The injury sustained has almost completely healed with no infection apparent.

# Loss Report

Injury or Illness Information									
(for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1	Terry Ernst	30		Trace	QHSE				N
2									
3									
4									

Indicate details on injuries for each of the persons above												
	Injury	A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease		H Mental Illness I Other Illness.		Body parts affected C		A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog		H Digestiv I Urinary J Sensory K Other		Days lost (estimated)
1	A											0
2												
3												
4												

Automotive Accident Information											
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No                     Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No											
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle                     On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No											
Weather Conditions		Road Type			Accident Type						
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy		<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow			<input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface			<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover		<input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved?		<input type="checkbox"/> Yes <input type="checkbox"/> No Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph			Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No						
All persons wearing seatbelts?		<input type="checkbox"/> Yes <input type="checkbox"/> No									

Environmental Accident Information									
Result				Details					
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Soil contamination <input type="checkbox"/> Ground water contamination		<input type="checkbox"/> Release to water way <input type="checkbox"/> Released to air <input type="checkbox"/> Marine life damage		Amount spilled or discharged:				Unit	
				Material name or code :					
				Duration of discharge		Hrs		min	

Other Loss Information				
(Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total
Remarks :			

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Name of Manager leading the investigation		T.Ernst			
Names of other team members		R.Smith			
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>					
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Caught between <input type="checkbox"/> Fall on same level <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Caught on <input type="checkbox"/> Caught in <input type="checkbox"/> Struck by <input checked="" type="checkbox"/> Contact with				
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper placement <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper lifting <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Horseplay <input type="checkbox"/> Failure to use PPE properly <input type="checkbox"/> Failure to warn <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Failure to secure <input type="checkbox"/> Poor control of Contractor <input type="checkbox"/> Improper position for task <input type="checkbox"/> Improper loading <input type="checkbox"/> Servicing equip in operation <input type="checkbox"/> Using defective equipment				
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Pressure exposure <input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Slippery surface <input type="checkbox"/> Noise exposure <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Inadequate/excess illumination <input checked="" type="checkbox"/> Poor housekeeping/disorder				
<b>Investigation Section 2 - Basic Causes</b>					
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)					
<b>Personal Factors</b>			<b>Job Factors</b>		
<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of skills <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Improper motivation <input type="checkbox"/> Stress <input type="checkbox"/> Fatigue <input type="checkbox"/> Substance Abuse			<input type="checkbox"/> Inadequate leadership/supervision <input type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate work standards <input checked="" type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Wear and tear <input type="checkbox"/> Organizational rules <input type="checkbox"/> Conflicting goals/objectives		
<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Organization & Resources <input checked="" type="checkbox"/> Risk Management <input type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Policies & Objectives <input checked="" type="checkbox"/> Contractor & Supplier Mgmt <input type="checkbox"/> Design & Planning <input type="checkbox"/> Assessment & Cont. Improvt.					
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Cleansed & Dressed Wound	QHSE	26-09-03	26-09-03	Mechanic helped clean & dress wound.
2	Leather gloves worn to complete job	QHSE	26-09-03	26-09-03	
3	Signage placed on fridge	QHSE	26-09-03	26-09-03	"No Glass" signs placed on fridge to warn others.
4	Fridge to be checked by certified person (Contractor)	QHSE	30-10-03		

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment :		Trace Energy Services		Report Number		RIR-05	
Location		Christies		Client		Beach Petroleum	
Project		Crew 401 – Cooper Basin		Name of reporter		T.Ernst	
Report Date		06-10-03		Revision Date		10-10-03	

<b>Description of Actual or Potential Loss</b>			Event date		06-10-03		Event Time		1100 hrs		
<b>Classification</b>			<b>Category</b> (Check all boxes which apply)						<b>Site</b>		
<input type="checkbox"/> Accident/Failure <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input type="checkbox"/> Light <input type="checkbox"/> Near Accident/Failure <input checked="" type="checkbox"/> Hazardous situation			<input type="checkbox"/> Personnel <input type="checkbox"/> Health <input type="checkbox"/> Injury <input type="checkbox"/> Fatality		<input type="checkbox"/> Automotive <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle		<input type="checkbox"/> Environmental <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission		<input type="checkbox"/> Other <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation		
									<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other		
									<b>Site Name:</b> Christies		
Company Involved		<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No		Industry Recognized		<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
Regulatory Recordable		<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No							
Brief description (50 characters maximum)											
Fire in Kitchen											

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls																																											
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input checked="" type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> Very High (Daily or more) High (Weekly to Fortnightly) Medium (Fortnightly to Quarterly) Low (Every 4 – 12 months) Very low (Less than once per year)	<b>D1</b> <table border="1"> <tr> <td>E</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>Light</td> <td>Serious</td> <td>Major</td> <td>Catas.</td> <td>Multi-catas</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>High Risk</b> (Do not take this risk.)         </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Medium Risk</b> (Reduce Risk)         </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Low Risk</b> (Improve)         </div>	E						D						C						B						A							1	2	3	4	5		Light	Serious	Major	Catas.	Multi-catas
E																																													
D																																													
C																																													
B																																													
A																																													
	1	2	3	4	5																																								
	Light	Serious	Major	Catas.	Multi-catas																																								
		<b>What were the potential consequence.</b> <\$10k \$10-100K \$100-\$1m >\$1m >\$1m+ 1 <sup>st</sup> Aid LTI <90 LTI >90 Fatality Fatal + <b>Potential severity</b>																																											

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

**6<sup>th</sup> Oct**

While preparing lunch in the kitchen, the cooks offsider noticed a burning smell coming from the oven. He then decided to open the oven doors and saw inside a small fire that had started.

The offsider then closed the doors immediately and switched off the oven. He then informed everyone inside the diner and went to get help from the cook.

After they both had returned, the kitchen had filled with smoke leaving visibility minimal.

They then re-opened the oven doors and found that the fire was almost out. By the time they had the fire blanket out the fire had already extinguished itself.

It was determined that the cause of the fire had started from a BBQ rib sauce that had boiled over the pan and mixed with the fat on the element in the bottom of the oven.



# Loss Report

Injury or Illness Information (for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1									
2									
3									
4									

Indicate details on injuries for each of the persons above					
	Injury		Body parts affected		Days lost (estimated)
1		A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease H Mental Illness I Other Illness.		A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog H Digestiv I Urinary J Sensory K Other	
2					
3					
4					

Automotive Accident Information					
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No      Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle      On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No					
<b>Weather Conditions</b>		<b>Road Type</b>		<b>Accident Type</b>	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy		<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface		<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? <input type="checkbox"/> Yes <input type="checkbox"/> No Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph		Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No			
All persons wearing seatbelts? <input type="checkbox"/> Yes <input type="checkbox"/> No					

Environmental Accident Information				
Result		Details		
<input type="checkbox"/> Vegetation damage	<input type="checkbox"/> Release to water way	Amount spilled or discharged:  Material name or code :  Duration of discharge		Unit
<input type="checkbox"/> Soil contamination	<input type="checkbox"/> Released to air			
<input type="checkbox"/> Ground water contamination	<input type="checkbox"/> Marine life damage		Hrs	min

Other Loss Information (Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

Accident Cost Estimate			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total	Total	Total	Total
Remarks :			

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Name of Manager leading the investigation		T.Ernst			
Names of other team members		C.Curd, S.Teschendorf			
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>					
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Caught in	<input type="checkbox"/> Caught between <input type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Struck by	<input type="checkbox"/> Fall on same level <input type="checkbox"/> Caught on <input type="checkbox"/> Contact with		
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Failure to use PPE properly <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Improper position for task <input type="checkbox"/> Servicing equip in operation	<input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Failure to warn <input type="checkbox"/> Failure to secure <input type="checkbox"/> Improper loading <input type="checkbox"/> Using defective equipment	<input type="checkbox"/> Improper placement <input type="checkbox"/> Improper lifting <input type="checkbox"/> Horseplay <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Poor control of Contractor		
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Defective tools, equip, or mat. <input type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Inadequate/excess illumination	<input type="checkbox"/> Pressure exposure <input type="checkbox"/> Slippery surface <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Poor housekeeping/disorder	<input checked="" type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Noise exposure <input checked="" type="checkbox"/> Temperature extremes <input checked="" type="checkbox"/> Inadequate ventilation		
<b>Investigation Section 2 - Basic Causes</b>					
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)					
<b>Personal Factors</b>		<b>Job Factors</b>			
<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Stress <input type="checkbox"/> Substance Abuse	<input type="checkbox"/> Lack of skills <input type="checkbox"/> Improper motivation <input type="checkbox"/> Fatigue	<input type="checkbox"/> Inadequate leadership/supervision <input checked="" type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Organizational rules	<input type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Wear and tear <input type="checkbox"/> Conflicting goals/objectives		
<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Policies & Objectives	<input type="checkbox"/> Organization & Resources <input type="checkbox"/> Contractor & Supplier Mgmt	<input type="checkbox"/> Risk Management <input checked="" type="checkbox"/> Design & Planning	<input type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Assessment & Cont. Improvt.		
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	Fire extinguished	Cook	06-10-03	06-10-03	No damage or injuries sustained
2	Camp Inspection performed	QHSE	05-10-03	05-10-03	Kitchen inspection performed 1 day prior to fire.
3	Improve ventilation system	Perth	30-12-03		Perth to supply adequate ventilation system to extract smoke etc whilst cooking.
4	Placed on RWP	QHSE	30-12-03		QHSE to ensure this gets placed on a RWP to get fixed.

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Bus. Segment :		Trace Energy Services		Report Number		RIR- 06	
Location		Christies		Client		Beach Petroleum	
Project		Crew 401 – Cooper Basin		Name of reporter		T.Ernst	
Report Date		08-10-03		Revision Date		10-10-03	

<b>Description of Actual or Potential Loss</b>			Event date		08-10-03		Event Time		1030 hrs	
<b>Classification</b>			<b>Category</b> (Check all boxes which apply)						<b>Site</b>	
<input type="checkbox"/> Accident/Failure <input type="checkbox"/> Multi Catastrophic <input type="checkbox"/> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Light <input type="checkbox"/> Near Accident/Failure <input type="checkbox"/> Hazardous situation			<input type="checkbox"/> Personnel <input type="checkbox"/> Health <input checked="" type="checkbox"/> Injury <input type="checkbox"/> Fatality		<input type="checkbox"/> Automotive <input type="checkbox"/> Light Vehicle <input type="checkbox"/> Heavy Vehicle		<input type="checkbox"/> Environmental <input type="checkbox"/> Spill/Leak <input type="checkbox"/> Disposal <input type="checkbox"/> Air Emission		<input type="checkbox"/> Other <input type="checkbox"/> Information <input type="checkbox"/> Assets <input type="checkbox"/> Process <input type="checkbox"/> Reputation	
									<input type="checkbox"/> Facility <input type="checkbox"/> Office/Lab <input checked="" type="checkbox"/> Field location <input type="checkbox"/> Traveling <input type="checkbox"/> Rig or Vessel <input type="checkbox"/> Other	
									<b>Site Name:</b>	
									Christies	
Company Involved		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Industry Recognized		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Regulatory Recordable		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Brief description (50 characters maximum)										
Injury to left wrist										

## Training


Hazard Category (check one only)		Risk Classification Refer to Risk Classification Tool.xls																																											
<input type="checkbox"/> Land Transport <input type="checkbox"/> Air transport <input type="checkbox"/> Water transport <input type="checkbox"/> Electrical <input type="checkbox"/> Fire/ flammable <input type="checkbox"/> Temperature <input type="checkbox"/> Explosives <input type="checkbox"/> Radiation <input type="checkbox"/> Pressure	<input checked="" type="checkbox"/> Potential energy (Stepping/Handling/Lifting/ Falling objects/Weight) <input type="checkbox"/> Machinery/Equipment/Hand Tools <input type="checkbox"/> Toxic/corrosive/hazardous substances <input type="checkbox"/> Nuisance/noise <input type="checkbox"/> Vibration <input type="checkbox"/> Drugs/alcohol <input type="checkbox"/> Natural phenomena <input type="checkbox"/> Human (Security, crime, terrorism) <input type="checkbox"/> Biological hazard/illness	<b>Exposure (How often, How many)</b> Very High (Daily or more) High (Weekly to Fortnightly) Medium (Fortnightly to Quarterly) Low (Every 4 – 12 months) Very low (Less than once per year)	<b>D2</b> <table border="1"> <tr> <td>E</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>Light</td> <td>Serious</td> <td>Major</td> <td>Catas.</td> <td>Multi-catas</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>High Risk</b> (Do not take this risk.)         </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Medium Risk</b> (Reduce Risk )         </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <b>Low Risk</b> (Improve)         </div>	E						D						C						B						A							1	2	3	4	5		Light	Serious	Major	Catas.	Multi-catas
E																																													
D																																													
C																																													
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	Light	Serious	Major	Catas.	Multi-catas																																								
		<b>What were the potential consequence.</b> <\$10k \$10-100K \$100-\$1m >\$1m >\$1m+ 1 <sup>st</sup> Aid LTI <90 LTI >90 Fatality Fatal + <b>Potential severity</b>																																											

# Risk Identification and Accident Report

for Accidents, Failures, Near Accidents and Hazardous Situations

Detailed description of **facts**. Describe what happened. Attach sketch or photographs. Use additional sheets if required.

## 8<sup>th</sup> Oct

While attempting to remove a 3D cable from the back of a tray back ute, the cable being removed got snagged on another cable.

Extra force was used to remove the cable and at the same time he felt a twinge of pain in his left wrist.

As the day progressed, swelling and limited range of movement became apparent on the wrist and forearm.

The injury was reported to the QHSE at the end of the working day, whereby ice was applied for several hours.

Later that night "Perskindol Cool Rub" was applied to the area.

## 7<sup>th</sup> Oct

Swelling had reduced but limited motion of the wrist was evident.

Perskindol Active – Heat Rub was applied to the area 3 times that day. Swelling had reduced considerably by late afternoon, however limited range of motion was still evident.

## 10<sup>th</sup> Oct

Some range of movement is still limited but appears to be getting better daily. Perskindol active is still being used to bring back full range of movement.

The Injury is still ongoing and is checked on a daily basis by the QHSE.

If range of movement is not still fully reached by the time the crew demobilizes from Christies. The patient will have to be seen by either the Moomba Medical Centre or a Qualified practionor.

# Loss Report

<b>Injury or Illness Information</b> (for each person injured)									
	Name (s)	Age	Seniority date	Company or Third Party	Job function	Hrs since last sleep	Hrs slept last time	Hrs on duty	Fatality (Y/N)
1	Joel Carry	44		Trace	Obs				N
2									
3									
4									

Indicate details on injuries for each of the persons above						
Injury	A Light Trauma B Heavy Trauma C External exposure. D Internal exposure. E Tumoral Illness F Vascular Illness G Infectious disease	H Mental Illness I Other Illness.	Body parts affected	A Head B Torso C A/H/F D L/F/T E Resp F Cardio G Neurolog	H Digestiv I Urinary J Sensory K Other	Days lost (estimated)
1	A		C			0
2						
3						
4						

<b>Automotive Accident Information</b>			
Was vehicle traveling in convoy : <input type="checkbox"/> Yes <input type="checkbox"/> No		Was the driver the only occupant? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was Vehicle <input type="checkbox"/> Company Owned <input type="checkbox"/> Rented/Leased <input type="checkbox"/> Personal Vehicle		On Company Business <input type="checkbox"/> Yes <input type="checkbox"/> No	
Weather Conditions	Road Type	Accident Type	
<input type="checkbox"/> Dry <input type="checkbox"/> Wet/slick <input type="checkbox"/> Clear <input type="checkbox"/> Dust/sandstorm <input type="checkbox"/> Extreme heat <input type="checkbox"/> Fog <input type="checkbox"/> Snow or Icy	<input type="checkbox"/> Paved <input type="checkbox"/> Off road <input type="checkbox"/> Up a grade <input type="checkbox"/> Narrow <input type="checkbox"/> Unpaved <input type="checkbox"/> Curve <input type="checkbox"/> Down grade <input type="checkbox"/> Poor surface	<input type="checkbox"/> Hit vehicle in front <input type="checkbox"/> Hit from behind <input type="checkbox"/> Backed into <input type="checkbox"/> Hit stationary object <input type="checkbox"/> Hit pedestrian <input type="checkbox"/> Rollover <input type="checkbox"/> Sideswipe <input type="checkbox"/> Passing <input type="checkbox"/> Being passed <input type="checkbox"/> Hit & Run <input type="checkbox"/> Hit animal <input type="checkbox"/> Ran off road	
Was alcohol/drugs involved? <input type="checkbox"/> Yes <input type="checkbox"/> No		Driving Licence held? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Speed when accident occurred <input type="checkbox"/> kph <input type="checkbox"/> mph		Charged by Police? <input type="checkbox"/> Yes <input type="checkbox"/> No	
All persons wearing seatbelts? <input type="checkbox"/> Yes <input type="checkbox"/> No		Defensive Driving Training Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Driver Commentary Drive Up-To-Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	

<b>Environmental Accident Information</b>			
Result	Details		
<input type="checkbox"/> Vegetation damage <input type="checkbox"/> Soil contamination <input type="checkbox"/> Ground water contamination	<input type="checkbox"/> Release to water way <input type="checkbox"/> Released to air <input type="checkbox"/> Marine life damage	Amount spilled or discharged:	Unit
		Material name or code :	
		Duration of discharge	Hrs min

<b>Other Loss Information</b> (Equipment, property, products, inventory, information, revenue, time or other including those of Third Party)				
Type	Description of loss	Ref. Number (asset number, product code, ...)	Quantity	Unit

<b>Accident Cost Estimate</b>			
Injury/Illness Costs (\$000)	Automotive Costs (\$000)	Environmental Costs (\$000)	Other Costs (\$000)
Lost Work Days 0	Replacements	Lost Products	Replacements
Temp Staff	Repairs	Remediation	Repairs
Medical Costs 0	3 <sup>rd</sup> Party Repairs	Litigation	Lost Products
Litigation/Other	Litigation/Other	Other	Lost Revenue
Total 0	Total	Total	Total
Remarks :			

# Loss Report

Name of Manager leading the investigation		T.Ernst	
Names of other team members		J.Carry	
<b>Investigation Section 1 - Contact &amp; Immediate Causes</b>			
<b>Contact/ Exposure</b>	<input type="checkbox"/> Struck against <input type="checkbox"/> Fell to lower level <input type="checkbox"/> Caught in	<input type="checkbox"/> Caught between <input checked="" type="checkbox"/> Overstrain/exertion <input type="checkbox"/> Struck by	<input type="checkbox"/> Fall on same level <input type="checkbox"/> Caught on <input type="checkbox"/> Contact with
<b>Substandard Practices</b>	<input type="checkbox"/> Operating equip w/o authority <input type="checkbox"/> Operating at improper speed <input type="checkbox"/> Safety devices inoperable <input type="checkbox"/> Failure to use PPE properly <input type="checkbox"/> Removing safety devices <input type="checkbox"/> Improper position for task <input type="checkbox"/> Servicing equip in operation	<input type="checkbox"/> Under Influence of alcohol/drugs <input type="checkbox"/> Improper password protection <input type="checkbox"/> Improper backup/virus protection <input type="checkbox"/> Failure to warn <input type="checkbox"/> Failure to secure <input type="checkbox"/> Improper loading <input type="checkbox"/> Using defective equipment	<input type="checkbox"/> Improper placement <input checked="" type="checkbox"/> Improper lifting <input type="checkbox"/> Horseplay <input type="checkbox"/> Lack of sleep <input type="checkbox"/> Poor control of Contractor
<b>Substandard Conditions</b>	<input type="checkbox"/> Inadequate guards or barriers <input type="checkbox"/> Inadeq/improper protect equip <input type="checkbox"/> Defective tools, equip, or mat. <input checked="" type="checkbox"/> Congestion or restricted action <input type="checkbox"/> Inadequate warning system <input type="checkbox"/> Inadequate/excess illumination	<input type="checkbox"/> Pressure exposure <input type="checkbox"/> Slippery surface <input type="checkbox"/> Improper storage/removable media <input type="checkbox"/> Improper physical security/network <input type="checkbox"/> Radiation exposure <input type="checkbox"/> Poor housekeeping/disorder	<input type="checkbox"/> Fire and explosion hazards <input type="checkbox"/> Noise exposure <input type="checkbox"/> Temperature extremes <input type="checkbox"/> Inadequate ventilation
<b>Investigation Section 2 - Basic Causes</b>			
(Which of the following Personal and/or Job Factors were the Basic Causes of this accident?)			
<b>Personal Factors</b>		<b>Job Factors</b>	
<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Inadequate capability <input type="checkbox"/> Stress <input type="checkbox"/> Substance Abuse	<input type="checkbox"/> Lack of skills <input checked="" type="checkbox"/> Improper motivation <input type="checkbox"/> Fatigue	<input type="checkbox"/> Inadequate leadership/supervision <input type="checkbox"/> Inadequate engineering <input type="checkbox"/> Inadequate purchasing <input type="checkbox"/> Inadequate maintenance <input type="checkbox"/> Organizational rules	<input type="checkbox"/> Inadequate tools, materials, equip. <input type="checkbox"/> Inadequate work standards <input type="checkbox"/> Abuse or misuse <input type="checkbox"/> Wear and tear <input type="checkbox"/> Conflicting goals/objectives

<b>Investigation Section 3 - Lack of Control</b>					
<b>Lack of Control</b>					
<input type="checkbox"/> Commitment & Leadership <input type="checkbox"/> Policies & Objectives	<input type="checkbox"/> Organization & Resources <input type="checkbox"/> Contractor & Supplier Mgmt	<input checked="" type="checkbox"/> Risk Management <input type="checkbox"/> Design & Planning	<input type="checkbox"/> Implementation & Monitoring <input type="checkbox"/> Assessment & Cont. Improvt.		
<b>Corrective Action</b>					
Enter below corrective actions required to address immediate and basic causes and lack of control. Specify WHO and WHEN.					
Item No	Action Item	Person Responsible	Target Date	Completion Date	Remarks
1	First Aid applied	QHSE	08-10-03	08-10-03	Ice, rest and Perkindol applied
2	Toolbox topic	Observer	09-10-03	09-10-03	Explained injury to crew
3	Perskindol gel being applied daily	Observer	10-10-03	10-10-03	Swelling has reduced
4	Recheck wrist before demobilization	QHSE	13-10-03		Refer to Moomba or Medical Practionor

**CREW LIST**

<b>NAME</b>	<b>POSITION</b>
BOB STEPHENSON	CREW MANAGER
PAUL ARMSTRONG	CREW MANAGER
JOEL CARRY	OBSERVER
PETER O'DONNELL	OBSERVER
JOHN PHILIPPSON	SNR MECHANIC
BRENDAN OLSZOWY	VIB MECHANIC
DENNIS CORBIN	VIB MECHANIC
ROBERT SMITH	MECHANIC
NOEL GRAINGER	CABLE REPAIR
DENNIS VINEY	COOK
JON TURNER	TROUBLE SHOOTER
SHANE GOOSSENS	AST OBSERVER
ABBY BANN	VIB OPP
DES POSTANS	VIB OPP
SHANE BENEKE	VIB OPP
ADAM PIPPOS	VIB OPP
GUY EBERHARDT	VIB OPP
JEFF MILLS	VIB OPP
LEETON McHUGH	LINE BOSS
TERRY ERNST	LINE CREW
LIZ GOOLD	LINE CREW
LIAM SHUTTLEWORTH	LINE CREW
TONY HUTCHISON	LINE CREW
DARREN REA	CABLE REPAIR
RAY AUCKRAM	LINE CREW
SIMON TOLL	LINE CREW
DEL HILDRED	LINE CREW
JUSTIN POPE	LINE CREW
FIONA HICKS	LINE CREW
MELINDA LYNHAM	LINE CREW
BEN SHAVE	LINE CREW
KATRINA IRELAND	LINE CREW
MAT ROBINSON	LINE CREW
EMMA BURTON	LINE CREW
LIONEL DABE	LINE CREW
JULIEN GOOSSENS	LINE CREW
MEGAN BANN	LINE CREW
JOE KEANE	LINE CREW
ADAM TOTH	LINE CREW
CRAIG CURD	AST COOK
CHRISTINE SMITH	CAMP ATT.
RICKY FOX	LINE CREW
SIMON FELDHEIM	LINE CREW
SACHA TESCHENDORF	LINE CREW



# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401 DATE..... 27-Aug-03

Client.....	Beach Petroleum	Party Manager.	Bob Stephenson
Survey Name.	Albus	Client Rep.....	Bruce Beer
Area.....	Cordillo	Weather.....	Fine
State.....	S.A.		

RECORDING	Kms.	SKIPS	PROFILES	TOTALS
Line No.....	Rec	Rec	Profiles.....	0
Line No.....	Rec	Rec	Skips.....	0
Line No.....	Rec	Rec	Kms.....	0.000
Line No.....	Rec	Rec	Cum Kms..	0.000
Line No.....	Rec	Rec		

HOURS	Travel Time.....	Down Time -	Extra Charges	
	Test Time.....	Recorder.....	Extra Hrs.....	0.00
	Recording Time...	Cables.....	Detours Charge Hrs	0.00
Other Time	Line Change....	ATU's.....	Washdowns.....Hrs	0.00
	Recorder Move..	Detours/Terr...	Extra Other Charge..	1.00
	Detours/Terrain.	W / on Spread.	Total Extra.....Hrs	1.00
	Experimental...	Stock Damage	Total Extra(Job).Hrs	1.00
	QC Spread .....	Other.....	Processing Hrs.....	0.00
	Wait on Spread.			
	Weather Time...			
	Stock Damage..	Total Down Time.....	0.00	Total Day.....Hrs 0.00
	Safety Meeting..	Cum. Down Time (Job)	0.00	Total Hrs (Job)..... 0.00

COMMENTS: **One hour charge at Standby Rate for induction conducted before start of operations.**

SURVEY				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.0000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 163.5000

CHAINING				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 0.000

RANGING	COMMENTS :			
Line No.....	Kms			
Line No.....	Kms			
Line No.....	Kms			Total Kms..... 0.000
Line No.....	Kms			Cum. Kms. (Job)..... 0.00

LINE CLEAR				
Dozer	1 Line No.....	Kms. Cut.....	Hrs.	Total Kms..... 0.000
Dozer	2 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job)..... 163.500
Dozer	3 Line No.....	Kms. Cut.....	Hrs.	Total Hours..... 0.00
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job)..... 251.50

DRILLING								L.V.L.						
Daly Drilling	1	# Mtr	170.0	#Holes	5	Hrs	10.50	Unit 6	Line #	BC03-17	# Holes	1	# Mtr	29
		# Mtr		#Holes		Hrs			Line #	BC03-06	# Holes	4	# Mtr	141
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
Total # Mtr.....		170.0	Cum # Mtr(Job).....			469.0								
Total Drilled.....		5.0	Cum Drilled(Job)..			14.0	# Holes			5	Cum # Holes			14
Total Hrs.....		10.5	Total # Hrs(Job).....			31.8	# Mtr			170	Cum # Mtr			469

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401

DATE..... 28-Aug-03

Client..... Beach Petroleum  
 Survey Name. Albus  
 Area..... Cordillo  
 State..... S.A.

Party Manager. Bob Stephenson  
 Client Rep..... Bruce Beer  
 Weather..... Fine

RECORDING		Kms.	SKIPS	PROFILES	TOTALS
Line No.....	Rec	Rec		Profiles.....	0
Line No.....	Rec	Rec		Skips.....	0
Line No.....	Rec	Rec		Kms.....	0.000
Line No.....	Rec	Rec		Cum Kms..	0.000
Line No.....	Rec	Rec			
HOURS	Travel Time.....	Down Time -		Extra Charges	
	Test Time.....	Recorder.....		Extra Hrs.....	0.00
	Recording Time...	Cables.....		Detours Charge Hrs	0.00
Other Time	Line Change.....	ATU's.....		Washdowns.....Hrs	0.00
	Recorder Move..	Detours/Terr...		Extra Other Charge..	0.00
	Detours/Terrain.	W / on Spread.		Total Extra.....Hrs	0.00
	Experimental...	Stock Damage		Total Extra(Job).Hrs	1.00
	Other .....	Other.....		Processing Hrs.....	0.00
	Pick up Spread...				
	Weather Time...				
	Stock Damage..	Total Down Time.....		Total Day.....Hrs	0.00
	Safety Meeting..	Cum. Down Time (Job)		Total Hrs (Job).....	0.00

COMMENTS: **SMT geophones, test boxes, laying spread on lines BC03-04 & BC03-05. Vibrators arrived at camp site at 3pm.**  
**Mechanics testing vibrators ready for field.**  
**Line crew laying line BC03-04 Stn 200 to 362, line BC03-05 Stn 200 to 322, Total 284 Stn.**

SURVEY					
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.	Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....	163.500

CHAINING					
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.	Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....	0.000

RANGING		COMMENTS :			
Line No.....	Kms				
Line No.....	Kms				
Line No.....	Kms			Total Kms.....	0.000
Line No.....	Kms			Cum. Kms. (Job).....	0.00

LINE CLEAR					
Dozer	1 Line No.....	Kms. Cut.....	Hrs.	Total Kms.....	0.000
Dozer	2 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	163.500
Dozer	3 Line No.....	Kms. Cut.....	Hrs.	Total Hours.....	0.00
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job).....	251.50

DRILLING								L.V.L.					
Daly Drilling	1	# Mtr	146.0	#Holes	4	Hrs	11.00	Unit 6	Line #	BC03-17 # Holes	1	# Mtr	34
		# Mtr		#Holes		Hrs			Line #	BC03-09 # Holes	1	# Mtr	34
		# Mtr		#Holes		Hrs			Line #	BC03-08 # Holes	1	# Mtr	39
		# Mtr		#Holes		Hrs			Line #	BC03-07 # Holes	1	# Mtr	39
		# Mtr		#Holes		Hrs			Line #	# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #	# Holes		# Mtr	
Total # Mtr.....		146.0		Cum # Mtr(Job).....		615.0							
Total Drilled.....		4.0		Cum Drilled(Job)..		18.0		# Holes	4		Cum # Holes		18
Total Hrs.....		11.0		Total # Hrs(Job).....		42.8		# Mtr	146		Cum # Mtr		615

COMMENT **Lower production due to picking up tails of lines and problems getting over dunes.**

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401

DATE..... 29-Aug-03

Client..... Beach Petroleum  
 Survey Name. Albus  
 Area..... Cordillo  
 State..... S.A.

Party Manager. Bob Stephenson  
 Client Rep..... Bruce Beer  
 Weather..... Fine

RECORDING					Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-04	Rec	362.5	Rec	200.5	6.0750	2	161	Profiles..... 390
Line No.....	BC03-05	Rec	200.5	Rec	361.5	6.0375	2	160	Skips..... 5
Line No.....	BC03-06	Rec	386.5	Rec	317.5	2.5875	1	69	Kms..... 14.7000
Line No.....		Rec		Rec					Cum Kms.. 14.7000
Line No.....		Rec		Rec					

HOURS	Travel Time.....	0.80	Down Time -				Extra Charges		
	Test Time.....	0.20	Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	4.60	Cables.....				0.70	Detours Charge Hrs	0.00
Other Time	Line Change.....	1.10	ATU's.....					Washdowns.....Hrs	0.00
	Recorder Move..		Detours/Terr...					Extra Other Charge..	0.00
	Detours/Terrain.		W / on Spread.					Total Extra.....Hrs	0.00
	Hardwire Sims ...	0.30	Stock Damage					Total Extra(Job).Hrs	1.00
	Other Charge...		Other.....					Processing Hrs.....	0.00
	QC Spread .....	3.70							
	Weather Time...								
	Stock Damage..		Total Down Time.....				0.70	Total Day.....Hrs	11.60
	Safety Meeting..	0.20	Cum. Down Time (Job)				0.70	Total Hrs (Job).....	11.60

COMMENTS: Commenced recording, ran hardwire sims, problems with moisture in cables.

SURVEY									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.		Total Kms.....				0.000
Line No.....	STN..	STN..	Kms.		Cum. Kms. (Job).....				163.500

CHAINING									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.		Total Kms.....				0.000
Line No.....	STN..	STN..	Kms.		Cum. Kms. (Job).....				0.000

RANGING		COMMENTS :	
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms	Total Kms.....	0.000
Line No.....	Kms	Cum. Kms. (Job).....	0.00

LINE CLEAR						
Dozer	1	Line No.....	Kms. Cut.....	Hrs.	Total Kms.....	0.000
Dozer	2	Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	163.500
Dozer	3	Line No.....	Kms. Cut.....	Hrs.	Total Hours.....	0.00
Grader	1	Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job).....	251.50

DRILLING								L.V.L.						
Daly Drilling	1	# Mtr	115.0	#Holes	4	Hrs	10.00	Unit 6	Line #	BC03-10	# Holes	2	# Mtr	47
		# Mtr		#Holes		Hrs			Line #	BC03-09	# Holes	2	# Mtr	68
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr	
Total # Mtr.....		115.0		Cum # Mtr(Job).....		730.0								
Total Drilled.....		4.0		Cum Drilled(Job)..		22.0		# Holes	4		Cum # Holes		22	
Total Hrs.....		10.0		Total # Hrs(Job).....		52.8		# Mtr	115		Cum # Mtr		730	

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401 DATE..... 30-Aug-03

Client.....	Beach Petroleum	Party Manager.	Bob Stephenson
Survey Name.	Albus	Client Rep.....	Bruce Beer
Area.....	Cordillo	Weather.....	Fine
State.....	S.A.		

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-06	Rec	317.5	Rec	200.5	4.3875	2	115	Profiles..... 494
Line No.....	BC03-16	Rec	200.5	Rec	457.5	9.6375	8	250	Skips..... 15
Line No.....	BC03-01	Rec	200.5	Rec	333.5	4.9875	5	129	Kms..... 19.0125
Line No.....		Rec		Rec					Cum Kms.. 33.7125
Line No.....		Rec		Rec					

HOURS	Travel Time.....	1.20	Down Time -				Extra Charges		
	Test Time.....		Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	5.50	Cables.....				0.50	Detours Charge Hrs	0.00
	Line Change.....	1.00	ATU's.....					Washdowns.....Hrs	0.00
	Recorder Move..		Detours/Terr...					Extra Other Charge..	0.00
	Detours/Terrain.	2.20	W / on Spread.					Total Extra.....Hrs	0.00
	Hardwire Sims .....	0.20	Stock Damage					Total Extra(Job).Hrs	1.00
	QC Spread .....	1.10	Other.....					Processing Hrs.....	0.00
	Wait on Spread.								
	Weather Time...								
Stock Damage..			Total Down Time.....		0.50	Total Day.....Hrs		12.00	
Safety Meeting..		0.30	Cum. Down Time (Job)		1.20	Total Hrs (Job).....		23.60	

**COMMENTS:** 2.2 hrs lost due to badly cut dunes, recording truck stuck on dune for 1.75 hrs, had to be towed off by vibe.  
**Front crew line 16 stn 350 to 457, line 01 stn 200 to 427, line 02 stn 406 to 296, Total 444 stns.**  
**Back crew line 06 stn 386 to 200, line 16 stn 200 to 457, Total 443 stns.**

SURVEY									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.		Total Kms.....				0.000
Line No.....	STN..	STN..	Kms.		Cum. Kms. (Job).....				163.500

CHAINING									
Line No.....	STN..	STN	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.		Total Kms.....				0.000
Line No.....	STN..	STN..	Kms.		Cum. Kms. (Job).....				0.000

RANGING		COMMENTS :	
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms	Total Kms.....	0.000
Line No.....	Kms	Cum. Kms. (Job).....	0.00

LINE CLEAR									
Dozer	1 Line No.....	Kms. Cut.....		Hrs.		Total Kms.....			
Dozer	2 Line No.....	Kms. Cut.....		Hrs.		Cum. Kms. (Job).....			
Dozer	3 Line No.....	Kms. Cut.....		Hrs.		Total Hours.....			
Grader	1 Line No.....	Kms.Graded....		Hrs.		Total Hrs (Job).....			

DRILLING								L.V.L.						
Daly Drilling	1	# Mtr	184.0	#Holes	6	Hrs	10.00	Unit 6	Line #	BC03-09 # Holes	1	# Mtr	34	
		# Mtr		#Holes		Hrs			Line #	BC03-07 # Holes	1	# Mtr	34	
		# Mtr		#Holes		Hrs			Line #	BC03-02 # Holes	1	# Mtr	29	
		# Mtr		#Holes		Hrs			Line #	BC03-01 # Holes	2	# Mtr	58	
		# Mtr		#Holes		Hrs			Line #	BC03-16 # Holes	1	# Mtr	29	
		# Mtr		#Holes		Hrs			Line #	# Holes		# Mtr		
Total # Mtr.....		184.0		Cum # Mtr(Job).....		914.0								
Total Drilled.....		6.0		Cum Drilled(Job)..		28.0		# Holes	6	Cum # Holes		28		
Total Hrs.....		10.0		Total # Hrs(Job).....		62.8		# Mtr	184	Cum # Mtr		914		

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE.....31-Aug-03			
Client.....	Beach Petroleum	Party Manager.	Bob Stephenson				
Survey Name.	Albus	Client Rep.....	Bruce Beer				
Area.....	Cordillo	Weather.....	Fine				
State.....	S.A.						

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-01	Rec	333.5	Rec	427.5	3.5250	3	91	Profiles..... 561
Line No.....	BC02-02	Rec	406.5	Rec	200.5	7.7250	4	203	Skips..... 8
Line No.....	BC03-03	Rec	200.5	Rec	432.5	8.7000	0	233	Kms..... 21.2250
Line No.....	BC03-08	Rec	370.5	Rec	336.5	1.2750	1	34	Cum Kms.. 54.9375
Line No.....		Rec		Rec					

HOURS	Travel Time.....	1.30	Down Time -				Extra Charges		
	Test Time.....		Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	5.60	Cables.....				0.60	Detours Charge Hrs	0.00
	Other Time	Line Change.....	1.80	ATU's.....				Washdowns.....Hrs	0.00
		Recorder Move..		Detours/Terr...				Extra Other Charge..	0.00
		Detours/Terrain.	0.30	W / on Spread.				Total Extra.....Hrs	0.00
		Experimental...		Stock Damage				Total Extra(Job).Hrs	1.00
		QC Spread .....	2.20	Other.....				Processing Hrs.....	0.00
		Wait on Spread.							
		Weather Time...							
	Stock Damage..			Total Down Time.....		0.60	Total Day.....Hrs		12.00
	Safety Meeting..	0.20		Cum. Down Time (Job)		1.80	Total Hrs (Job).....		35.60

**COMMENTS:** Still having problems with moisture in the cables. This has occurred from the cables being left in the trucks.  
 Front crew line 02 stn 295 to 200, line 03 stn 200 to 432, line 08 stn 370 to 200, line 07 stn 200 to 250, Total 547 stns.  
 Back crew line 01 stn 200 to 427, line 02 stn 406 to 200, line 03 stn 200 to 432, Total 665 stns.

SURVEY									
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	163.500

CHAINING									
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	0.000

RANGING									
COMMENTS :									
Line No.....		Kms							
Line No.....		Kms							
Line No.....		Kms						Total Kms.....	0.000
Line No.....		Kms						Cum. Kms. (Job).....	0.00

LINE CLEAR									
Dozer	1	Line No.....			Kms. Cut.....		Hrs.	Total Kms.....	0.000
Dozer	2	Line No.....			Kms. Cut.....		Hrs.	Cum. Kms. (Job).....	163.500
Dozer	3	Line No.....			Kms. Cut.....		Hrs.	Total Hours.....	0.00
Grader	1	Line No.....			Kms.Graded....		Hrs.	Total Hrs (Job).....	251.50

DRILLING									
Daly Drilling	1	# Mtr	154.0	#Holes	5	Hrs	10.0	L.V.L.	
		# Mtr		#Holes		Hrs		Unit 6	Line #
		# Mtr		#Holes		Hrs			BC03-07 # Holes
		# Mtr		#Holes		Hrs			1 # Mtr 34
		# Mtr		#Holes		Hrs			Line # BC03-02 # Holes
		# Mtr		#Holes		Hrs			2 # Mtr 63
		# Mtr		#Holes		Hrs			Line # BC03-16 # Holes
		# Mtr		#Holes		Hrs			1 # Mtr 34
		# Mtr		#Holes		Hrs			Line # BC03-01 # Holes
		# Mtr		#Holes		Hrs			1 # Mtr 23
		# Mtr		#Holes		Hrs			Line # # Holes
		# Mtr		#Holes		Hrs			# Mtr
		# Mtr		#Holes		Hrs			Line # # Holes
		# Mtr		#Holes		Hrs			# Mtr
Total # Mtr.....		154.0	Cum # Mtr(Job).....			1068.0			
Total Drilled.....		5.0	Cum Drilled(Job)..			33.0	# Holes	5	Cum # Holes 33
Total Hrs.....		10.0	Total # Hrs(Job).....			72.8	# Mtr	154	Cum # Mtr 1068

**COMMENT**

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE..... 1-Sep-03	
Client.....	Beach Petroleum	Party Manager.	Bob Stephenson		
Survey Name.	Albus	Client Rep.....	Bruce Beer		
Area.....	Cordillo	Weather.....	Fine		
State.....	S.A.				

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-08	Rec	336.5	Rec	200.5	5.1000	1	135	Profiles..... 671
Line No.....	BC03-07	Rec	200.5	Rec	519.5	11.9625	10	310	Skips..... 21
Line No.....	BC03-09	Rec	522.5	Rec	287.5	8.8125	10	226	Kms..... 25.8750
Line No.....		Rec		Rec					Cum Kms.. 80.8125
Line No.....		Rec		Rec					

HOURS	Travel Time.....	0.80	Down Time -				Extra Charges		
	Test Time.....		Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	7.00	Cables..... 1.20				Detours Charge Hrs	0.00	
	Other Time	Line Change..... 1.20	ATU's.....				Washdowns.....Hrs	0.00	
		Recorder Move..	Detours/Terr...				Extra Other Charge..	0.00	
		Detours/Terrain.. 0.20	W / on Spread.				Total Extra.....Hrs	0.00	
		Experimental...	Stock Damage				Total Extra(Job).Hrs	1.00	
		QC Spread ..... 1.20	Other.....				Processing Hrs.....	0.00	
	Pick up Spread ....								
	Weather Time...								
	Stock Damage..		Total Down Time.....		1.20	Total Day.....Hrs		11.80	
	Safety Meeting..	0.20	Cum. Down Time (Job)		3.00	Total Hrs (Job).....		47.40	

COMMENTS: **Good recording production, still having problems with moisture in cables.**  
**Front crew line 07 stn 251 to 519, line 09 stn 522 to 200, Total 590 stns.**  
**Back crew line 08 stn 370 to 200, line 07 stn 200 to 519, line 09 stn 522 to 422, Total 589 stns.**

SURVEY							
Line No.....	STN..	STN..	Kms.				
Line No.....	STN..	STN..	Kms.				
Line No.....	STN..	STN..	Kms.				
Line No.....	STN..	STN..	Kms.	Total Kms.....		0.000	
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....		163.500	

CHAINING							
Line No.....	STN..	STN..	Kms.				
Line No.....	STN..	STN..	Kms.				
Line No.....	STN..	STN..	Kms.				
Line No.....	STN..	STN..	Kms.	Total Kms.....		0.000	
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....		0.000	

RANGING		COMMENTS :	
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms	Total Kms.....	0.000
Line No.....	Kms	Cum. Kms. (Job).....	0.00

LINE CLEAR							
Dozer	6 Line No.....	Kms. Cut.....	Hrs.	Total Kms.....		0.000	
Dozer	7 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job).....		163.500	
Dozer	Line No.....	Kms. Cut.....	Hrs.	Total Hours.....		0.00	
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job).....		251.50	

DRILLING				L.V.L.			
Daly Drilling	1	# Mtr	155.0	#Holes	5	Hrs	10.75
		# Mtr		#Holes		Hrs	
		# Mtr		#Holes		Hrs	
		# Mtr		#Holes		Hrs	
		# Mtr		#Holes		Hrs	
		# Mtr		#Holes		Hrs	
Total # Mtr.....		155.0	Cum # Mtr(Job).....		1223.0		
Total Drilled.....		5.0	Cum Drilled(Job)..		38.0	# Holes	5
Total Hrs.....		10.8	Total # Hrs(Job).....		83.5	# Mtr	155
						Cum # Holes	38
						Cum # Mtr	1223

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401										DATE..... 2-Sep-03									
Client..... Beach Petroleum					Party Manager.. Bob Stephenson														
Survey Name.. Albus					Client Rep..... Bruce Beer														
Area..... Cordillo					Weather..... Fine														
State..... S.A.																			

RECORDING										Kms.	SKIPS	PROFILES	TOTALS
Line No.....	BC03-09	Rec	287.5	Rec	200.5	3.2625	4	83	Profiles.....	492			
Line No.....	BC03-17	Rec	200.5	Rec	332.5	4.9500	4	129	Skips.....	22			
Line No.....	BC03-10	Rec	200.5	Rec	493.5	10.9875	14	280	Kms.....	19.2000			
Line No.....		Rec		Rec					Cum Kms..	100.0125			
Line No.....		Rec		Rec									

HOURS	Travel Time.....	0.70	Down Time -		Extra Charges	
	Test Time.....		Recorder.....		Extra Hrs.....	0.00
	Recording Time...	5.30	Cables.....	0.40	Detours Charge Hrs	0.00
	Other Time	Line Change.....	0.80	ATU's.....	Washdowns.....Hrs	0.00
		Recorder Move..	1.10	Detours/Terr...	Extra Other Charge..	0.00
		Detours/Terrain..	0.50	W / on Spread.	Total Extra.....Hrs	0.00
		Experimental...		Stock Damage	Total Extra(Job).Hrs	1.00
		QC Spread .....	2.90	Other.....	Processing Hrs.....	0.00
		Wait on Spread.				
		Weather Time...				
	Stock Damage..		Total Down Time.....	0.40	Total Day.....Hrs	12.00
	Safety Meeting..	0.30	Cum. Down Time (Job)	3.40	Total Hrs (Job).....	59.40

**COMMENTS:**    **Still having problems with moister in cables, long recorder move due to badly cut sand dunes.**

**Front crew line 17 stn 200 to 332, line 10 stn 200 to 720, Total 652 stns.**

**Back crew line 09 stn 421 to 200, line 17 stn 200 to 332, line 10 stn 200 to 392, Total 545 stns.**

SURVEY									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.					Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.					Cum. Kms. (Job).....	163.500

CHAINING									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.					Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.					Cum. Kms. (Job).....	0.000

RANGING										COMMENTS :									
Line No.....	Kms																		
Line No.....	Kms																		
Line No.....	Kms							Total Kms.....	0.000										
Line No.....	Kms							Cum. Kms. (Job).....	0.00										

LINE CLEAR									
Dozer	1 Line No.....	Kms. Cut.....	Hrs.	Total Kms.....	0.000				
Dozer	2 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	163.500				
Dozer	3 Line No.....	Kms. Cut.....	Hrs.	Total Hours.....	0.00				
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job).....	251.50				

DRILLING										L.V.L.									
Daly Drilling	1	# Mtr	162.0	#Holes	5	Hrs	10.00	Unit 6	Line #	BC03-18	# Holes	2	# Mtr	60					
		# Mtr		#Holes		Hrs			Line #	BC03-11	# Holes	2	# Mtr	68					
		# Mtr		#Holes		Hrs			Line #	BC03-10	# Holes	1	# Mtr	34					
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr						
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr						
		# Mtr		#Holes		Hrs			Line #		# Holes		# Mtr						
Total # Mtr.....		162.0	Cum # Mtr(Job).....			1385.0													
Total Drilled.....		5.0	Cum Drilled(Job)..			43.0	# Holes		5	Cum # Holes		43							
Total Hrs.....		10.0	Total # Hrs(Job).....			93.5	# Mtr		162	Cum # Mtr		1385							

**COMMENT**



# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE.....3-Sep-03	
Client.....	Beach Petroleum	Party Manager.	Richard Barnes		
Survey Name.	Albus	Client Rep.....	Bruce Beer		
Area.....	Cordillo	Weather.....	Fine		
State.....	S.A.				

RECORDING						Kms.	SKIPS	PROFILES	TOTALS
Line No.....	BC03-10	Rec	493.5	Rec	720.5	8.5125	4	223	Profiles..... 618
Line No.....	BC03-19	Rec	336.5	Rec	200.5	5.1000	19	118	Skips..... 26
Line No.....	BC03-11	Rec	200.5	Rec	385.5	6.9375		186	Kms..... 24.0375
Line No.....	BC03-18	Rec	338.5	Rec	245.5	3.4875	3	91	Cum Kms.. 124.0500
Line No.....		Rec		Rec					

HOURS	Travel Time.....	1.10	Down Time -					Extra Charges	
	Test Time.....						Recorder.....	Extra Hrs.....	0.00
	Recording Time...	6.90					Cables.....	Detours Charge Hrs	0.00
	Other Time	Line Change.....	1.30				ATU's.....	Washdowns.....Hrs	0.00
		Recorder Move..					Detours/Terr...	Extra Other Charge..	0.00
		Detours/Terrain.	0.40				W / on Spread.	Total Extra.....Hrs	0.00
		Experimental...					Stock Damage	Total Extra(Job).Hrs	1.00
		QC Spread .....	2.10				Vibes	Processing Hrs.....	0.00
		Wait on Spread.							
		Weather Time...							
	Stock Damage..					Total Down Time.....	0.10	Total Day.....Hrs	12.20
	Safety Meeting..	0.30				Cum. Down Time (Job)	3.50	Total Hrs (Job).....	71.60

COMMENTS: **Good days recording, considering it was crew change day. Still seem to be having problems with cable.**  
**Stations Layed out. Total: 629 on Lines BC03-19,11,18,16.**  
**Stations Picked Up. Total: 653 on Lines BC03-10,19,11.**

SURVEY						Kms.			
Line No.....	STN..	STN..				Kms.			
Line No.....	STN..	STN..				Kms.			
Line No.....	STN..	STN..				Kms.			
Line No.....	STN..	STN..				Kms.		Total Kms.....	0.000
Line No.....	STN..	STN..				Kms.		Cum. Kms. (Job).....	163.500

CHAINING						Kms.			
Line No.....	STN..	STN..				Kms.			
Line No.....	STN..	STN..				Kms.			
Line No.....	STN..	STN..				Kms.			
Line No.....	STN..	STN..				Kms.		Total Kms.....	0.000
Line No.....	STN..	STN..				Kms.		Cum. Kms. (Job).....	0.000

RANGING						COMMENTS :			
Line No.....		Kms							
Line No.....		Kms							
Line No.....		Kms						Total Kms.....	0.000
Line No.....		Kms						Cum. Kms. (Job).....	0.00

LINE CLEAR						Kms. Cut.....	Hrs.	Total Kms.....	
Dozer	1	Line No.....				Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	163.500
Dozer	2	Line No.....				Kms. Cut.....	Hrs.	Total Hours.....	0.00
Dozer	3	Line No.....				Kms. Cut.....	Hrs.	Total Hrs (Job).....	251.50
Grader	1	Line No.....				Kms.Graded....	Hrs.		

DRILLING								L.V. L.					
Daly Drilling	1	# Mtr	175.0	#Holes	5	Hrs	10.00	Unit 6	Line #	BC03-19 # Holes	3	# Mtr	107
		# Mtr		#Holes		Hrs			Line #	BC03-18 # Holes	1	# Mtr	34
		# Mtr		#Holes		Hrs			Line #	BC03-11 # Holes	1	# Mtr	34
		# Mtr		#Holes		Hrs			Line #	# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #	# Holes		# Mtr	
		# Mtr		#Holes		Hrs			Line #	# Holes		# Mtr	
Total # Mtr.....		175.0		Cum # Mtr(Job).....		1560.0							
Total Drilled.....		5.0		Cum Drilled(Job)..		48.0		# Holes	5	Cum # Holes		48	
Total Hrs.....		10.0		Total # Hrs(Job).....		103.5		# Mtr	175	Cum # Mtr		1560	

COMMENT

TRACE ENERGY SERVICES									
DAILY PRODUCTION REPORT									

COMMENT
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# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401										DATE..... 5-Sep-03									
Client..... Beach Petroleum					Party Manager.					Richard Barnes									
Survey Name. Albus					Client Rep.....					Bruce Beer									
Area..... Cordillo					Weather.....					Fine									
State..... S.A.																			

RECORDING						Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-13	Rec	410.5	Rec	200.5	7.7850	4	206	Profiles.....	468
Line No.....	BC03-14	Rec	200.0	Rec	481.5	10.5375	20	262	Skips.....	24
Line No.....		Rec		Rec					Kms.....	18.4125
Line No.....		Rec		Rec					Cum Kms..	163.5000
Line No.....		Rec		Rec						

HOURS	Travel Time.....	0.90	Down Time -				Extra Charges			
	Test Time.....		Recorder.....				Extra Hrs..... 0.00			
	Recording Time...	5.00	Cables..... 0.20				Detours Charge Hrs 0.00			
	Other Time	Line Change..... 0.70	ATU's.....				Washdowns.....Hrs 0.00			
		Recorder Move..	Detours/Terr...				Extra Other Charge.. 0.00			
		Detours/Terrain. 0.50	W / on Spread.				Total Extra.....Hrs 0.00			
		Experimental...	Stock Damage				Total Extra(Job).Hrs 1.00			
		QC Spread ..... 2.30	Pick up Spread 2.10				Processing Hrs..... 0.00			
		Wait on Spread.								
		Weather Time...								
	Stock Damage..	Total Down Time..... 2.30				Total Day.....Hrs 12.00				
	Safety Meeting.. 0.30	Cum. Down Time (Job) 6.00				Total Hrs (Job)..... 95.90				

**COMMENTS:**

**Stations Layed out. Total:396 on Lines BC03-13,14.**

**Stations Picked up. Total: 627 on Lines BC03-12,13,14**

**Completed Area - PEL110 for Beach Petroleum - 2003 Albus Seismic Survey.**

SURVEY									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.				Total Kms.....	0.000	
Line No.....	STN..	STN..	Kms.				Cum. Kms. (Job).....	163.500	

CHAINING									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.				Total Kms.....	0.000	
Line No.....	STN..	STN..	Kms.				Cum. Kms. (Job).....	0.000	

RANGING									
COMMENTS :									
Line No.....	Kms								
Line No.....	Kms								
Line No.....	Kms				Total Kms..... 0.000				
Line No.....	Kms				Cum. Kms. (Job)..... 0.00				

LINE CLEAR									
Dozer	1 Line No.....	Kms. Cut.....				Hrs.	Total Kms..... 0.000		
Dozer	2 Line No.....	Kms. Cut.....				Hrs.	Cum. Kms. (Job)..... 163.500		
Dozer	3 Line No.....	Kms. Cut.....				Hrs.	Total Hours..... 0.00		
Grader	1 Line No.....	Kms.Graded....				Hrs.	Total Hrs (Job)..... 251.50		

DRILLING									
Daly Drilling	1	# Mtr	98.0	#Holes	3	Hrs	11.50	L.V.L.	
		# Mtr		#Holes		Hrs		Unit 6	Line # BC03-14 # Holes 2 # Mtr 64
		# Mtr		#Holes		Hrs			Line # BC03-12 # Holes 1 # Mtr 34
		# Mtr		#Holes		Hrs			Line # # Holes # Mtr
		# Mtr		#Holes		Hrs			Line # # Holes # Mtr
		# Mtr		#Holes		Hrs			Line # # Holes # Mtr
		# Mtr		#Holes		Hrs			Line # # Holes # Mtr
Total # Mtr.....		98.0	Cum # Mtr(Job).....			1822.0			
Total Drilled.....		3.0	Cum Drilled(Job)..			56.0	# Holes	3	Cum # Holes 56
Total Hrs.....		11.5	Total # Hrs(Job).....			126.3	# Mtr	98	Cum # Mtr 1822

**COMMENT**

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401		DATE..... 23-Sep-03	
Client.....	Beach Petroleum	Party Manager.	Bob Stephenson
Survey Name.	2003 Albus Seismic Survey	Client Rep.....	Bruce Beer
Area.....	PELA 107	Weather.....	Fine
State.....	S.A		

RECORDING		Kms.	SKIPS	PROFILES	TOTALS
Line No.....	Rec	Rec		Profiles.....	0
Line No.....	Rec	Rec		Skips.....	0
Line No.....	Rec	Rec		Kms.....	0.000
Line No.....	Rec	Rec		Cum Kms..	0.000
Line No.....	Rec	Rec			
HOURS	Travel Time.....	2.40	Down Time -	Extra Charges	
	Test Time.....		Recorder.....	Extra Hrs.....	0.00
	Recording Time...		Cables.....	Detours Charge Hrs	0.00
Other Time	Line Change.....		ATU's.....	Washdowns.....Hrs	0.00
	Recorder Move..		Detours/Terr...	Extra Other Charge..	0.00
	Detours/Terrain.		W / on Spread.	Total Extra.....Hrs	0.00
	Experimental...		Stock Damage	Total Extra(Job).Hrs	0.00
	QC Spread .....		Other.....	Processing Hrs.....	0.00
	Wait on Spread.				
	Weather Time...				
	Stock Damage..		Total Down Time.....	Total Day.....Hrs	2.40
	Safety Meeting..		Cum. Down Time (Job)	Total Hrs (Job).....	2.40

COMMENTS: **MOVE CAMP FROM PEL 113 TO PEL 107 2.4 HOURS**

SURVEY				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 158.925

CHAINING				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 0.000

RANGING		COMMENTS :		
Line No.....	Kms			
Line No.....	Kms			
Line No.....	Kms			Total Kms..... 0.000
Line No.....	Kms			Cum. Kms. (Job)..... 0.00

LINE CLEAR				
Dozer	1 Line No.....	Kms. Cut.....	Hrs.	Total Kms..... 0.000
Dozer	2 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job)..... 158.920
Dozer	3 Line No.....	Kms. Cut.....	Hrs.	Total Hours..... 0.00
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job)..... 273.50

DRILLING					PRE LOADING			
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets	# Charges
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets	# Charges
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets	# Charges
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets	# Charges
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets	# Charges
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets	# Charges
Total # Mtr.....		0.0	Cum # Mtr(Job).....	2351.0	Total # Holes.....	0	Cum #Holes(Job)	0
Total Drilled.....		0.0	Cum Drilled(Job)..	72.0	Total Dets.....	0	Cum Dets(Job)	72
Total Hrs.....		0.0	Total # Hrs(Job).....	185.8	Total Charges	0	Total # Charges(Job)	2351

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE..... 24-Sep-03			
Client.....	Beach Petroleum			Party Manager.	Bob Stephenson		
Survey Name.	2003 Albus Seismic Survey			Client Rep.....	Bruce Beer		
Area.....	PELA 107			Weather.....	Fine		
State.....	S.A						

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-27	Rec	521.5	Rec	200.5	12.0375	7	315	Profiles..... 638
Line No.....	BC03-26	Rec	200.5	Rec	530.5	12.375	8	323	Skips..... 15
Line No.....		Rec		Rec					Kms..... 24.4125
Line No.....		Rec		Rec					Cum Kms.. 24.4125
Line No.....		Rec		Rec					
HOURS									
	Travel Time.....		0.80	Down Time -				Extra Charges	
	Test Time.....						Recorder.....	Extra Hrs.....	0.00
	Recording Time...		6.40				Cables.....	0.40	Detours Charge Hrs 0.00
Other Time	Line Change.....		0.60				ATU's.....		Washdowns.....Hrs 0.00
	Recorder Move..		1.20				Detours/Terr...		Extra Other Charge.. 0.00
	Detours/Terrain.		0.30				W / on Spread.		Total Extra.....Hrs 0.00
	Experimental...						Stock Damage		Total Extra(Job).Hrs 0.00
	QC Spread .....		0.60				Other.....		Processing Hrs..... 0.00
	Lay out Spread.		1.50						
	Weather Time...								
	Stock Damage..					Total Down Time.....	0.40	Total Day.....Hrs	12.10
	Safety Meeting..		0.30			Cum. Down Time (Job)	0.40	Total Hrs (Job).....	14.50

COMMENTS: Complete line BC03 -27, Commence line BC03 -26  
Layout Total Stn 729 lines 27 / 26  
Pickup Total Stn 514 lines 27 / 26

SURVEY					
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.	Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....	158.925

CHAINING					
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.	Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....	0.000

RANGING					COMMENTS :
Line No.....	Kms				
Line No.....	Kms				
Line No.....	Kms			Total Kms.....	0.000
Line No.....	Kms			Cum. Kms. (Job).....	0.00

LINE CLEAR					
Dozer	1 Line No.....	Kms. Cut.....	Hrs.	Total Kms.....	0.000
Dozer	2 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	158.920
Dozer	3 Line No.....	Kms. Cut.....	Hrs.	Total Hours.....	0.00
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job).....	273.50

DRILLING					PRE LOADING			
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets	# Charges
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets	# Charges
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets	# Charges
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets	# Charges
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets	# Charges
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets	# Charges
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0	Total # Holes.....	0	Cum #Holes(Job)	0
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0	Total Dets.....	0	Cum Dets(Job)	0
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0	Total Charges	0	Total # Charges(Job)	0

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE..... 25-Sep-03	
Client.....	Beach Petroleum	Party Manager.	Bob Stephenson		
Survey Name.	2003 Albus Seismic Survey	Client Rep.....	Bruce Beer		
Area.....	PELA 107	Weather.....	Fine		
State.....	S.A				

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-26	Rec	530.5	Rec	608.5	2.9250	0	78	Profiles..... 681
Line No.....	BC03-25	Rec	408.5	Rec	200.5	7.8000	0	209	Skips..... 11
Line No.....	BC03-24	Rec	200.5	Rec	604.5	15.1500	11	394	Kms..... 25.8750
Line No.....		Rec		Rec					Cum Kms.. 50.2875
Line No.....		Rec		Rec					
HOURS	Travel Time.....		1.00	Down Time -		Extra Charges			
	Test Time.....			Recorder.....		Extra Hrs.....			0.00
	Recording Time...		7.00	Cables.....		0.30	Detours Charge Hrs		0.00
Other Time	Line Change.....		0.80	ATU's.....			Washdowns.....Hrs		0.00
	Recorder Move..		0.90	Detours/Terr...			Extra Other Charge..		0.00
	Detours/Terrain.		0.10	W / on Spread.			Total Extra.....Hrs		0.00
	Experimental...			Stock Damage			Total Extra(Job).Hrs		0.00
	QC Spread .....		1.40	Vibes .....		0.40	Processing Hrs.....		0.00
	Wait on Spread.								
	Vibe Deflate tyres		0.20						
	Stock Damage..			Total Down Time.....		0.70	Total Day.....Hrs		12.40
	Safety Meeting..		0.30	Cum. Down Time (Job)		1.10	Total Hrs (Job).....		26.90

COMMENTS: **Problems with dunes blowing in due to the way they were cut, this is making access dangerous and difficult.**

**Layout Total Stn 723 lines BC03-26 / 25 / 24**

**Pickup Total Stn 682 lines BC03-26 / 25 / 24**

SURVEY			
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
			Total Kms..... 0.000
			Cum. Kms. (Job)..... 158.925

CHAINING			
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
			Total Kms..... 0.000
			Cum. Kms. (Job)..... 0.000

RANGING		COMMENTS :	
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms		
		Total Kms..... 0.000	
		Cum. Kms. (Job)..... 0.00	

LINE CLEAR			
Dozer	1 Line No.....	Kms. Cut.....	Hrs.
Dozer	2 Line No.....	Kms. Cut.....	Hrs.
Dozer	3 Line No.....	Kms. Cut.....	Hrs.
Grader	1 Line No.....	Kms.Graded....	Hrs.
		Total Kms..... 0.000	
		Cum. Kms. (Job)..... 158.920	
		Total Hours..... 0.00	
		Total Hrs (Job)..... 273.50	

DRILLING				PRE LOADING			
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets
Total # Mtr.....		0.0	Cum # Mtr(Job).....		0.0	Total # Holes.....	
Total Drilled.....		0.0	Cum Drilled(Job)..		0.0	0	
Total Hrs.....		0.0	Total # Hrs(Job).....		0.0	Cum Dets(Job)	
						0	
						Cum Charges(Job)	
						0	
						Total # Charges(Job)	
						0	

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401										DATE..... 26-Sep-03	
Client..... Beach Petroleum					Party Manager. Bob Stephenson						
Survey Name. 2003 Albus Seismic Survey					Client Rep..... Bruce Beer						
Area..... PELA 107					Weather..... Fine						
State..... S.A											

RECORDING						Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-24	Rec	604.5	Rec	801.5	7.3875	8	189	Profiles.....	504
Line No.....	BC03-23	Rec	532.5	Rec	200.5	12.4500	18	315	Skips.....	26
Line No.....		Rec		Rec					Kms.....	19.8375
Line No.....		Rec		Rec					Cum Kms..	70.1250
Line No.....		Rec		Rec						

HOURS	Travel Time.....		0.80	Down Time -				Extra Charges			
	Test Time.....			Recorder.....				Extra Hrs.....		0.00	
	Recording Time...		5.20	Cables.....				0.30	Detours Charge Hrs		0.00
	Other Time	Line Change.....		1.90	ATU's.....				Washdowns.....Hrs		0.00
		Recorder Move..			Detours/Terr...				Extra Other Charge..		0.00
		Detours/Terrain.		1.70	W / on Spread.				Total Extra.....Hrs		0.00
		Experimental...			Stock Damage				Total Extra(Job).Hrs		0.00
	QC Spread .....		1.50	Vibes .....				0.30	Processing Hrs.....		0.00
	Wait on Spread.										
	Weather Time...										
Stock Damage..			Total Down Time.....				0.60	Total Day.....Hrs		12.00	
Safety Meeting..		0.30	Cum. Down Time (Job)				1.70	Total Hrs (Job).....		38.90	

**COMMENTS:**    **Detours and line move excessive due to badly cut dumes and access.**  
**Layout Total 602 stns lines BC03-24/23/22**  
**Pickup Total 672 stns lines BC03-24 / 23**

SURVEY				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 158.925

CHAINING				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 0.000

RANGING					COMMENTS :	
Line No.....	Kms					
Line No.....	Kms					
Line No.....	Kms				Total Kms.....	0.000
Line No.....	Kms				Cum. Kms. (Job).....	0.00

LINE CLEAR						
Dozer	1 Line No.....		Kms. Cut.....	Hrs.	Total Kms.....	0.000
Dozer	2 Line No.....		Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	158.920
Dozer	3 Line No.....		Kms. Cut.....	Hrs.	Total Hours.....	0.00
Grader	1 Line No.....		Kms.Graded....	Hrs.	Total Hrs (Job).....	273.50

DRILLING					PRE LOADING				
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets	# Charges	
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets	# Charges	
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets	# Charges	
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets	# Charges	
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets	# Charges	
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets	# Charges	
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0	Total # Holes.....		0	Cum #Holes(Job)	0
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0	Total Dets.....		0	Cum Dets(Job)	0
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0	Total Charges		0	Total # Charges(Job)	0

**COMMENT**



# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE..... 27-Sep-03			
Client.....	Beach Petroleum			Party Manager.	Bob Stephenson		
Survey Name.	2003 Albus Seismic Survey			Client Rep.....	Bruce Beer		
Area.....	PELA 107			Weather.....	Fine		
State.....	S.A						

RECORDING						Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-22	Rec	444.5	Rec	200.5	9.1500	3	242	Profiles.....	675
Line No.....	BC03-29	Rec	448.5	Rec	200.5	9.3000	12	237	Skips.....	19
Line No.....	BC03-30	Rec	200.5	Rec	399.5	7.4625	4	196	Kms.....	25.9125
Line No.....		Rec		Rec					Cum Kms..	96.0375
Line No.....		Rec		Rec						

HOURS	Travel Time.....	0.80	Down Time -		Extra Charges		
	Test Time.....		Recorder.....		Extra Hrs.....	0.00	
	Recording Time...	7.10	Cables.....	0.20	Detours Charge Hrs	0.00	
	Other Time	Line Change.....	1.30	ATU's.....	Washdowns.....Hrs	0.00	
		Recorder Move..		Detours/Terr...	Extra Other Charge..	0.00	
		Detours/Terrain.	1.00	W / on Spread.	Total Extra.....Hrs	0.00	
		Experimental...		Stock Damage	Total Extra(Job).Hrs	0.00	
		Other Time...		Other.....	Processing Hrs.....	0.00	
		Wait on Spread					
		Weather Time...					
		QC Spread .....	1.50	Total Down Time.....	0.20	Total Day.....Hrs	12.20
		Safety Meeting..	0.30	Cum. Down Time (Job)	1.90	Total Hrs (Job).....	51.10

COMMENTS: **Excelent days production, considering detours etc.**  
**Layout Total 627 stns lines BC03-22 / 29 / 30 / 20**  
**Pickup Total 552 stns lines BC03-22 / 29 / 30.**

SURVEY			
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
			Total Kms..... 0.000
			Cum. Kms. (Job)..... 158.925

CHAINING			
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
Line No.....	STN..	STN..	Kms.
			Total Kms..... 0.000
			Cum. Kms. (Job)..... 0.000

RANGING		COMMENTS :	
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms		
Line No.....	Kms		
		Total Kms..... 0.000	
		Cum. Kms. (Job)..... 0.00	

LINE CLEAR			Kms. Cut.....
Dozer	1 Line No.....		Kms. Cut..... Hrs.
Dozer	2 Line No.....		Kms. Cut..... Hrs.
Dozer	3 Line No.....		Kms. Cut..... Hrs.
Grader	1 Line No.....		Kms.Graded.... Hrs.
			Total Hrs (Job)..... 273.50

DRILLING					PRE LOADING			
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets	# Charges
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets	# Charges
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets	# Charges
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets	# Charges
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets	# Charges
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets	# Charges
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0	Total # Holes.....	0	Cum #Holes(Job)	0
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0	Total Dets.....	0	Cum Dets(Job)	0
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0	Total Charges	0	Total # Charges(Job)	0

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401 DATE..... 28-Sep-03

Client.....	Beach Petroleum	Party Manager.	Bob Stephenson
Survey Name.	2003 Albus Seismic Survey	Client Rep.....	Bruce Beer
Area.....	PELA 107	Weather.....	Fine
State.....	S.A		

RECORDING						Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-20	Rec	407.5	Rec	200.5	7.7625	5	203	Profiles.....	731
Line No.....	BC03-31	Rec	200.5	Rec	373.5	6.4875	2	172	Skips.....	7
Line No.....	BC03-32	Rec	417.5	Rec	200.5	8.1375	0	218	Kms.....	27.5250
Line No.....	BC03-33	Rec	200.5	Rec	337.5	5.1375	0	138	Cum Kms..	123.5625
Line No.....		Rec		Rec						

HOURS	Travel Time.....	1.00	Down Time -					Extra Charges		
	Test Time.....						Recorder.....	Extra Hrs.....	<b>0.50</b>	
	Recording Time...	7.20					Cables.....	Detours Charge Hrs	0.00	
	Other Time	Line Change....	1.80				ATU's.....	Washdowns.....Hrs	0.00	
		Recorder Move..					Detours/Terr...	Extra Other Charge..	0.00	
		Detours/Terrain.	0.10				W / on Spread.	Total Extra.....Hrs	0.00	
		Experimental...					Stock Damage	Total Extra(Job).Hrs	0.00	
		QC Spread .....	0.80				Vibes .....	0.90	Processing Hrs.....	0.00
		Wait on Spread.								
		Weather Time...								
	Stock Damage..					Total Down Time.....	0.90	Total Day.....Hrs	12.30	
	Safety Meeting..	0.50				Cum. Down Time (Job)	2.80	Total Hrs (Job).....	63.40	

COMMENTS: **Excelent days production for the amount of people on crew.**  
**Layout Total Stns 783 lines BC03-20 / 31 / 32 / 33 / 21**  
**Pickup Total Stns 735 lines BC03-30 / 20 / 31 / 32**  
**.5hrs at standby rate for safety meeting**

SURVEY										
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000	
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	158.925	

CHAINING										
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000	
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	0.000	

RANGING						COMMENTS :				
Line No.....		Kms								
Line No.....		Kms								
Line No.....		Kms						Total Kms.....	0.000	
Line No.....		Kms						Cum. Kms. (Job).....	0.00	

LINE CLEAR										
Dozer	1	Line No.....				Kms. Cut.....	Hrs.	Total Kms.....	0.000	
Dozer	2	Line No.....				Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	158.920	
Dozer	3	Line No.....				Kms. Cut.....	Hrs.	Total Hours.....	0.00	
Grader	1	Line No.....				Kms.Graded....	Hrs.	Total Hrs (Job).....	273.50	

DRILLING						PRE LOADING				
Rig No.	1	# Mtr	#Holes	Hrs		1	# Holes	# Dets	# Charges	
Rig No.	2	# Mtr	#Holes	Hrs		2	# Holes	# Dets	# Charges	
Rig No.	3	# Mtr	#Holes	Hrs		3	# Holes	# Dets	# Charges	
Rig No.	4	# Mtr	#Holes	Hrs		4	# Holes	# Dets	# Charges	
Rig No.	5	# Mtr	#Holes	Hrs		5	# Holes	# Dets	# Charges	
Rig No.	6	# Mtr	#Holes	Hrs		6	# Holes	# Dets	# Charges	
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0		Total # Holes.....	0	Cum #Holes(Job)	0	
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0		Total Dets.....	0	Cum Dets(Job)	0	
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0		Total Charges	0	Total # Charges(Job)	0	

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401 DATE..... 29-Sep-03

Client.....	Beach Petroleum	Party Manager.	Bob Stephenson
Survey Name.	2003 Albus Seismic Survey	Client Rep.....	Bruce Beer
Area.....	PELA 107	Weather.....	Fine
State.....	S.A		

RECORDING						Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-33	Rec	337.5	Rec	413.5	2.8500	0	76	Profiles.....	581
Line No.....	BC03-21	Rec	200.5	Rec	563.5	13.6125	8	356	Skips.....	11
Line No.....	BC03-28	Rec	200.5	Rec	351.5	5.6625	3	149	Kms.....	22.1250
Line No.....		Rec		Rec					Cum Kms..	145.6875
Line No.....		Rec		Rec						

HOURS	Travel Time.....	0.80	Down Time -					Extra Charges		
	Test Time.....						Recorder.....	Extra Hrs.....	0.00	
	Recording Time...	6.10					Cables.....	Detours Charge Hrs	0.00	
	Other Time	Line Change.....	0.90				ATU's.....	Washdowns.....Hrs	0.00	
		Recorder Move..	1.70				Detours/Terr...	Extra Other Charge..	0.00	
		Detours/Terrain.					W / on Spread.	Total Extra.....Hrs	0.00	
		Experimental...					Stock Damage	Total Extra(Job).Hrs	0.00	
		QC Spread .....	1.10				Other.....	Processing Hrs.....	0.00	
		Wait on Spread.	1.40							
		Weather Time...								
	Stock Damage..					Total Down Time.....	0.00	Total Day.....Hrs	12.30	
	Safety Meeting..	0.30				Cum. Down Time (Job)	2.80	Total Hrs (Job).....	75.70	

COMMENTS: **Excelent days production, recording crew short handed due to crew change.**  
**Layout Total stns 478 lines BC03-21 / 28**  
**Pickup Total stns 576 lines BC03-33 / 21**

SURVEY										
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000	
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	158.925	

CHAINING										
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.				
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000	
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	0.000	

RANGING					COMMENTS :					
Line No.....		Kms								
Line No.....		Kms								
Line No.....		Kms						Total Kms.....	0.000	
Line No.....		Kms						Cum. Kms. (Job).....	0.00	

LINE CLEAR										
Dozer	1	Line No.....			Kms. Cut.....		Hrs.	Total Kms.....	0.000	
Dozer	2	Line No.....			Kms. Cut.....		Hrs.	Cum. Kms. (Job).....	158.920	
Dozer	3	Line No.....			Kms. Cut.....		Hrs.	Total Hours.....	0.00	
Grader	1	Line No.....			Kms.Graded....		Hrs.	Total Hrs (Job).....	273.50	

DRILLING					PRE LOADING					Elect Dets
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets		# Charges	
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets		# Charges	
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets		# Charges	
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets		# Charges	
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets		# Charges	
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets		# Charges	
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0	Total # Holes.....	0	Cum #Holes(Job)		0	
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0	Total Dets.....	0	Cum Dets(Job)		0	
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0	Total Charges	0	Total # Charges(Job)		0	

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401				DATE..... 30-Sep-03			
Client.....	Beach Petroleum			Party Manager.	Bob Stephenson		
Survey Name.	2003 Albus Seismic Survey			Client Rep.....	Bruce Beer		
Area.....	PEL 91			Weather.....	Fine		
State.....	S.A						

RECORDING					Kms.	SKIPS	PROFILES	TOTALS	
Line No.....	BC03-39	Rec	374.5	Rec	200.5	6.525	3	172	Profiles..... 172
Line No.....		Rec		Rec					Skips..... 3
Line No.....		Rec		Rec					Kms..... 6.525
Line No.....		Rec		Rec					Cum Kms.. 158.925
Line No.....		Rec		Rec					

HOURS	Travel Time.....	0.70	Down Time -				Extra Charges		
	Test Time.....		Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	1.60	Cables.....				Detours Charge Hrs	0.00	
	Other Time		ATU's.....				Washdowns.....Hrs	0.00	
	Prospect Move	1.80	Detours/Terr...				Extra Other Charge..	0.00	
	Recorder Move..		W / on Spread.				Total Extra.....Hrs	0.00	
	Detours/Terrain.		Stock Damage				Total Extra(Job).Hrs	0.00	
	Experimental...		Other.....				Processing Hrs.....	0.00	
	QC Spread .....	1.60							
	Pick up Spread	2.80							
Weather Time...					Total Down Time.....		0.00	Total Day.....Hrs	8.50
Stock Damage..					Cum. Down Time (Job)		0.00	Total Hrs (Job).....	88.40
Safety Meeting..									

COMMENTS: **Completed line BC03-39, picked up spread and moved back to camp ready for move to PEL 92**

SURVEY									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.				Total Kms.....	0.000	
Line No.....	STN..	STN..	Kms.				Cum. Kms. (Job).....	158.925	

CHAINING									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.				Total Kms.....	0.000	
Line No.....	STN..	STN..	Kms.				Cum. Kms. (Job).....	0.000	

RANGING					COMMENTS :				
Line No.....	Kms								
Line No.....	Kms								
Line No.....	Kms						Total Kms.....	0.000	
Line No.....	Kms						Cum. Kms. (Job).....	0.00	

LINE CLEAR									
Dozer	1 Line No.....		Kms. Cut.....	Hrs.			Total Kms.....	0.000	
Dozer	2 Line No.....		Kms. Cut.....	Hrs.			Cum. Kms. (Job).....	158.920	
Dozer	3 Line No.....		Kms. Cut.....	Hrs.			Total Hours.....	0.00	
Grader	1 Line No.....		Kms.Graded....	Hrs.			Total Hrs (Job).....	273.50	

DRILLING					PRE LOADING				
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets	Elect Dets	
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets	# Charges	
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets	# Charges	
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets	# Charges	
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets	# Charges	
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets	# Charges	
Total # Mtr.....	0.0	Cum # Mtr(Job).....	0.0		Total # Holes.....	0	Cum #Holes(Job)	0	
Total Drilled.....	0.0	Cum Drilled(Job)..	0.0		Total Dets.....	0	Cum Dets(Job)	0	
Total Hrs.....	0.0	Total # Hrs(Job).....	0.0		Total Charges	0	Total # Charges(Job)	0	

COMMENT

<p align="center"><b>TRACE ENERGY SERVICES</b>  <b>DAILY PRODUCTION REPORT</b></p>	
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CREW 401 DATE..... 30-Sep-03

Client.....	Beach Petroleum	Party Manager.	Bob Stephenson
Survey Name.	2003 Albus Seismic Survey	Client Rep.....	Bruce Beer
Area.....	PELA 107	Weather.....	Fine
State.....	S.A		

RECORDING						Kms.	SKIPS	PROFILES	TOTALS
Line No.....	BC03-28	Rec	351.5	Rec	530.5	6.7125	1	178	Profiles..... 178
Line No.....		Rec		Rec					Skips..... 1
Line No.....		Rec		Rec					Kms..... 6.7125
Line No.....		Rec		Rec					Cum Kms.. 152.4000
Line No.....		Rec		Rec					

HOURS	Travel Time.....	0.30	Down Time -	Extra Charges	
	Test Time.....		Recorder.....	Extra Hrs.....	0.00
	Recording Time...	1.70	Cables.....	Detours Charge Hrs	0.00
Other Time	Line Change.....		ATU's.....	Washdowns.....Hrs	0.00
	Recorder Move..	1.20	Detours/Terr...	Extra Other Charge..	0.00
	Detours/Terrain.		W / on Spread.	Total Extra.....Hrs	0.00
	Experimental...		Stock Damage	Total Extra(Job).Hrs	0.00
	QC Spread .....	0.30	Other.....	Processing Hrs.....	0.00
	Wait on Spread.	0.40			
	Weather Time...				
	Stock Damage..		Total Down Time.....	Total Day.....Hrs	4.20
	Safety Meeting..	0.30	Cum. Down Time (Job)	Total Hrs (Job).....	79.90

COMMENTS:	<p><b>Completed production on PELA 107, one extra line in PEL 91 will be on following report</b></p> <p><b>Layout Total 291stns lines 28 / 39 line 39 is in PEL 91</b></p> <p><b>Pickup Total 504stnsLINES 28 / 39 line 39 is in PEL 91</b></p>
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SURVEY				
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	
Line No.....	STN..	STN..	Kms.	Total Kms..... 0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job)..... 158.925

CHAINING					
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.		
Line No.....	STN..	STN..	Kms.	Total Kms.....	0.000
Line No.....	STN..	STN..	Kms.	Cum. Kms. (Job).....	0.000

RANGING		COMMENTS :
Line No.....	Kms	
Line No.....	Kms	
Line No.....	Kms	Total Kms..... 0.000
Line No.....	Kms	Cum. Kms. (Job)..... 0.00

LINE CLEAR					
Dozer	1 Line No.....	Kms. Cut.....	Hrs.	Total Kms.....	0.000
Dozer	2 Line No.....	Kms. Cut.....	Hrs.	Cum. Kms. (Job).....	158.920
Dozer	3 Line No.....	Kms. Cut.....	Hrs.	Total Hours.....	0.00
Grader	1 Line No.....	Kms.Graded....	Hrs.	Total Hrs (Job).....	273.50

DRILLING					PRE LOADING				Elect Dets			
Rig No.	1	# Mtr	#Holes	Hrs	1	# Holes	# Dets	# Charges				
Rig No.	2	# Mtr	#Holes	Hrs	2	# Holes	# Dets	# Charges				
Rig No.	3	# Mtr	#Holes	Hrs	3	# Holes	# Dets	# Charges				
Rig No.	4	# Mtr	#Holes	Hrs	4	# Holes	# Dets	# Charges				
Rig No.	5	# Mtr	#Holes	Hrs	5	# Holes	# Dets	# Charges				
Rig No.	6	# Mtr	#Holes	Hrs	6	# Holes	# Dets	# Charges				
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0	Total # Holes.....	0	Cum #Holes(Job)	0				
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0	Total Dets.....	0	Cum Dets(Job)	0				
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0	Total Charges	0	Total # Charges(Job)	0				

COMMENT
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# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401

DATE..... 1-Oct-03

Client..... Beach Petroleum  
 Survey Name. 2003 Christie  
 Area..... PEL 92  
 State..... S.A.

Party Manager. Bob Stephenson  
 Client Rep..... Bruce Beer  
 Weather..... Windy

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-38	Rec	442.5	Rec	200.5	9.0750	1	242	Profiles..... 310
Line No.....	BC03-34	Rec	200.5	Rec	269.5	2.5875	2	68	Skips..... 3
Line No.....		Rec		Rec					Kms..... 11.6625
Line No.....		Rec		Rec					Cum Kms.. 11.6625
Line No.....		Rec		Rec					

HOURS	Travel Time.....	0.30	Down Time -				Extra Charges		
	Test Time.....		Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	3.10	Cables.....				Detours Charge Hrs	0.00	
	Other Time	Line Change.....	0.70	ATU's.....				Washdowns.....Hrs	0.00
		Prospect Move ...	4.80	Detours/Terr...				Extra Other Charge..	0.00
		Detours/Terrain.		W / on Spread.				Total Extra.....Hrs	0.00
		QC Spread ....	1.10	Stock Damage				Total Extra(Job).Hrs	0.00
		Let down tyres	0.20	Other.....				Processing Hrs.....	0.00
		Lay Spread ....	2.30						
		Weather Time...							
		Stock Damage..		Total Down Time.....		0.00	Total Day.....Hrs		12.70
		Safety Meeting..	0.20	Cum. Down Time (Job)		0.00	Total Hrs (Job).....		12.70

COMMENTS: **Moved camp from PEL 107 to PEL 92, Laid spread and commenced recording on Christies 2D area.**  
**Layout Total Stns 456 lines BC03-38 / 34**  
**Pickup Total Stns 217 lines Bc03-38.**

SURVEY									
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	220.395

CHAINING									
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.			
Line No.....		STN..		STN..		Kms.		Total Kms.....	0.000
Line No.....		STN..		STN..		Kms.		Cum. Kms. (Job).....	0.000

RANGING					COMMENTS :				
Line No.....		Kms							
Line No.....		Kms							
Line No.....		Kms						Total Kms.....	0.000
Line No.....		Kms						Cum. Kms. (Job).....	0.00

LINE CLEAR									
Dozer	1	Line No.....		Kms. Cut.....		Hrs.		Total Kms.....	0.000
Dozer	2	Line No.....		Kms. Cut.....		Hrs.		Cum. Kms. (Job).....	222.600
Dozer	3	Line No.....		Kms. Cut.....		Hrs.		Total Hours.....	0.00
Grader	1	Line No.....		Kms.Graded....		Hrs.		Total Hrs (Job).....	274.50

DRILLING					L.V.L.				
Daly Drilling	1	# Mtr	#Holes	Hrs	Unit 6	Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
Total # Mtr.....		0.0	Cum # Mtr(Job).....	0.0					
Total Drilled.....		0.0	Cum Drilled(Job)..	0.0	# Holes	0	Cum # Holes	0	
Total Hrs.....		0.0	Total # Hrs(Job).....	0.0	# Mtr	0	Cum # Mtr	0	

COMMENT

# TRACE ENERGY SERVICES

## DAILY PRODUCTION REPORT

CREW 401

DATE..... 2-Oct-03

Client..... Beach Petroleum  
 Survey Name. 2003 Christie  
 Area..... PEL 92  
 State..... S.A.

Party Manager. Bob Stephenson  
 Client Rep..... Bruce Beer  
 Weather..... Windy

RECORDING				Kms.		SKIPS	PROFILES	TOTALS	
Line No.....	BC03-34	Rec	269.5	Rec	414.5	5.4375	2	143	Profiles..... 675
Line No.....	BC03-35	Rec	386.5	Rec	200.5	6.9750	1	186	Skips..... 4
Line No.....	BC03-36	Rec	200.5	Rec	371.5	6.4125	0	172	Kms..... 25.350
Line No.....	BC03-37	Rec	374.5	Rec	200.5	6.5250	1	174	Cum Kms.. 37.013
Line No.....		Rec		Rec					

HOURS	Travel Time.....	1.10	Down Time -				Extra Charges		
	Test Time.....		Recorder.....				Extra Hrs.....	0.00	
	Recording Time...	7.10	Cables.....				Detours Charge Hrs	0.00	
	Other Time	Line Change.....	1.10	ATU's.....				Washdowns.....Hrs	0.00
		Recorder Move..		Detours/Terr...				Extra Other Charge..	0.00
		Detours/Terrain.	0.10	W / on Spread.				Total Extra.....Hrs	0.00
		Experimental...		Stock Damage				Total Extra(Job).Hrs	0.00
		QC Spread ....	1.60	Other.....				Processing Hrs.....	0.00
		Pick up Spread ....	0.70						
		Weather Time...							
		Stock Damage..		Total Down Time.....		0.00	Total Day.....Hrs		12.00
		Safety Meeting..	0.30	Cum. Down Time (Job)		0.00	Total Hrs (Job).....		24.70

COMMENTS: **Completed Christies 2D survey**  
**Layout Total stns 531 Lines BC03-35 / 36 / 37**  
**Pickup Total stns 769 Lines BC03-38 / 34 / 35 / 36 / 37**

SURVEY									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.		Total Kms.....				0.000
Line No.....	STN..	STN..	Kms.		Cum. Kms. (Job).....				220.395

CHAINING									
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.						
Line No.....	STN..	STN..	Kms.		Total Kms.....				0.000
Line No.....	STN..	STN..	Kms.		Cum. Kms. (Job).....				0.000

RANGING									
COMMENTS :									
Line No.....	Kms								
Line No.....	Kms								
Line No.....	Kms		Total Kms.....				0.000		
Line No.....	Kms		Cum. Kms. (Job).....				0.00		

LINE CLEAR									
Dozer	1	Line No.....	Kms. Cut.....		Hrs.	Total Kms.....			
Dozer	2	Line No.....	Kms. Cut.....		Hrs.	Cum. Kms. (Job).....			
Dozer	3	Line No.....	Kms. Cut.....		Hrs.	Total Hours.....			
Grader	1	Line No.....	Kms.Graded....		Hrs.	Total Hrs (Job).....			

DRILLING					L.V.L.				
Daly Drilling	1	# Mtr	#Holes	Hrs	Unit 6	Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
		# Mtr	#Holes	Hrs		Line #	# Holes	# Mtr	
Total # Mtr.....		0.0	Cum # Mtr(Job).....		0.0				
Total Drilled.....		0.0	Cum Drilled(Job)..		0.0	# Holes	0	Cum # Holes	0
Total Hrs.....		0.0	Total # Hrs(Job).....		0.0	# Mtr	0	Cum # Mtr	0

COMMENT



# OPERATION STATISTICS

Date	Travel Time	Test Time	Recording Time	Line Change	Prospect Move	Detours/ Terrain	Down Time	Recorder Move	Safety & Other Charge	Hardwire Sims	Stand-by	Wait on Spread	Laying Out, QC & Pickup Spread	Experimental Time	Total Operational Hours	Total Km's
27 August 2003											1.00				1.00	
28 August 2003															0.00	
29 August 2003	0.80	0.20	4.60	1.10			0.70		0.20	0.30			3.70		11.60	14.7000
30 August 2003	1.20		5.50	1.00		2.20	0.50		0.30	0.20			1.10		12.00	19.0125
31 August 2003	1.30		5.60	1.80		0.30	0.60		0.20				2.20		12.00	21.2250
1 September 2003	0.80		7.00	1.20		0.20	1.20		0.20				1.20		11.80	25.8750
2 September 2003	0.70		5.30	0.80		0.50	0.40	1.10	0.30				2.90		12.00	19.2000
3 September 2003	1.10		6.90	1.30		0.40	0.10		0.30				2.10		12.20	24.0375
4 September 2003	1.20		6.00	2.50		0.10	0.20		0.30				2.00		12.30	21.0375
5 September 2003	0.90		5.00	0.70		0.50	0.20		0.30				4.40		12.00	18.4125
															0.00	
23 September 2003	2.40														2.40	
24 September 2003	0.80		6.40	0.60		0.30	0.40	1.20	0.30				2.10		12.10	24.4125
25 September 2003	1.00		7.00	0.80		0.10	0.90	0.90	0.30				1.40		12.40	25.8750
26 September 2003	0.80		5.20	1.90		1.70	0.60		0.30				1.50		12.00	19.8375
27 September 2003	0.80		7.10	1.30		1.00	0.20		0.30				1.50		12.20	25.9125
28 September 2003	1.00		7.20	1.80		0.10	0.90				0.50		0.80		12.30	27.5250
29 September 2003	0.80		6.10	0.90				1.70	0.30			1.40	1.10		12.30	22.1250
30 September 2003	1.00		3.30		1.80			1.20	0.30			0.40	4.70		12.70	13.2375
1 October 2003	0.3		3.1	0.7	4.8				0.4				3.4		12.7	11.6625
2 October 2003	1.1		7.1	1.1		0.1			0.3				2.3		12	25.35
TOTALS	18.00	0.20	98.40	19.50	6.60	7.50	6.90	6.10	4.60	0.50	1.50	1.80	38.40		210.00	359.4375



# Beach Petroleum

## 2003 Albus Seismic Survey

Party No. # 401

Date Recorded: 05-Sep-03

Observer: Joel Carry

Observer:

### Instrumentation

Recording System: Sercel SN 388  
Plotter: GS-612

Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3 Hz	High Cut:	125 Hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 Nyquist Minimum
CSM Process:	Correlate after Stack	Stations in Gap:	0	No. of Chan.:	124

### Receiver Parameters

Geophone Array:	12 over 34.375 m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5 m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:		Last Receiver On Line	481

### Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5 m
Vibe Spacing:	12.5 m pad-pad	Vibe Move ups:	0
Source Point Intervals:	37.5 m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200 ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 - 90 Hz	Num Vibes On Line:	4
Sweep # 2	5 - 90 Hz	First Source Point:	203
Sweep # 3		Last Source Point:	480
Sweep # 4			

### 3480 Tape Summary

Reel Number:	19A	Stn To Stn:	203.5	480.5	File To File:	1	262
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		
Reel Number:		Stn To Stn:			File To File:		

Comments:



Party No. # 401

**Beach Petroleum**2003 Albus Seismic Survey  
BC03-04Date Recorded: 29-Aug-03  
Observer: Peter O'Donnell  
Observer:**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3Hz	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	362
Direction of Recording:	NE - SW	Last Receiver On Line	200

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibs On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	362
Sweep # 3		Last Source Point:	200
Sweep # 4			

**3480 Tape Summary**

Reel Number:	1A	Stn To Stn:	362 - 200	File To File:	1 -161
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



# Beach Petroleum

2003 Albus Seismic Survey

BC03-13

Party No. # 401

Date Recorded: 05-Sep-03

Observer: Joel Carry

Observer:

## Instrumentation

Recording System: Sercel SN 388

Plotter: GS-612

Shooting System: Pelton Advance II Model 5

Geophone Model: Sensor SM-4 LD SM-24

## Recording Parameters

Record Length: 4000ms

Noise Edit Type: None

Low Cut Filter: 3 Hz

Aux. Chan. #1: True Ref

CSM Process: Correlate after stack

Sample Rate: 2 ms.

Tape Format: Seg D

High Cut: 125hz

Aux. Chan. #2: Wireline Ref

Stations in Gap: 0

Preamplifier Gain: 24 dB

Tape: 3490 Drive

HPE Filter: Out

Alias Filter: .5 nyquist minimum

No. of Chan.: 124

## Receiver Parameters

Geophone Array: 12 over 34.375m

Geophone Wiring: 6 Phones Series/ Parallel

Geophone Spacing: 3.125m

Receiver Station Intervals: 37.5m

Receiver Station Centre: On Station

Direction of Recording:

Geophone Frequency: 10 Hz

Geophone Base: 3" Spikes

Geophone Damping: 0.70%

No. of Receiver Lines: 1

First Receiver On Line: 434

Last Receiver On Line: 200

## Source Parameters

Source Type: 315 Litton Paystar

Vibe Spacing: 12.5m Pad to Pad

Source Point Intervals: 37.5m

Sweep Length: 3000ms

Source Centre: Mid Station

Sweep # 1: 5 to 90hz

Sweep # 2: 5 to 90hz

Sweep # 3

Sweep # 4

Source Array Length: 37.5m

Vibe Move ups: 0

Number of Sweeps: 2

Sweep Taper: 200ms

Sweep Type: Linear

Num Vibes On Line: 4

First Source Point: 434

Last Source Point: 200

## 3480 Tape Summary

Reel Number: 18A

Stn To Stn: 434.5 200.5

File To File: 1 231

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

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Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Comments:



Party No. # 401

**Beach Petroleum**

2003 Albus Seismic survey

BC03-12

Date Recorded:

Observer:

Peter O'Donnell

Observer:

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3 Hz	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line:</b>	387
<b>Direction of Recording:</b>		<b>Last Receiver On Line:</b>	200

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5m
<b>Vibe Spacing:</b>	12.5m Pad to Pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1:</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2:</b>	5 to 90hz	<b>First Source Point:</b>	387
<b>Sweep # 3:</b>		<b>Last Source Point:</b>	200
<b>Sweep # 4:</b>			

**3480 Tape Summary**

<b>Reel Number:</b>	17A	<b>Stn To Stn:</b>	387.5	200.5	<b>File To File:</b>	1	186
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		
<b>Reel Number:</b>		<b>Stn To Stn:</b>			<b>File To File:</b>		

Comments:



# Beach Petroleum

2003 Albus Seismic Survey

BC03-15

Party No. # 401

Date Recorded:

04-Sep-03

Observer:

Joel Carry

Observer:

## Instrumentation

Recording System: Sercel SN 388

Plotter: GS-612

Shooting System: Pelton Advance II Model 5

Geophone Model: Sensor SM-4 LD SM-24

## Recording Parameters

Record Length: 4000ms

Noise Edit Type: None

Low Cut Filter: 3HZ

Aux. Chan. #1: True Ref

CSM Process: Correlate after stack

Sample Rate: 2 ms.

Tape Format: Seg D

High Cut: 125hz

Aux. Chan. #2: Wireline Ref

Stations in Gap: 0

Preamp Gain: 24 dB

Tape: 3490 Drive

HPE Filter: Out

Alias Filter: .5 nyquist minimum

No. of Chan.: 124

## Receiver Parameters

Geophone Array: 12 over 34.375m

Geophone Wiring: 6 Phones Series/ Parallel

Geophone Spacing: 3.125m

Receiver Station Intervals: 37.5m

Receiver Station Centre: On Station

Direction of Recording:

Geophone Frequency: 10 Hz

Geophone Base: 3" Spikes

Geophone Damping: 0.70%

No. of Receiver Lines: 1

First Receiver On Line: 200

Last Receiver On Line: 505

## Source Parameters

Source Type: 315 Litton Paystar

Vibe Spacing: 12.5m Pad to Pad

Source Point Intervals: 37.5m

Sweep Length: 3000ms

Source Centre: Mid Station

Sweep # 1: 5 to 90hz

Sweep # 2: 5 to 90hz

Sweep # 3

Sweep # 4

Source Array Length: 37.5m

Vibe Move ups: 0

Number of Sweeps: 2

Sweep Taper: 200ms

Sweep Type: Linear

Num Vibes On Line: 4

First Source Point: 200

Last Source Point: 505

## 3480 Tape Summary

Reel Number: 16A

Stn To Stn: 200.5 505.5

File To File: 1 302

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

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Reel Number:

Stn To Stn:

File To File:

Comments:



# Beach Petroleum

2003 Albus Seismic Survey

BC03-18

Party No. # 401

Date Recorded:

Observer:

Joel Carry

Observer:

## Instrumentation

Recording System: Sercel SN 388  
Plotter: GS-612

Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

## Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	Diversity	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3 Hz	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	200

## Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	338
Direction of Recording:		Last Receiver On Line	200

## Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5m
Vibe Spacing:	12.5m Pad to Pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	338
Sweep # 3		Last Source Point:	200
Sweep # 4			

## 3480 Tape Summary

Reel Number:	15A	Stn To Stn:	338.5	200.5	1	135
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	
Reel Number:		Stn To Stn:			File To File:	

Comments:





Party No. # 401

**Beach Petroleum**

2003 Albus Seismic survey

BC03-11

Date Recorded: 03-Sep-03

Observer: Joel Carry

Observer:

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line:</b>	200
<b>Direction of Recording:</b>	SW - NE	<b>Last Receiver On Line:</b>	385

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5m
<b>Vibe Spacing:</b>	12.5m Pad to Pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1:</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2:</b>	5 to 90hz	<b>First Source Point:</b>	200
<b>Sweep # 3:</b>		<b>Last Source Point:</b>	385
<b>Sweep # 4:</b>			

**3480 Tape Summary**

<b>Reel Number:</b> 14A	<b>Stn To Stn:</b> 200.5	385.5	<b>File To File:</b> 1	186
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	

Comments:



Party No. # 401

**Beach Petroleum**  
**2003 Albus Seismic Survey**  
**BC03-19**

**Date Recorded:** 03-Sep-03  
**Observer:** Joel Carry  
**Observer:**

**Instrumentation**

**Recording System:** Sercel SN 388  
**Plotter:** GS-612  
**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24

**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line:</b>	336
<b>Direction of Recording:</b>	NE - SW	<b>Last Receiver On Line:</b>	200

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5m
<b>Vibe Spacing:</b>	12.5m Pad to Pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	336
<b>Sweep # 3</b>		<b>Last Source Point:</b>	200
<b>Sweep # 4</b>			

**3480 Tape Summary**

<b>Reel Number:</b> 13A	<b>Stn To Stn:</b> 336.5	200.5	<b>File To File:</b> 1	118
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>	<b>Stn To Stn:</b>		<b>File To File:</b>	

Comments:



# Beach Petroleum

2003 Albus Seismic Survey  
BC03-10

Party No. # 401

Date Recorded: 03-Sep-03

Observer: Joel Carry

Observer:

## Instrumentation

Recording System: Sercel SN 388  
Plotter: GS-612

Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

## Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490Drive
Low Cut Filter:	3hz	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

## Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	NW - SE	Last Receiver On Line	720

## Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	720
Sweep # 4			

## 3480 Tape Summary

Reel Number:	12A	Stn To Stn:	200.5-720.5	File To File:	1 - 504
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



Party No. # 401

**Beach Petroleum**2003 Albus Seismic Survey  
BC03-17

Date Recorded: 02-Sep-03

Observer: Peter O'Donnell

Observer: Joel Cary

**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000ms	Sample Rate:	2 ms.	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquist minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	NE - SW	Last Receiver On Line	332

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5m
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	332
Sweep # 4			

**3480 Tape Summary**

Reel Number: 11A	Stn To Stn: 200.5 - 332.5	File To File: 1 -129
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:



# Beach Petroleum

2003 Albus Seismic Survey

BC03-09

Party No. # 401

Date Recorded: 02-Sep-02

Observer: Peter O'Donnell

Observer: Joel Cary

## Instrumentation

Recording System: Sercel SN 388

Plotter: GS-612

Shooting System: Pelton Advance II Model 5

Geophone Model: Sensor SM-4 LD SM-24

## Recording Parameters

Record Length: 4000ms

Noise Edit Type: None

Low Cut Filter: 3HZ

Aux. Chan. #1: True Ref

CSM Process: Correlate after stack

Sample Rate: 2 ms.

Tape Format: Seg D

High Cut: 125hz

Aux. Chan. #2: Wireline Ref

Stations in Gap: 0

Preamplifier Gain: 24 dB

Tape: 3490 Drive

HPE Filter: Out

Alias Filter: .5 nyquist minimum

No. of Chan.: 124

## Receiver Parameters

Geophone Array: 12 over 34.375m

Geophone Wiring: 6 Phones Series/ Parallel

Geophone Spacing: 3.125m

Receiver Station Intervals: 37.5m

Receiver Station Centre: On Station

Direction of Recording: SE - NW

Geophone Frequency: 10 Hz

Geophone Base: 3" Spikes

Geophone Damping: 0.70%

No. of Receiver Lines: 1

First Receiver On Line: 522

Last Receiver On Line: 200

## Source Parameters

Source Type: 315 Litton Paystar

Vibe Spacing: 12.5m pad to pad

Source Point Intervals: 37.5m

Sweep Length: 3000ms

Source Centre: Mid Station

Sweep # 1: 5 to 90hz

Sweep # 2: 5 to 90hz

Sweep # 3: 5 to 90hz

Sweep # 4: 5 to 90hz

Source Array Length: 37.5m

Vibe Move ups: 0

Number of Sweeps: 2

Sweep Taper: 200ms

Sweep Type: Linear

Num Vibes On Line: 4

First Source Point: 522

Last Source Point: 200

## 3480 Tape Summary

Reel Number: 10A

Stn To Stn: 522.5 - 200.5

File To File: 1 - 309

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

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Reel Number:

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File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Comments:



## Beach Petroleum

2003 Albus Seismic Survey

BC03-07

Party No. # 401

Date Recorded: 01-Sep-03

Observer: Peter O'Donnell

Observer:

### Instrumentation

Recording System: Sercel SN 388  
Plotter: GS-612

Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquist minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

### Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	NW - SE	Last Receiver On Line	519

### Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5M
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	519
Sweep # 4			

### 3480 Tape Summary

Reel Number:	9A	Stn To Stn:	200.5-519.5	File To File:	1 - 310
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



Party No. # 401

# Beach Petroleum

## 2003 Albus Seismic Survey

BC03-08

Date Recorded:

Observer: Peter O'Donnell

Observer:

### Instrumentation

**Recording System:** Sercel SN 388  
**Plotter:** GS-612

**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24

### Recording Parameters

<b>Record Length:</b>	4000MS	<b>Sample Rate:</b>	2 ms.	<b>Preamp Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquest minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

### Receiver Parameters

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line:</b>	370
<b>Direction of Recording:</b>	SE - NW	<b>Last Receiver On Line:</b>	200

### Source Parameters

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5M
<b>Vibe Spacing:</b>	12.5m pad to pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1:</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2:</b>	5 to 90hz	<b>First Source Point:</b>	370
<b>Sweep # 3:</b>		<b>Last Source Point:</b>	200
<b>Sweep # 4:</b>			

### 3480 Tape Summary

<b>Reel Number:</b>	8A	<b>Stn To Stn:</b>	370.5 - 200.5	<b>File To File:</b>	1 - 169
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	

Comments:





Party No. # 401

# Beach Petroleum

## 2003 Albus Seismic Survey

BC03-03

Date Recorded: 31-Aug-03  
Observer: Peter O'Donnell  
Observer:

### Instrumentation

Recording System: Sercel SN 388      Shooting System: Pelton Advance II Model 5  
Plotter: GS-612      Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length:	4000MS	Sample Rate:	2 ms.	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquist minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

### Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	SW - NE	Last Receiver On Line	432

### Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5M
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	432
Sweep # 4			

### 3480 Tape Summary

Reel Number:	7A	Stn To Stn:	200.5 - 432.5	File To File:	1 - 233
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



## Beach Petroleum

2003 Albus Seismic Survey  
BC03-02

Party No. # 401

Date Recorded: 31-Aug-03

Observer: Peter O'Donnell

Observer:

Recording System: Sercel SN 388  
Plotter: GS-612

Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

### Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	406
Direction of Recording:	NE - SW	Last Receiver On Line	200

### Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	406
Sweep # 3		Last Source Point:	200
Sweep # 4			

### 3480 Tape Summary

Reel Number:	6A	Stn To Stn:	406.5 - 200.5	File To File:	1 - 203
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



Party No. # 401

**Beach Petroleum**2003 Albus Seismic Survey  
BC03-01

Date Recorded: 30TH/31ST Aug 03

Observer: Peter O'Donnell

Observer:

**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	SW - NE	Last Receiver On Line	427

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	427
Sweep # 4			

**3480 Tape Summary**

Reel Number:	5A	Stn To Stn:	200.5 - 427.5	File To File:	1 - 220
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



## Beach Petroleum

2003 Albus Seismic Survey  
BC03-16

Party No. # 401

Date Recorded: 30-Aug-03  
Observer: Peter O'Donnell  
Observer:

### Instrumentation

Recording System: Sercel SN 388      Shooting System: Pelton Advance II Model 5  
Plotter: GS-612      Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

### Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	NW - SE	Last Receiver On Line	457

### Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	457
Sweep # 4			

### 3480 Tape Summary

Reel Number:	4A	Stn To Stn:	200.5 - 457.5	File To File:	1 - 250
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



## Beach Petroleum

2003 Albus Seismic Survey  
BC03-06

Party No. # 401

Date Recorded: 29th / 30th Aug 03  
Observer: Peter O'Donnell  
Observer:

### Instrumentation

Recording System: Sercel SN 388  
Plotter: GS-612  
Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length: 4000ms  
Noise Edit Type: None  
Low Cut Filter: 3HZ  
Aux. Chan. #1: True Ref  
CSM Process: Correlate after stack  
Sample Rate: 2ms  
Tape Format: Seg D  
High Cut: 125hz  
Aux. Chan. #2: Wireline Ref  
Stations in Gap: 0  
Preamp Gain: 24 dB  
Tape: 3490 Drive  
HPE Filter: Out  
Alias Filter: .5 nyquest minimum  
No. of Chan.: 124

### Receiver Parameters

Geophone Array: 12 Over 34.375M  
Geophone Wiring: 6 Phones Series/ Parallel  
Geophone Spacing: 3.125M  
Receiver Station Intervals: 37.5M  
Receiver Station Centre: On Station  
Direction of Recording: NE - SW  
Geophone Frequency: 10 Hz  
Geophone Base: 3" Spikes  
Geophone Damping: 0.70%  
No. of Receiver Lines: 1  
First Receiver On Line: 386  
Last Receiver On Line: 200

### Source Parameters

Source Type: 315 Litton Paystar  
Vibe Spacing: 12.5m Pad to Pad  
Source Point Intervals: 37.5M  
Sweep Length: 3000ms  
Source Centre: Mid Station  
Sweep # 1: 5 to 90hz  
Sweep # 2: 5 to 90hz  
Sweep # 3  
Sweep # 4  
Sweep # 5  
Sweep # 6  
Source Array Length: 37.5  
Vibe Move ups: 0  
Number of Sweeps: 2  
Sweep Taper: 200 ms  
Sweep Type: Linear  
Num Vibs On Line: 4  
First Source Point: 386  
Last Source Point: 200

### 3480 Tape Summary

Reel Number: 3A	Stn To Stn: 386.5 - 200.5	File To File: 1 - 186
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:



Party No. # 401

**Beach Petroleum**2003 Albus Seismic Survey  
BC03-05Date Recorded: 29-Aug-03  
Observer: Peter O'Donnell  
Observer:**Instrumentation**Recording System: Sercel SN 388      Shooting System: Pelton Advance II Model 5  
Plotter: GS-612      Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**Record Length: 4000ms      Sample Rate 2 ms.      Preamp Gain: 24 dB  
Noise Edit Type: None      Tape Format Seg D      Tape: 3490 Drive  
Low Cut Filter: 3HZ      High Cut: 125hz      HPE Filter: Out  
Aux. Chan. #1: True Ref      Aux. Chan. # Wireline Ref      Alias Filter: .5 nyquest minimum  
CSM Process: Correlate after stack      Stations in G0      No. of Chan.: 124**Receiver Parameters**Geophone Array: 12 over 34.375M      Geophone Frequency: 10 Hz  
Geophone Wiring: 6 Phones Series/ Parallel      Geophone Base: 3" Spikes  
Geophone Spacing: 3.125M      Geophone Damping: 0.70%  
Receiver Station Intervals: 37.5M      No. of Receiver Lines: 1  
Receiver Station Centre: On Station      First Receiver On Line: 200  
Direction of Recording: Sw - NE      Last Receiver On Line: 359**Source Parameters**Source Type: 315 Litton Paystar      Source Array Length: 37.5  
Vibe Spacing: 12.5m Pad to Pad      Vibe Move ups: 0  
Source Point Intervals: 37.5M      Number of Sweeps: 2  
Sweep Length: 3000ms      Sweep Taper: 200ms  
Source Centre: Mid Station      Sweep Type: Linear  
Sweep # 1: 5 to 90hz      Num Vibes On Line: 4  
Sweep # 2: 5 to 90hz      First Source Point: 200  
Sweep # 3:      Last Source Point: 359  
Sweep # 4:**3480 Tape Summary**

Reel Number: 2A	Stn To Stn: 200.5 - 359.5	File To File: 1 - 160
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:



Party No. # 401

**Beach Petroleum****2003 Albus Seismic Survey Area PEL 107**

BC03-28

Date Recorded:

30th Sept 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line</b>	200
<b>Direction of Recording:</b>	NW - SE	<b>Last Receiver On Line</b>	530

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5m
<b>Vibe Spacing:</b>	12.5m Pad to Pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	200
<b>Sweep # 3</b>		<b>Last Source Point:</b>	530
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b> 36A	<b>Stn To Stn:</b> 200 - 530	<b>File To File:</b> 1 - 327
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>

Comments:





Party No. # 401

**Beach Petroleum****2003 Albus Seismic Survey Area PEL 107**

BC03-21

Date Recorded:

29th Sept 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line:</b>	200
<b>Direction of Recording:</b>	SW - NE	<b>Last Receiver On Line:</b>	563

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5m
<b>Vibe Spacing:</b>	12.5m Pad to Pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	200
<b>Sweep # 3</b>		<b>Last Source Point:</b>	563
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b> 35A	<b>Stn To Stn:</b> 200 - 563	<b>File To File:</b> 1 - 356
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>

Comments:



Party No. # 401

**Beach Petroleum****2003 Albus Seismic Survey Area PEL 107**

BC03-33

Date Recorded:

29 th Sept 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490Drive
<b>Low Cut Filter:</b>	3hz	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line</b>	200
<b>Direction of Recording:</b>	NW - SE	<b>Last Receiver On Line</b>	413

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5
<b>Vibe Spacing:</b>	12m pad to pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	200
<b>Sweep # 3</b>		<b>Last Source Point:</b>	413
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b>	34A	<b>Stn To Stn:</b>	200 - 413	<b>File To File:</b>	1 - 214
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	
<b>Reel Number:</b>		<b>Stn To Stn:</b>		<b>File To File:</b>	

Comments:



Party No. # 401

**Beach Petroleum**

2003 Albus Seismic Survey Area PEL 107

BC03-32

Date Recorded:

28th Sept 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters****Record Length:** 4000ms**Noise Edit Type:** None**Low Cut Filter:** 3HZ**Aux. Chan. #1:** True Ref**CSM Process:** Correlate after stack**Sample Rate:** 2 ms.**Tape Format:** Seg D**High Cut:** 125hz**Aux. Chan. #2:** Wireline Ref**Stations in Gap:** 0**Preamplifier Gain:** 24 dB**Tape:** 3490 Drive**HPE Filter:** Out**Alias Filter:** .5 nyquist minimum**No. of Chan.:** 124**Receiver Parameters****Geophone Array:** 12 over 34.375m**Geophone Wiring:** 6 Phones Series/ Parallel**Geophone Spacing:** 3.125m**Receiver Station Intervals:** 37.5m**Receiver Station Centre:** On Station**Direction of Recording:** SE - NW**Geophone Frequency:** 10 Hz**Geophone Base:** 3" Spikes**Geophone Damping:** 0.70%**No. of Receiver Lines:** 1**First Receiver On Line:** 417**Last Receiver On Line:** 200**Source Parameters****Source Type:** 315 Litton Paystar**Vibe Spacing:** 12.5m pad to pad**Source Point Intervals:** 37.5m**Sweep Length:** 3000ms**Source Centre:** Mid Station**Sweep # 1:** 5 to 90hz**Sweep # 2:** 5 to 90hz**Sweep # 3:****Sweep # 4:****Source Array Length:** 37.5m**Vibe Move ups:** 0**Number of Sweeps:** 2**Sweep Taper:** 200ms**Sweep Type:** Linear**Num Vibes On Line:** 4**First Source Point:** 417**Last Source Point:** 200**3490 Tape Summary****Reel Number:** 33A**Stn To Stn:** 417 - 200**File To File:** 1 - 218**Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Reel Number:****Stn To Stn:****File To File:****Comments:**



Party No. # 401

**Beach Petroleum****2003 Albus Seismic Survey Area PEL 107**

BC03-31

Date Recorded:

28th Sept 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamp Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquest minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line</b>	200
<b>Direction of Recording:</b>	SW -NE	<b>Last Receiver On Line</b>	373

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5m
<b>Vibe Spacing:</b>	12.5m pad to pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	200
<b>Sweep # 3</b>		<b>Last Source Point:</b>	373
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b> 32A	<b>Stn To Stn:</b> 200 - 373	<b>File To File:</b> 1 - 172
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>

Comments:



Party No. # 401

**Beach Petroleum**

2003 Albus Seismic Survey Area PEL 107

BC03-20

Date Recorded:

28th Sept 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquest minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line:</b>	407
<b>Direction of Recording:</b>	NE -SW	<b>Last Receiver On Line:</b>	200

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5M
<b>Vibe Spacing:</b>	12.5m pad to pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	407
<b>Sweep # 3</b>		<b>Last Source Point:</b>	200
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b> 31A	<b>Stn To Stn:</b> 407 - 200	<b>File To File:</b> 1 - 203
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>

Comments:



Party No. # 401

**Beach Petroleum****2003 Albus Seismic Survey Area PEL 107**  
BC03-30

Date Recorded: 27th Sept 03

Observer: Joel Cary

Observer: Peter O'Donnell

**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000MS	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	SW - NE	Last Receiver On Line	399

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5M
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	399
Sweep # 4			

**3490 Tape Summary**

Reel Number:	30A	Stn To Stn:	200.5-399.5	File To File:	1 - 196
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



Party No. # 401

**Beach Petroleum****2003 Albus Seismic Survey Area PEL 107**  
BC03-29

Date Recorded: 27th Sept 03

Observer: Joel Cary

Observer: Peter O'Donnell

**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000MS	Sample Rate:	2 ms.	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquist minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	448
Direction of Recording:	NE - SW	Last Receiver On Line	200

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5M
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	448
Sweep # 3		Last Source Point:	200
Sweep # 4			

**3490 Tape Summary**

Reel Number: 28A	Stn To Stn: 448.5 - 200.5	File To File: 1 - 237
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:





Party No. # 401

**Beach Petroleum**

2003 Albus Seismic Survey Area PEL 107

BC03-22

Date Recorded:

27th Sept. 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

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**Recording System:** Sercel SN 388  
**Plotter:** GS-612

**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24

**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line</b>	444
<b>Direction of Recording:</b>	NE -SW	<b>Last Receiver On Line</b>	200

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5
<b>Vibe Spacing:</b>	12.5m pad to pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	444
<b>Sweep # 3</b>		<b>Last Source Point:</b>	200
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b> 27A	<b>Stn To Stn:</b> 444.5 - 200.5	<b>File To File:</b> 1 - 242
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>

Comments:



Party No. # 401

**Beach Petroleum**

2003 Albus Seismic Survey Area PEL 107

BC03-23

Date Recorded:

26th Sept. 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation****Recording System:** Sercel SN 388  
**Plotter:** GS-612**Shooting System:** Pelton Advance II Model 5  
**Geophone Model:** Sensor SM-4 LD SM-24**Recording Parameters**

<b>Record Length:</b>	4000ms	<b>Sample Rate:</b>	2 ms.	<b>Preamplifier Gain:</b>	24 dB
<b>Noise Edit Type:</b>	None	<b>Tape Format:</b>	Seg D	<b>Tape:</b>	3490 Drive
<b>Low Cut Filter:</b>	3HZ	<b>High Cut:</b>	125hz	<b>HPE Filter:</b>	Out
<b>Aux. Chan. #1:</b>	True Ref	<b>Aux. Chan. #2:</b>	Wireline Ref	<b>Alias Filter:</b>	.5 nyquist minimum
<b>CSM Process:</b>	Correlate after stack	<b>Stations in Gap:</b>	0	<b>No. of Chan.:</b>	124

**Receiver Parameters**

<b>Geophone Array:</b>	12 over 34.375m	<b>Geophone Frequency:</b>	10 Hz
<b>Geophone Wiring:</b>	6 Phones Series/ Parallel	<b>Geophone Base:</b>	3" Spikes
<b>Geophone Spacing:</b>	3.125m	<b>Geophone Damping:</b>	0.70%
<b>Receiver Station Intervals:</b>	37.5m	<b>No. of Receiver Lines:</b>	1
<b>Receiver Station Centre:</b>	On Station	<b>First Receiver On Line</b>	532
<b>Direction of Recording:</b>	NE - SW	<b>Last Receiver On Line</b>	200

**Source Parameters**

<b>Source Type:</b>	315 Litton Paystar	<b>Source Array Length:</b>	37.5
<b>Vibe Spacing:</b>	12.5m pad to pad	<b>Vibe Move ups:</b>	0
<b>Source Point Intervals:</b>	37.5m	<b>Number of Sweeps:</b>	2
<b>Sweep Length:</b>	3000ms	<b>Sweep Taper:</b>	200ms
<b>Source Centre:</b>	Mid Station	<b>Sweep Type:</b>	Linear
<b>Sweep # 1</b>	5 to 90hz	<b>Num Vibes On Line:</b>	4
<b>Sweep # 2</b>	5 to 90hz	<b>First Source Point:</b>	532
<b>Sweep # 3</b>		<b>Last Source Point:</b>	200
<b>Sweep # 4</b>			

**3490 Tape Summary**

<b>Reel Number:</b> 26A	<b>Stn To Stn:</b> 532 - 200	<b>File To File:</b> 1 - 315
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>
<b>Reel Number:</b>	<b>Stn To Stn:</b>	<b>File To File:</b>

Comments:



Party No. # 401

**Beach Petroleum**2003 Albus Seismic Survey Area PEL 107  
BC03-24Date Recorded: 25th Sept. 03  
Observer: Joel Cary  
Observer: Peter O'Donnell**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	SW - NE	Last Receiver On Line	801

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	800
Sweep # 4			

**3490 Tape Summary**

Reel Number:	25A	Stn To Stn:	200.5 - 800.5	File To File:	1 - 583
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	
Reel Number:		Stn To Stn:		File To File:	

Comments:



Party No. # 401

**Beach Petroleum**2003 Albus Seismic Survey Area PEL 107  
BC03-25

Date Recorded

25TH Sep 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**

Record Length:	4000ms	Sample Rate:	2ms	Preamplifier Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquist minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 Over 34.375M	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125M	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5M	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	408
Direction of Recording:	NE - SW	Last Receiver On Line	200

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m Pad to Pad	Vibe Move ups:	0
Source Point Intervals:	37.5M	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200 ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	408
Sweep # 3		Last Source Point:	200
Sweep # 4			
Sweep # 5			
Sweep # 6			

**3490 Tape Summary**

Reel Number: 24A	Stn To Stn: 408.5 - 200.5	File To File: 1 - 209
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
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Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:



Party No. # 401

**Beach Petroleum**

2003 Albus Seismic Survey Area PEL 107

BC03-26

Date Recorded:

24/25th Sept. 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation**

Recording System: Sercel SN 388

Plotter: GS-612

Shooting System: Pelton Advance II Model 5

Geophone Model: Sensor SM-4 LD SM-24

**Recording Parameters**

Record Length: 4000ms

Noise Edit Type: None

Low Cut Filter: 3HZ

Aux. Chan. #1: True Ref

CSM Process: Correlate after stack

Sample Rate 2 ms.

Tape Format Seg D

High Cut: 125hz

Aux. Chan. # Wireline Ref

Stations in G0

Preamp Gain: 24 dB

Tape: 3490 Drive

HPE Filter: Out

Alias Filter: .5 nyquist minimum

No. of Chan.: 124

**Receiver Parameters**

Geophone Array: 12 over 34.375M

Geophone Wiring: 6 Phones Series/ Parallel

Geophone Spacing: 3.125M

Receiver Station Intervals: 37.5M

Receiver Station Centre: On Station

Direction of Recording:

Geophone Frequency: 10 Hz

Geophone Base: 3" Spikes

Geophone Damping: 0.70%

No. of Receiver Lines: 1

First Receiver On Line

Last Receiver On Line

**Source Parameters**

Source Type: 315 Litton Paystar

Vibe Spacing: 12.5m Pad to Pad

Source Point Intervals: 37.5M

Sweep Length: 3000ms

Source Centre: Mid Station

Sweep # 1: 5 to 90hz

Sweep # 2: 5 to 90hz

Sweep # 3

Sweep # 4

Source Array Length: 37.5

Vibe Move ups: 0

Number of Sweeps: 2

Sweep Taper: 200ms

Sweep Type: Linear

Num Vibes On Line: 4

First Source Point:

Last Source Point:

**3490 Tape Summary**

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

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Reel Number:

Stn To Stn:

File To File:

Comments:



Party No. # 401

**Beach Petroleum**

2003 Albus Seismic Survey Area PEL 107

BC03-27

Date Recorded:

24 th Sept. 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation**

Recording System: Sercel SN 388

Plotter: GS-612

Shooting System: Pelton Advance II Model 5

Geophone Model: Sensor SM-4 LD SM-24

**Recording Parameters**

Record Length: 4000ms

Noise Edit Type: None

Low Cut Filter: 3Hz

Aux. Chan. #1: True Ref

CSM Process: Correlate after stack

Sample Rate: 2 ms.

Tape Format: Seg D

High Cut: 125hz

Aux. Chan. #2: Wireline Ref

Stations in Gap: 0

Preamp Gain: 24 dB

Tape: 3490 Drive

HPE Filter: Out

Alias Filter: .5 nyquest minimum

No. of Chan.: 124

**Receiver Parameters**

Geophone Array: 12 over 34.375m

Geophone Wiring: 6 Phones Series/ Parallel

Geophone Spacing: 3.125m

Receiver Station Intervals: 37.5

Receiver Station Centre: On Station

Direction of Recording: SE - NW

Geophone Frequency: 10 Hz

Geophone Base: 3" Spikes

Geophone Damping: 0.70%

No. of Receiver Lines: 1

First Receiver On Line: 521

Last Receiver On Line: 200

**Source Parameters**

Source Type: 315 Litton Paystar

Vibe Spacing: 12.5m pad to pad

Source Point Intervals: 37.5m

Sweep Length: 3000ms

Source Centre: Mid Station

Sweep # 1: 5 to 90hz

Sweep # 2: 5 to 90hz

Sweep # 3: 5 to 90hz

Sweep # 4: 5 to 90hz

Source Array Length: 37.5

Vibe Move ups: 0

Number of Sweeps: 2

Sweep Taper: 200ms

Sweep Type: Linear

Num Vibes On Line: 4

First Source Point: 521

Last Source Point: 200

**3490 Tape Summary**

Reel Number: 22A

Stn To Stn: 521 - 200

File To File: 1 - 315

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

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Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Comments:



Party No. # 401

**Beach Petroleum**  
**2003 Christies Seismic Survey**  
BC03-37

Date Recorded: 2nd Oct 03  
Observer: Joel Cary  
Observer: Peter O'Donnell

**Instrumentation**

Recording System: Sercel SN 388      Shooting System: Pelton Advance II Model 5  
Plotter: GS-612      Geophone Model: Sensor SM-4 LD SM-24

**Recording Parameters**

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

**Receiver Parameters**

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing:	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	374
Direction of Recording:	E - W	Last Receiver On Line	200

**Source Parameters**

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	373
Sweep # 3		Last Source Point:	200
Sweep # 4			

**3480 Tape Summary**

Reel Number: 42A	Stn To Stn: 373 - 200	File To File: 1 - 174
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:





## Beach Petroleum

2003 Christies Seismic Survey  
BC03-36

Party No. # 401

Date Recorded: 2nd Oct 03  
Observer: Joel Cary  
Observer: Peter O'Donnell

### Instrumentation

Recording System: Sercel SN 388      Shooting System: Pelton Advance II Model 5  
Plotter: GS-612      Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length:	4000ms	Sample Rate:	2 ms.	Preamp Gain:	24 dB
Noise Edit Type:	None	Tape Format:	Seg D	Tape:	3490 Drive
Low Cut Filter:	3HZ	High Cut:	125hz	HPE Filter:	Out
Aux. Chan. #1:	True Ref	Aux. Chan. #2:	Wireline Ref	Alias Filter:	.5 nyquest minimum
CSM Process:	Correlate after stack	Stations in Gap:	0	No. of Chan.:	124

### Receiver Parameters

Geophone Array:	12 over 34.375m	Geophone Frequency:	10 Hz
Geophone Wiring:	6 Phones Series/ Parallel	Geophone Base:	3" Spikes
Geophone Spacing	3.125m	Geophone Damping:	0.70%
Receiver Station Intervals:	37.5m	No. of Receiver Lines:	1
Receiver Station Centre:	On Station	First Receiver On Line	200
Direction of Recording:	W - E	Last Receiver On Line	371

### Source Parameters

Source Type:	315 Litton Paystar	Source Array Length:	37.5
Vibe Spacing:	12.5m pad to pad	Vibe Move ups:	0
Source Point Intervals:	37.5m	Number of Sweeps:	2
Sweep Length:	3000ms	Sweep Taper:	200ms
Source Centre:	Mid Station	Sweep Type:	Linear
Sweep # 1	5 to 90hz	Num Vibes On Line:	4
Sweep # 2	5 to 90hz	First Source Point:	200
Sweep # 3		Last Source Point:	371
Sweep # 4			

### 3480 Tape Summary

Reel Number: 41A	Stn To Stn: 200 - 371	File To File: 1 - 172
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:



## Beach Petroleum

2003 Christies Seismic Survey  
BC03-35

Party No. # 401

Date Recorded: 2nd Oct 03  
Observer: Joel Cary  
Observer: Peter O'Donnell

### Instrumentation

Recording System: Sercel SN 388  
Plotter: GS-612  
Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24

### Recording Parameters

Record Length: 4000ms  
Noise Edit Type: None  
Low Cut Filter: 3HZ  
Aux. Chan. #1: True Ref  
CSM Process: Correlate after stack  
Sample Rate: 2ms  
Tape Format: Seg D  
High Cut: 125hz  
Aux. Chan. #2: Wireline Ref  
Stations in Gap: 0  
Preamp Gain: 24 dB  
Tape: 3490 Drive  
HPE Filter: Out  
Alias Filter: .5 nyquest minimum  
No. of Chan.: 124

### Receiver Parameters

Geophone Array: 12 Over 34.375M  
Geophone Wiring: 6 Phones Series/ Parallel  
Geophone Spacing: 3.125M  
Receiver Station Intervals: 37.5M  
Receiver Station Centre: On Station  
Direction of Recording: E - W  
Geophone Frequency: 10 Hz  
Geophone Base: 3" Spikes  
Geophone Damping: 0.70%  
No. of Receiver Lines: 1  
First Receiver On Line: 386  
Last Receiver On Line: 200

### Source Parameters

Source Type: 315 Litton Paystar  
Vibe Spacing: 12.5m Pad to Pad  
Source Point Intervals: 37.5M  
Sweep Length: 3000ms  
Source Centre: Mid Station  
Sweep # 1: 5 to 90hz  
Sweep # 2: 5 to 90hz  
Sweep # 3  
Sweep # 4  
Sweep # 5  
Sweep # 6  
Source Array Length: 37.5  
Vibe Move ups: 0  
Number of Sweeps: 2  
Sweep Taper: 200 ms  
Sweep Type: Linear  
Num Vibes On Line: 4  
First Source Point: 386  
Last Source Point: 200

### 3480 Tape Summary

Reel Number: 40A	Stn To Stn: 386 - 200	File To File: 1 - 186
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
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Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:



Party No. # 401

**Beach Petroleum**

2003 Christies Seismic Survey

BC03-34

Date Recorded:

1 / 2nd Oct 03

Observer:

Joel Cary

Observer:

Peter O'Donnell

**Instrumentation**

Recording System: Sercel SN 388

Plotter: GS-612

Shooting System: Pelton Advance II Model 5

Geophone Model: Sensor SM-4 LD SM-24

**Recording Parameters**

Record Length: 4000ms

Noise Edit Type: None

Low Cut Filter: 3HZ

Aux. Chan. #1: True Ref

CSM Process: Correlate after stack

Sample Rate 2 ms.

Tape Format Seg D

High Cut: 125hz

Aux. Chan. # Wireline Ref

Stations in G0

Preamp Gain: 24 dB

Tape: 3490 Drive

HPE Filter: Out

Alias Filter: .5 nyquist minimum

No. of Chan.: 124

**Receiver Parameters**

Geophone Array: 12 over 34.375M

Geophone Wiring: 6 Phones Series/ Parallel

Geophone Spacing: 3.125M

Receiver Station Intervals: 37.5M

Receiver Station Centre: On Station

Direction of Recording: W - E

Geophone Frequency: 10 Hz

Geophone Base: 3" Spikes

Geophone Damping: 0.70%

No. of Receiver Lines: 1

First Receiver On Line: 200

Last Receiver On Line: 414

**Source Parameters**

Source Type: 315 Litton Paystar

Vibe Spacing: 12.5m Pad to Pad

Source Point Intervals: 37.5M

Sweep Length: 3000ms

Source Centre: Mid Station

Sweep # 1: 5 to 90hz

Sweep # 2: 5 to 90hz

Sweep # 3

Sweep # 4

Source Array Length: 37.5

Vibe Move ups: 0

Number of Sweeps: 2

Sweep Taper: 200ms

Sweep Type: Linear

Num Vibes On Line: 4

First Source Point: 200

Last Source Point: 414

**3480 Tape Summary**

Reel Number: 39A

Stn To Stn: 200 - 414

File To File: 1 - 211

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

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Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Reel Number:

Stn To Stn:

File To File:

Comments:



Party No. # 401

**Beach Petroleum**2003 Christies Seismic Survey  
BC03-38Date Recorded: 1st Oct 03  
Observer: Joel Cary  
Observer: Peter O'Donnell**Instrumentation**Recording System: Sercel SN 388  
Plotter: GS-612  
Shooting System: Pelton Advance II Model 5  
Geophone Model: Sensor SM-4 LD SM-24**Recording Parameters**Record Length: 4000ms  
Noise Edit Type: None  
Low Cut Filter: 3Hz  
Aux. Chan. #1: True Ref  
CSM Process: Correlate after stack  
Sample Rate: 2 ms.  
Tape Format: Seg D  
High Cut: 125hz  
Aux. Chan. #2: Wireline Ref  
Stations in Gap: 0  
Preamp Gain: 24 dB  
Tape: 3490 Drive  
HPE Filter: Out  
Alias Filter: .5 nyquest minimum  
No. of Chan.: 124**Receiver Parameters**Geophone Array: 12 over 34.375m  
Geophone Wiring: 6 Phones Series/ Parallel  
Geophone Spacing: 3.125m  
Receiver Station Intervals: 37.5  
Receiver Station Centre: On Station  
Direction of Recording: N - S  
Geophone Frequency: 10 Hz  
Geophone Base: 3" Spikes  
Geophone Damping: 0.70%  
No. of Receiver Lines: 1  
First Receiver On Line: 442  
Last Receiver On Line: 200**Source Parameters**Source Type: 315 Litton Paystar  
Vibe Spacing: 12.5m pad to pad  
Source Point Intervals: 37.5m  
Sweep Length: 3000ms  
Source Centre: Mid Station  
Sweep # 1: 5 to 90hz  
Sweep # 2: 5 to 90hz  
Sweep # 3:  
Sweep # 4:  
Source Array Length: 37.5  
Vibe Move ups: 0  
Number of Sweeps: 2  
Sweep Taper: 200ms  
Sweep Type: Linear  
Num Vibs On Line: 4  
First Source Point: 442  
Last Source Point: 200**3480 Tape Summary**

Reel Number: 38A	Stn To Stn: 442 - 200	File To File: 1 - 242
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:
Reel Number:	Stn To Stn:	File To File:

Comments:

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**APPENDIX 3**

**SURVEY CONTRACTOR REPORT  
DYNAMIC SATELLITE SURVEYS**

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**D**ynamic  
**S**atellite  
**S**urveys

**03044**

*Final Operations Report  
on the*

**2003 Albus 2D Seismic Survey**

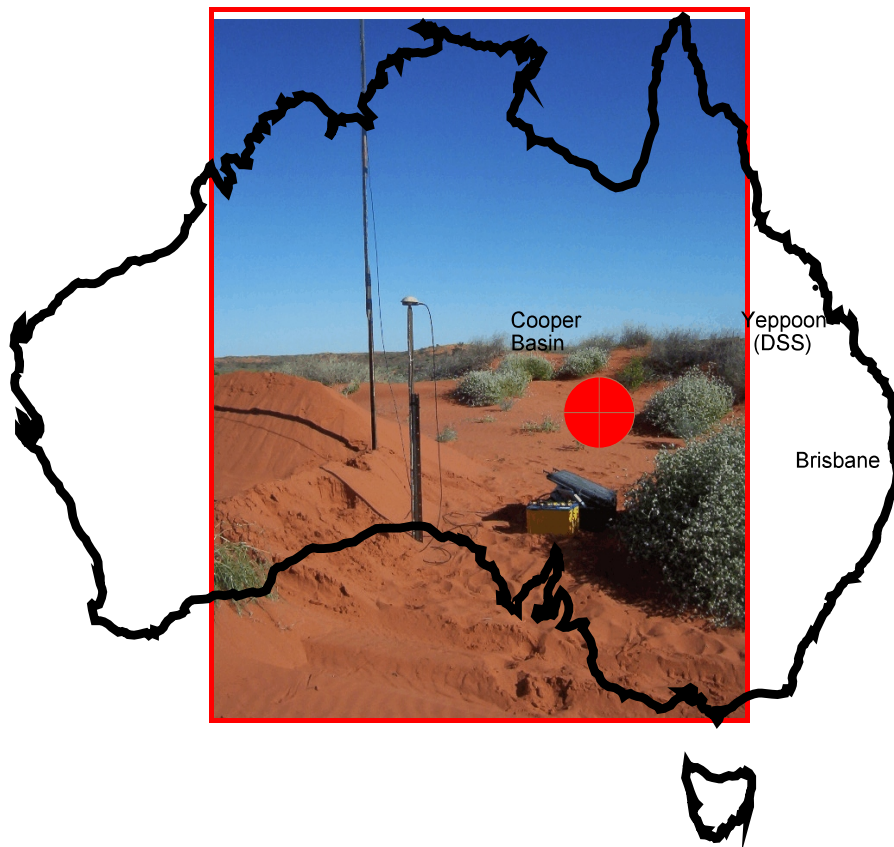
*for*

**BEACH PETROLEUM NL**

*and*

**TRACE ENERGY SERVICES Pty Ltd**

*August/September 2003*



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The Director  
Dynamic Satellite Surveys Pty Ltd  
PO Box 713  
Yeppoon QLD 4703  
Telephone: 07 4939 2866  
International: +61 7 4939 2866  
Facsimile: 07 4939 2867  
E-mail: [yeppoon@dss.com.au](mailto:yeppoon@dss.com.au)



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# 1

## ***INTRODUCTION***

The following report covers the **2003 Albus 2D Seismic Survey**, performed by **Dynamic Satellite Surveys Pty Ltd** (DSS) whilst contracted to **Trace Energy Services Pty Ltd** for **Beach Petroleum NL**.

The survey operation was spread around the Cooper Basin within the exploration leases 91, 92, 107 and 110 centred on Moomba, South Australia.

A total of thirty nine 2D seismic lines were surveyed totalling **359.44 kilometres** at 37.5m station intervals. All lines were covered in 21 days giving an average of 17kms per day.

The lines were in three areas, nominally Cordillo, Tantanna and Christies. The first area was Cordillo in PEL110 which straddled the Cordillo Downs and Innamincka property boundaries. The second area was Tantanna being close to the Tantanna oil field on Mulka station. The third area was Christies, close to the new Beach well Christies #1 on Mungeranie station.

The survey operations were completed between the 10<sup>th</sup> August and the 16<sup>th</sup> September 2003.



# 2

## ***INSTRUMENTATION AND PERSONNEL***

### ***2.1 Personnel and Logistics***

DSS personnel involved in the survey were as follows.

<b>Ron Weekes</b>	- Bachelor of Applied Science (Surveying & Mapping) - W.A.I.T.
<b>Mark Lefebvre</b>	- Bachelor of Applied Science (Surveying) - R.M.I.T.
<b>Tony Morcom</b>	- Bachelor of Geomatics (Surveying) - University of Melbourne.
<b>Craig Davey</b>	- Bachelor of Surveying - QUT
<b>Lynne Baker</b>	- Bachelor of Geomatic Engineering - University of New South Wales.

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

Survey operations were based at the various fly-camps established as the job progressed.

## 2.2 Equipment

Equipment provided by DSS and used on this project.

	Description	Qty
<b>Vehicles</b>	Toyota Landcruiser Trayback - DSS	1
	Toyota Landcruiser Trayback - Hired	2
<b>GPS receivers</b>	NovAtel RT20 c/w VHF Telemetry	4
	NovAtel 2151 c/w VHF Telemetry	1
	Garmin 128	2
	Garmin 72	1
<b>Computers</b>	Dell Inspiron 5000	1
	GRiD 386 Field PCs	5
<b>Software</b>	GravNav / GravNet GPS post-processing - Waypoint Consultancy	1
	Nav98 field software - DSS	Ver4.0
	Nav98 Dozer field software - DSS	Ver4.0
	MIB2003 for Windows - DSS	Ver4.1.1
	TransIt 2000 - DSS	Ver2.04
<b>Printer</b>	Sharp AL-840 printer/copier	1
	HP Deskjet 340 printer	1
<b>Survey Instruments</b>	Rapid Elevation Meter - DSS	1
<b>Miscellaneous</b>	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

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

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

$$\text{AHD} = \text{GDA94} - (\text{Geoid / Ellipsoid Separation})$$

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<sup>1</sup>.

AUSGEOID98 N values were interpolated using the GrafNet Version 6.02 software, distributed by Waypoint. Consulting Inc.

---

<sup>1</sup> Johnston, G.M., Featherstone, W.E. (1998) AUSGEOID98: A New Gravimetric Model for Australia



# 4

## SURVEY CONTROL

Each area of survey had separate control points. For details of the closure of these networks see **Appendix A - Survey Control, Miscloses and Ties**.

Check observations were made from each of the base stations during the realtime surveys and these miscloses and ties can also be seen in **Appendix A - Survey Control, Miscloses and Ties**.

### 4.1 PEL110 Cordillo

The survey control stations for Cordillo were linked by a static GPS survey network that tied them to a control station established during the 2002 Maribu North 2D seismic survey for Cooper Energy. The details of control are listed below:

#### MGA94, AHD71

#### PEL 110

Line	Station	Easting	Northing	Height	Comments
02CE-AAC	232	478569.8	7034129.6	60.9	Existing control
BC03-04	277+22	462676.1	7022006.5	54.73	44T1
BC03-02	308	463600.8	7016428.1	49.70	44T2
BC03-10	532+18	470110.8	7022142.9	57.51	44T3
BC03-13	375+16	472672.6	7032612.4	67.49	44T4

## 4.2 *PEL91, PEL107 Tantanna*

The survey control for Tantanna was linked by a static GPS survey network that tied them to two control stations established during the 2002 Nautilus 2D seismic survey for Beach Petroleum. The details of control are listed below:

### MGA94, AHD71

#### PEL 91, 107

Line	Station	Easting	Northing	Height	Comments
89-CHJ	046	366793.79	6883151.11	32.33	Existing control
91-CYY	332	380967.31	6873127.29	22.56	Existing control
BAS1		375055.2	6885286.6	34.39	
BC03-20	312	370517.2	6891791.5	35.51	BAS2
BAS3		365804.9	6907500.9	29.75	
BC03-24	596	382674.2	6889951.8	40.85	

## 4.3 *PEL92 Christies*

The survey control for Christies was linked by a static GPS survey network that was tied to two control stations established during the 2002 Nautilus 2D seismic survey for Beach Petroleum. The details of control are listed below:

### MGA94, AHD71

#### PEL 92

Line	Station	Easting	Northing	Height	Comments
BC02-46	438	336346.8	6912776.2	18.82	Existing control
BC02-51	401	345153.5	6909112.8	18.62	Existing control
136585		339846.3	6903771.7	30.96	



5

## **MONUMENTATION**

All lines were pegged at a 37.5 metre station interval. Wooden pegs were placed at every fifth station and were numbered on both sides of the peg. Pin flags were used for every other station; pink for even numbers and blue for odd numbers.

Several permanent markers were placed in each area of survey with often the control stations being left in the ground to serve this purpose. Permanent markers consisted of a 1650mm steel star picket driven to give 1.2m above ground, and tagged with an aluminium plate stating the line number and relevant station number or control number details.

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

There are four Environmental Monitoring Points placed in the areas. One EMP is in Cordillo area PEL 110 - EMP01. Two EMPs are in PEL 107, Tantanna area - EMP02 and EMP03. One EMP is in PEL 92, Christies area - EMP04. Photographs were taken at the EMP locations and the relevant information supplied with the final data submission. See **Appendix H - Environmental Monitoring Points**.

The complete list of upholes appears as **Appendix F - Upholes Listing**.

**NB - Uphole Listing.** Note that the uphole list for PEL110, Cordillo has been corrected for actual drill location. Some uphole positions as surveyed were either unsuitable or not on the correct old line intersection and were moved by the drilling team. The new station number position was relayed to DSS and new coordinate and elevation information interpolated (where not on a whole station).



# 6

## ***METHOD OF SURVEY***

### **6.1      *Line Ranging***

All lines were cleared by Denham and O'Keeffe Earthmoving contractors. The equipment supplied to perform the clearing was two Komatsu bulldozers and a Caterpillar 12G Grader.

The operators were experienced in preparation of seismic lines with regards to environmental issues, GPS guidance techniques and Aboriginal heritage sites.

Garmin 128 GPS receivers were mounted on the dozers to supply real time positions when cutting the seismic lines. Each lines coordinates (supplied by the client) were uploaded onto the GPS units and each line had a separate waypoint file.

The operators had no problems using the system and no time was lost due to GPS equipment down time during the seismic program.

The line pointer/surveyor supplied by DSS ensured operators were aware of the existence of heritage sites and all designated sites that had been previously identified were avoided. Several additional aboriginal heritage sites were identified during the line clearing and the details of coordinates, description and photographs were recorded.

## **6.2      *Surveying and Chaining***

The lines were surveyed using DSS' RT20 real-time kinematic surveying technique.

RT20 enables both position and elevation coordinates to be acquired in real-time and on the appropriate datum.

The survey method utilised phase data received from US Navy NAVSTAR Satellites to provide three-dimensional positioning. One receiver was set up as a base station at a known location 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 real-time kinematic methods can achieve accuracies of better than  $\pm 0.3\text{m}$  in position and elevation, depending on base line length. The expected precision for locating pegged positions is better than 0.3 metres and is generally better than 0.2 metres.

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

All lines were chained at 37.5 metre station interval. A numbered wooden peg was placed at every fifth station with pinflags at each station in between. The pinflags were coloured pink for the even and blue for the odd numbered station.

All upholes locations were marked prior to drilling with a numbered peg and yellow flagging.

All Environmental Monitoring Points (EMPs) and Permanent Marks (PMs) were positioned and coordinated at the time of line survey.

### **6.3      *GPS Processing and Quality Control***

When using RT20, all data is recorded internally in GRiD palmtop data loggers and downloaded to the office computer each evening.

Quality of the satellite data is monitored by careful 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 0.2 metres.

Any recording of positions when the standard deviation values are in excess of 0.3m is highlighted to the surveyor at the time of recording, and the GPS may be re-initialised until a more accurate solution is calculated.

Any position which falls outside the required tolerances is flagged for further investigation and re-recording if necessary.

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.

The coordinates are then checked by determining point to point direction and distance.

Profile plots are examined to identify any height anomalies.



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## ***DATA PRESENTATION***

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

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

Files produced were:

<b>BC03-XX.uka</b>	Line data in UKOOA format.
<b>Upholes.txt</b>	Uphole listing in Ascii text format.
<b>intersec.crd</b>	All new line intersections in .crd format

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 to ensure trouble free operations.

Evening toolbox meetings highlighted any safety concerns which personnel encountered during the day and ensured everyone was informed about planned lines and progress.

Safety meetings involving all field staff were held each week and notes were kept. These were typed up and passed to staff. See **Appendix I - Safety Meetings**.



# 9

## **OPERATIONAL ASPECTS**

All personnel were involved in Aboriginal Heritage Inductions before the commencement of survey operations. Any heritage sites that were found on or near lines that had not been previously identified by the Aboriginal clearance team were photographed, and details of location and description recorded.

Temporary gates or drop-down facilities were placed by DSS on most fences found on the lines. Occasionally an existing gate was used when not too far from the line.

### **9.1 PEL110 - Cordillo**

This area of survey straddled the Innamincka / Cordillo Downs boundary. The fly camp was located at Semaphore #1 well site.

The lines in this area were BC03-01 to BC03-19 inclusive with a total of 163.8km of lines.

The major operational factor for line clearing and survey here was the existence of high and sometimes steep dunes that ran generally north to south. There were also some circular and irregular dunes. The line clearing had to spend some time in places attempting to have access for all vehicles over or around these dunes.

Some problems were experienced in this survey area with the heritage site listing supplied by the Work Area Clearance team. Some of the locations were listed to the wrong line and the list was not clear to read. There were times when it was ambiguous to the operators whether they were to clear to a location or avoid a location. The operators were experienced in identifying sites and began a routine of stopping their machines and checking on foot if they saw a site or artefacts or expected a site from the WAC list.

## **9.2      *PEL91 - Tantanna***

This was a single line BC03-39 centred on Carrickalinga #1 well. The line clearing and survey crew were camped at the Tantanna location for this line.

Being only 6.53km long this line was cleared and surveyed in short time just before the camp move to Christies.

## **9.3      *PEL107 - Tantanna***

The lines here were BC03-20 to BC03-33 inclusive for a distance of 152.4km.

This was on Mulka station close to the Tantanna oil field and the major operational feature was the Tantanna to Gidgealpa oil pipeline crossing the lines. Two crossings were constructed over the pipeline near lines that gave greatly improved access for all vehicles. These crossings were approved and supervised by Santos.

There were two roads affecting these lines which also gave quick access around the area. The rig road to Carrickalinga #1 provided good access to the north west of the job and the main road Moomba to Mungeranie ran along the southern end of the lines.

The area was mainly sand dunes with some large flat swales and a few clay pans.

## **9.4      *PEL92 - Christies***

There were five lines in this area. BC03-34 to BC03-38 inclusive for a total distance of 37.01km. The camp was located near Christies #1 well because this site was then convenient for the following Christies 3D survey.

There were several dunes in this area but they were not difficult and did not delay or slow the line clearing and survey significantly.

The work was completed in 3 days.

Line trace diagrams and access maps were provided to the Trace crew before the commencement of each area to aid in line traversing.



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## ***CONCLUSIONS AND RECOMMENDATIONS***

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

Some reworking of sand dune crossings was necessary to make them safer for the heavier vehicles of the drilling and seismic crews. This was particularly so in the Cordillo section of the job.

The GPS equipment functioned well with no down time for line clearing and little for survey. The down time for survey was a daily hour of very poor satellite coverage that could prevent any survey being achieved. It was at times only a ten minute break depending on distance from the base and whether there were any trees to block the signal.

Some problems were experienced with the heritage site listing. In future some time should be allocated for preliminary plotting and checking of listed sites. The list may require rearranging to give a better line by line coverage and make it easier to read.

There were no safety incidents on the project.

Signed,

**Ron Weekes**



11

## ***APPENDICES***

## ***Survey Control, Miscloses and Ties***

**Survey Control, Miscloses and Ties**

All values are MGA 94 (Zone 54), AHD71

**Control Stations Used****PEL 110**

Line	Station	Easting	Northing	Height	Comments
02CE-AAC	232	478569.8	7034129.6	60.9	Existing control
BC03-04	277+22	462676.1	7022006.5	54.73	44T1
BC03-02	308	463600.8	7016428.1	49.70	44T2
BC03-10	532+18	470110.8	7022142.9	57.51	44T3
BC03-13	375+16	472672.6	7032612.4	67.49	44T4

**PEL 91, 107**

Line	Station	Easting	Northing	Height	Comments
89-CHJ	046	366793.79	6883151.11	32.33	Existing control
91-CYY	332	380967.31	6873127.29	22.56	Existing control
BAS1		375055.2	6885286.6	34.39	
BC03-20	312	370517.2	6891791.5	35.51	BAS2
BAS3		365804.9	6907500.9	29.75	
BC03-24	596	382674.2	6889951.8	40.85	

**PEL 92**

Line	Station	Easting	Northing	Height	Comments
BC02-46	438	336346.8	6912776.2	18.82	Existing control
BC02-51	401	345153.5	6909112.8	18.62	Existing control
136585		339846.3	6903771.7	30.96	



**Survey Ties and Misclosures**

Coordinates are MGA94 ( Zone 54) and AHD71.

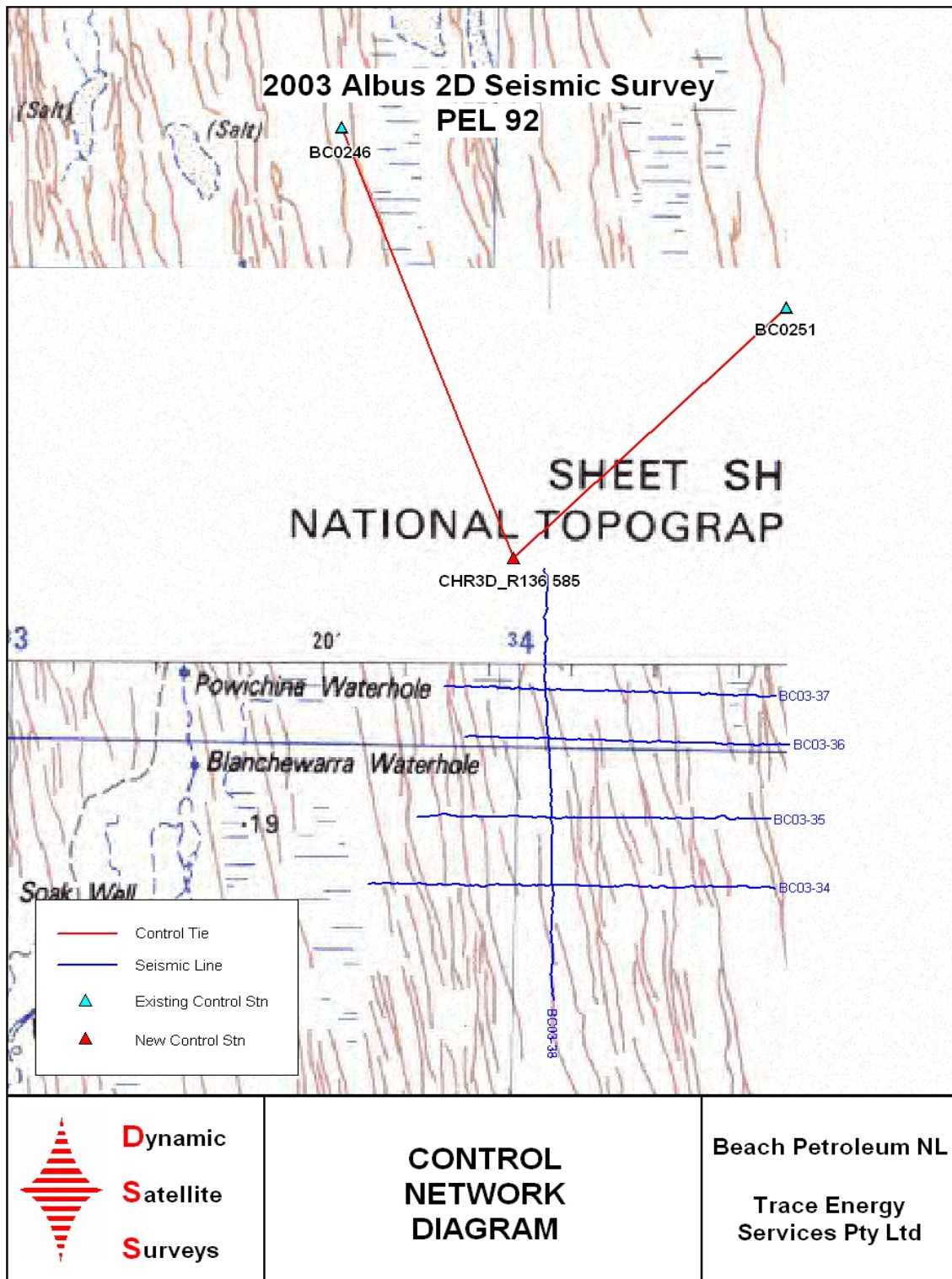
**Checks to old PMs****PEL 91,92,107**

	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>		
95-FQE	383509.6	6883681.1	23.8	361	
95-FQE	383508.3	6883679.7	23.3	STN361	Day249
	-1.3	-1.4	-0.6		
95-FQE	381743.6	6889447.1	27.2	200	
95-FQE	381742	6889445.8	26.7	STN200	Day249
	-1.6	-1.3	-0.5		
90-CRP	383047.6	6890146.1	25.9		
90-CRP	383050.8	6890142.7	24.9	STN200	Day250
	3.2	-3.4	-1.0		
90-CTC	385083.6	6891514.1	26.2	200	
90-CTC	385087.7	6891511.2	24.9	STN200	Day251
	4.1	-2.9	-1.3		
92-LR30	370887.3	6887615.6	23.1	INT R30/S64	
92-LR30	370886.6	6887614.6	22.8	X 92-LS64	Day253
	-0.7	-1.0	-0.3		
92-LR33	370767.6	6888447.6	28.3	INT R33/S64	
92-LR33	370767.3	6888446.7	28.0	X 92-LS64	Day254
	-0.3	-0.9	-0.3		
84-TRZ	365484.0	6908645.1	22.6	376	
84-TRZ	365481.2	6908637.3	21.9	STN376	Day256
	-2.8	-7.8	-0.8		
	365268.3	6910358.9	20.9	Nautilus 2002 Seismic	
BC02-75	365268.3	6910358.8	20.9	STN256	Day256
	0.0	-0.1	0.0		
281+27	365922.3	6907188.6	20.9	CARRICKALINGA #1	Day256
85-ZGM	366396.2	6898068.1	21.9	1450	
85-ZGM	366395.6	6898073.4	21.3	STN1450	Day256
	-0.6	5.3	-0.6		
91-CXJ	366268.6	6894166.1	25.5	510	
91-CXJ	366268.1	6894166.0	24.6	STN510	Day256
	-0.5	-0.1	-1.0		
89-CBJ	344980.6	6898341.1	22.0	380	
89-CBJ	344981.3	6898337.2	21.0	STN380	Day258
	0.7	-3.9	-1.0		

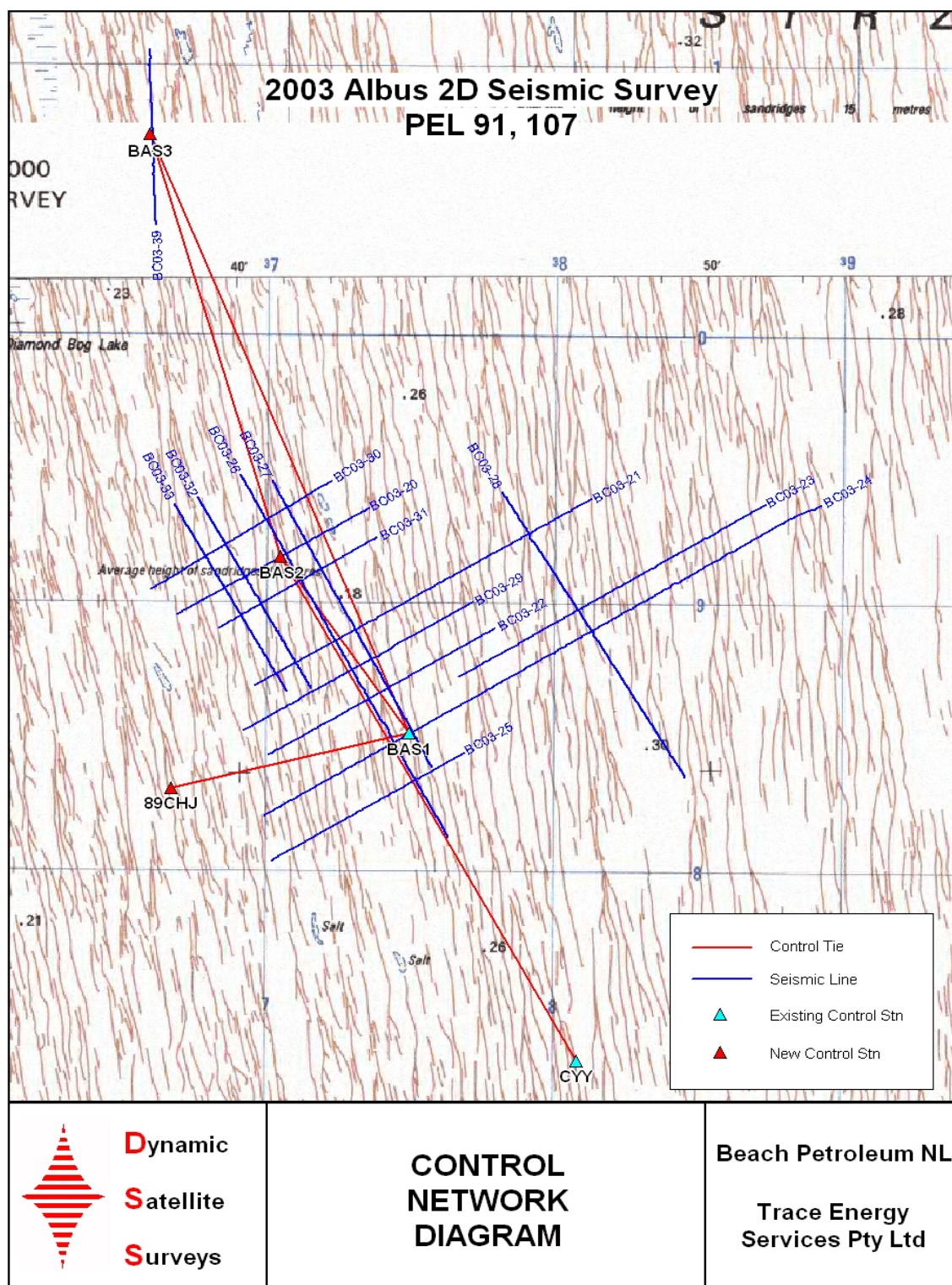
**PEL110**

	Easting	Northing	Elevation			
91-DGY	463925.5	7024851.8	44.75	244		
91-DGY	<u>463925.7</u>	<u>7024850.2</u>	<u>44.10</u>	STN 244	Day224	
	0.2	-1.6	-0.6			
96-GRZ	461438.5	7024487.8	44.69	200	PM EOL	
96-GRZ	<u>461436.6</u>	<u>7024486.5</u>	<u>43.80</u>	STN 200	Day224	
	-1.9	-1.3	-0.9			
91-DGX	461836.5	7025145.8	43.89	226		
91-DGX	<u>461837.2</u>	<u>7025144.0</u>	<u>43.49</u>	STN 226	Day225	
	0.7	-1.8	-0.4			
88-BWG	462747.5	7024706.8	45.08	228		
88-BWG	<u>462753.0</u>	<u>7024702.3</u>	<u>44.45</u>	STN 228	Day225	
	5.5	-4.5	-0.6			
96-GSA	461894.5	7022458.8	46.75	200	PM EOL	
96-GSA	<u>461893.4</u>	<u>7022457.4</u>	<u>46.12</u>	STN 200	Day225	
	-1.1	-1.4	-0.6			
96-GSD	464302.5	7018128.8	41.46	200	PM EOL	
96-GSD	<u>464301.4</u>	<u>7018127.2</u>	<u>40.93</u>	STN 200	Day226	
	-1.1	-1.6	-0.5			
96-GSA	467714.5	7019669.8	42.74	PM X 96-GSE		
96-GSA	<u>467713.4</u>	<u>7019668.1</u>	<u>42.01</u>	STN 372	Day226	
	-1.1	-1.7	-0.7			
96-GSE	467289.5	7018684.8	41.31	200	PM EOL	
96-GSE	<u>467288.5</u>	<u>7018683.0</u>	<u>40.61</u>	STN 200	Day226	
	-1.0	-1.8	-0.7			
91-DGG	467073.517	7014127.81	40.16	200		
91-DGG	<u>467073.7</u>	<u>7014125.6</u>	<u>39.97</u>	STN 200	Day227	
	0.2	-2.2	-0.2			
96-GRX	474850.5	7022108.8	51.53	420	PM	
96-GRX	<u>474849.0</u>	<u>7022107.0</u>	<u>50.55</u>	STN 420	Day229	
	-1.5	-1.8	-1.0			
88-BWJ	473377.5	7019632.8	47.38	555		
88-BWJ	<u>473384.5</u>	<u>7019628.4</u>	<u>47.22</u>	STN 555	Day229	
	7.0	-4.4	-0.2			
96-GRM	470893.3	7022852.8	50.13	PM X 96-GRY		
96-GRM	<u>470892.5</u>	<u>7022851.2</u>	<u>49.32</u>	STN 321	Day229	
	-0.8	-1.6	-0.8			
95-FNZ	471851.5	7030414.8	54.73	480	EOL	
95-FNZ	<u>471850.7</u>	<u>7030412.6</u>	<u>54.12</u>	STN 480	Day230	
	-0.8	-2.2	-0.6			

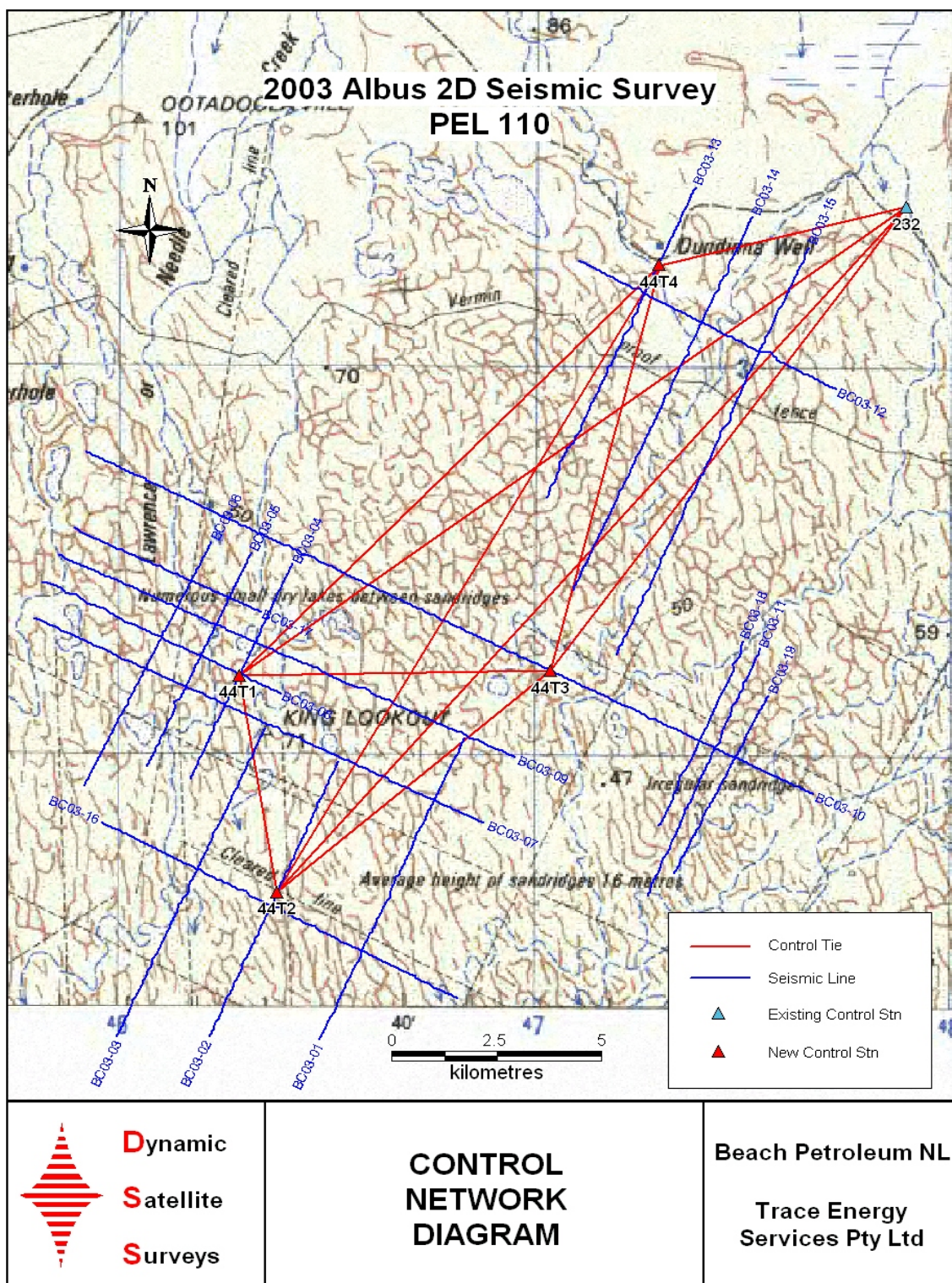
## ***Network Diagrams***











***Permanent Markers***

## Permanent Marker Listing

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

### Beach Petroleum 2003 Albus Seismic Survey

Line or Number	Stn	Easting	Northing	Elevation	Comments
<b>PEL 91</b>					
BAS3		365804.9	6907500.9	29.75	
<b>PEL 92</b>					
BC03-35	276+35	340885.0	6898322.4	17.73	
<b>PEL 107</b>					
BC03-24	596	382674.2	6889951.8	40.85	
BC03-20	312	370517.2	6891791.5	35.51	BAS2
BAS1		375055.2	6885286.6	34.39	
<b>PEL 110</b>					
BC03-04	277+22	462676.1	7022006.5	54.73	44T1
BC03-02	308	463600.8	7016428.1	49.70	44T2
BC03-10	532+18	470110.8	7022142.9	57.51	44T3
BC03-13	375+16	472672.6	7032612.4	67.49	44T4
BC03-14	301	472158.1	7027700.6	61.23	44T5



## ***Line Length Summaries***

**Line Length Summaries****2003 Albus 2D Seismic Survey**

Station Interval = 37.5 m

**PEL 110**

<b>Line</b>	<b>SOL Station</b>	<b>EOL Station</b>	<b>Line Km's</b>
BC03-01	200	427	8.5125
BC03-02	200	406	7.7250
BC03-03	200	432	8.7000
BC03-04	200	362	6.0750
BC03-05	200	361	6.0375
BC03-06	200	386	6.9750
BC03-07	200	519	11.9625
BC03-08	200	370	6.3750
BC03-09	200	522	12.0750
BC03-10	200	720	19.5000
BC03-11	200	385	6.9375
BC03-12	200	387	7.0125
BC03-13	200	434	8.7750
BC03-14	200	481	10.5375
BC03-15	200	505	11.4375
BC03-16	200	457	9.6375
BC03-17	200	332	4.9500
BC03-18	200	338	5.1750
BC03-19	200	336	5.1000
<b>TOTAL =</b>			<b>163.5000</b>

**Line Length Summaries****2003 Albus 2D Seismic Survey**

Station Interval = 37.5 m

**PEL 91**

<b>Line</b>	<b>SOL Station</b>	<b>EOL Station</b>	<b>Line Km's</b>
BC03-39	200	374	6.5250
<b>TOTAL =</b>			<b>6.5250</b>

**PEL 107**

<b>Line</b>	<b>SOL Station</b>	<b>EOL Station</b>	<b>Line Km's</b>
BC03-20	200	407	7.7625
BC03-21	200	563	13.6125
BC03-22	200	444	9.1500
BC03-23	200	532	12.4500
BC03-24	200	801	22.5375
BC03-25	200	408	7.8000
BC03-26	200	608	15.3000
BC03-27	200	521	12.0375
BC03-28	200	530	12.3750
BC03-29	200	448	9.3000
BC03-30	200	399	7.4625
BC03-31	200	373	6.4875
BC03-32	200	417	8.1375
BC03-33	200	413	7.9875
<b>TOTAL =</b>			<b>152.4000</b>

**Line Length Summaries****2003 Albus 2D Seismic Survey**

Station Interval = 37.5 m

**PEL 92**

<b>Line</b>	<b>SOL Station</b>	<b>EOL Station</b>	<b>Line Km's</b>
BC03-34	200	414	8.0250
BC03-35	200	386	6.9750
BC03-36	200	371	6.4125
BC03-37	200	374	6.5250
BC03-38	200	442	9.0750
<b>TOTAL =</b>			<b>37.0125</b>

## ***Line Intersection Listing***

## Line Intersection Listing

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

### PEL 110

Line / Station	X Line / Station	Easting	Northing	Height
BC03-01 /380+12	BC03-07 /483+33	467349.18	7018812.62	41.61
BC03-01 /266+22	BC03-16 /387+35	465621.24	7014913.63	39.51
BC03-02 /297+18	BC03-16 /322+04	463439.89	7016067.32	37.11
BC03-03 /325+16	BC03-16 /269+09	461691.11	7017002.72	40.71
BC03-04 /255+20	BC03-07 /335+15	462341.49	7021247.27	43.07
BC03-04 /279+21	BC03-08 /340+52	462713.09	7022068.39	47.42
BC03-04 /302+41	BC03-09 /339+05	463068.25	7022872.55	41.84
BC03-05 /259+19	BC03-07 /307+21	461401.93	7021702.03	40.12
BC03-05 /283+03	BC03-08 /312+31	461757.71	7022510.95	40.58
BC03-05 /306+24	BC03-09 /311+11	462123.10	7023315.94	54.06
BC03-05 /327+01	BC03-17 /309+08	462417.30	7024021.40	43.77
BC03-06 /289+09	BC03-07 /278+27	460431.27	7022178.22	43.95
BC03-06 /313+18	BC03-08 /284+40	460833.31	7022992.98	48.21
BC03-06 /336+02	BC03-09 /283+37	461198.66	7023757.68	47.29
BC03-06 /356+01	BC03-17 /283+08	461529.98	7024428.50	43.47
BC03-10 /649+27	BC03-11 /310+20	474037.91	7020167.40	50.92
BC03-10 /638+27	BC03-18 /264+01	473664.78	7020345.58	46.57
BC03-10 /664+05	BC03-19 /288+12	474515.94	7019914.43	51.58
BC03-12 /248+06	BC03-13 /353+26	472332.40	7031871.33	55.40
BC03-12 /289+12	BC03-14 /401+04	473687.25	7031130.33	54.71
BC03-12 /331+10	BC03-15 /426+36	475071.22	7030382.79	58.36

### PEL 107

BC03-20 /317+27	BC03-26 /289+04	370698.25	6891907.03	31.81
BC03-20 /340+06	BC03-27 /269+18	371419.00	6892340.27	20.04
BC03-20 /273+26	BC03-32 /290+05	369292.43	6891041.11	18.58
BC03-20 /251+29	BC03-33 /295+25	368584.87	6890622.80	19.32
BC03-21 /287+07	BC03-26 /386+15	372453.55	6888708.45	21.14
BC03-21 /308+23	BC03-27 /366+36	373145.12	6889118.01	19.20
BC03-21 /495+14	BC03-28 /247+33	379138.02	6892742.81	26.98
BC03-21 /244+17	BC03-32 /387+09	371086.78	6887872.39	29.86
BC03-21 /223+13	BC03-33 /393+00	370409.92	6887461.79	28.26
BC03-22 /307+37	BC03-26 /452+16	373636.72	6886533.07	36.12
BC03-22 /328+36	BC03-27 /432+12	374299.08	6886956.16	20.69
BC03-23 /329+03	BC03-28 /336+05	380867.40	6889921.65	25.52
BC03-24 /340+28	BC03-26 /501+18	374527.75	6884923.93	24.44
BC03-24 /360+38	BC03-27 /481+27	375174.66	6885322.71	27.86
BC03-24 /554+23	BC03-28 /360+22	381349.10	6889141.68	23.59
BC03-25 /356+15	BC03-26 /543+23	375303.95	6883547.84	38.40

## Line Intersection Listing

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

### PEL 107 continued

Line / Station	X Line / Station	Easting	Northing	Height
BC03-26 /419+25	BC03-29 /318+01	373052.93	6887614.35	27.68
BC03-26 /250+17	BC03-30 /327+24	370014.13	6893185.23	24.82
BC03-26 /318+33	BC03-31 /290+27	371240.18	6890930.44	34.45
BC03-27 /399+24	BC03-29 /339+11	373727.96	6888040.81	23.73
BC03-27 /230+00	BC03-30 /350+15	370728.64	6893649.56	25.22
BC03-27 /298+28	BC03-31 /312+28	371937.53	6891372.65	26.74
BC03-30 /282+17	BC03-32 /252+37	368600.26	6892250.96	20.12
BC03-30 /260+23	BC03-33 /259+23	367917.65	6891799.18	27.31
BC03-31 /247+02	BC03-32 /320+20	369858.47	6890051.73	20.21
BC03-31 /225+14	BC03-33 /326+21	369168.54	6889621.37	34.40

### PEL 92

BC03-34 /297+04	BC03-38 /264+25	340702.31	6896899.96	19.25
BC03-35 /270+29	BC03-38 /302+04	340651.09	6898303.37	19.94
BC03-36 /244+16	BC03-38 /346+32	340587.89	6899979.72	18.02
BC03-37 /253+13	BC03-38 /374+17	340513.72	6901012.01	18.63

## ***Upholes Listing***



## Uphole Listing

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

### **PEL 110** ( Post drilling location)

\* denotes different location to original survey - interpolated where necessary.

	Line	Station	Easting	Northing	Elev	Number
1	BC03-13	409+20	473183.2	7033785.7	57.99	DHBC03-01
2	BC03-14	458+6	474559.2	7033084.1	57.29	DHBC03-02
3	BC03-15	483	475922.0	7032304.6	59.81	DHBC03-03
4	BC03-12	211+27	471131.1	7032521.5	58.53	DHBC03-04
5	BC03-12	248+6	472333.4	7031873.1	55.34	DHBC03-05
6	BC03-14	401	473685.4	7031127.2	54.73	DHBC03-06
7	BC03-12	331+12	475073.0	7030382.6	58.32	DHBC03-07
8	BC03-12	374	476490.0	7029637.8	59.66	DHBC03-08
9	BC03-13	314+26	471752.1	7030529.9	54.95	DHBC03-09
10	BC03-14	361+22	473090.6	7029774.3	54.05	DHBC03-10
11	BC03-15	387+7	474499.1	7029005.2	53.58	DHBC03-11
12	BC03-13	259+26	470906.1	7028648.3	49.96	DHBC03-12
13	BC03-14	308+11	472277.3	7027949.0	52.76	DHBC03-13
14	BC03-15	335+3	473722.6	7027211.8	52.68	DHBC03-14
15	BC03-13	200+13	469994.0	7026618.3	47.42	DHBC03-15
16	BC03-14	250+11	471395.9	7025958.2	46.15	DHBC03-16
17	BC03-15	275+15	472820.4	7025163.5	50.23	DHBC03-17
18	BC03-14	200+23	470656.0	7024248.7	51.27	DHBC03-18
19	BC03-15	227+26	472109.6	7023522.6	49.69	DHBC03-19
20	BC03-10	247	460555.1	7026971.4	46.34	DHBC03-20
21 *	BC03-10	300+11	462337.1	7026067.0	45.1	DHBC03-21
22	BC03-10	356+4	464204.7	7025121.7	45.54	DHBC03-22
23	BC03-10	406	465880.7	7024290.3	42.81	DHBC03-23
24	BC03-10	459+12	467665.3	7023388.6	46.10	DHBC03-24
25	BC03-10	500	469022.6	7022692.1	47.70	DHBC03-25
26	BC03-10	544	470494.9	7021945.0	47.53	DHBC03-26
27	BC03-10	588+12	471980.3	7021200.5	47.53	DHBC03-27
28	BC03-18	323	474501.7	7022393.9	49.17	DHBC03-28
29	BC03-11	366+23	474855.6	7022106.1	50.22	DHBC03-29
30	BC03-19	312+24	474905.7	7020739.2	51.99	DHBC03-30
31	BC03-18	264	473664.6	7020345.0	46.34	DHBC03-31
32	BC03-11	310+16	474035.7	7020164.7	50.50	DHBC03-32
33	BC03-19	288+8	474514.3	7019911.0	51.45	DHBC03-33
34	BC03-10	702	475787.2	7019283.0	49.51	DHBC03-34
35	BC03-18	224+6	473054.3	7018981.0	45.47	DHBC03-35
36	BC03-19	259	474036.5	7018924.6	47.01	DHBC03-36

**POST DRILLING LOCATIONS**

**Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71****PEL 110** continued (Post drilling location)

\* denotes different location to original survey - interpolated where necessary.

	Line	Station	Easting	Northing	Elev	Number
37	BC03-17	226+30	459615.3	7025324.3	43.13	DHBC03-37
38	BC03-17	282	461491.0	7024448.8	43.84	DHBC03-38
39	BC03-05	327	462416.8	7024020.8	42.8	DHBC03-39
40	BC03-04	321	463326.1	7023496.5	45.71	DHBC03-40
41 *	BC03-09	227+9	459274.1	7034664.5	45.1	DHBC03-41
42	BC03-06	336+3	461198.3	7023758.2	47.29	DHBC03-42
43	BC03-05	309	462164.4	7023394.4	42.78	DHBC03-43
44 *	BC03-04	303+2	463069.2	7022874.4	41.8	DHBC03-44
45	BC03-09	394+11	464925.8	7021963.7	45.09	DHBC03-45
46	BC03-09	443	466583.6	7021195.2	44.2	DHBC03-46
47	BC03-09	487+13	468087.2	7020485.3	43.28	DHBC03-47
48	BC03-11	239	472994.9	7017696.8	44.95	DHBC03-48
49 *	BC03-08	227+17	458907.4	7023970.4	47.9	DHBC03-49
50	BC03-06	313+19	460832.7	7022995.5	47.76	DHBC03-50
51	BC03-05	283+4	461760.2	7022511.7	40.51	DHBC03-51
52 *	BC03-04	279+20	462712.6	7022067.5	47.5	DHBC03-52
53	BC03-07	219	458414.2	7023151.2	50.66	DHBC03-53
54	BC03-06	289+9	460428.9	7022178.8	43.69	DHBC03-54
55	BC03-05	249+16	461444.5	7024648.1	39.62	DHBC03-55
56 *	BC03-04	255+21	462341.8	7021248.1	43.2	DHBC03-56
57	BC03-07	416+31	465080.3	7019895.6	44.95	DHBC03-57
58	BC03-07	484	467354.0	7018811.4	41.58	DHBC03-58
59	BC03-03	407	462911.4	7019807.5	47.54	DHBC03-59
60	BC03-02	387	464763.0	7019152.8	45.95	DHBC03-60
61	BC03-06	240	459633.9	7020513.0	39.96	DHBC03-61
62	BC03-03	372	462401.8	7018598.4	38.80	DHBC03-62
63	BC03-02	346+30	464172.7	7017765.9	39.84	DHBC03-63
64	BC03-01	318+22	466409.4	7016696.7	40.71	DHBC03-64
65	BC03-16	219	460031.8	7017894.5	39.31	DHBC03-65
66	BC03-03	325+14	461692.8	7017000.2	40.61	DHBC03-66
67	BC03-16	322	463436.6	7016069.9	37.06	DHBC03-67
68	BC03-01	266+17	465616.8	7014910.1	39.59	DHBC03-68
69	BC03-03	263+12	460754.3	7014871.0	40.46	DHBC03-69
70 *	BC03-02	238+1	462565.4	7014016.9	38.7	DHBC03-70
71	BC03-01	231	465090.0	7013689.3	40.42	DHBC03-71
72	BC03-03	220	460090.9	7013387.9	37.16	DHBC03-72

**POST DRILLING LOCATIONS**

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

**PEL 107** (Pre-drilling surveyed location only)

	Line	Station	Easting	Northing	Elev	Number
73	BC03-20	227+15	367810.1	6890137.4	36.63	DHBC03-73
74	BC03-20	251+23	368580.4	6890618.6	19.16	DHBC03-74
75	BC03-32	289+33	369297.6	6891054.8	18.39	DHBC03-75
76	BC03-20	294+20	369951.0	6891461.7	19.26	DHBC03-76
77	BC03-20	318	370707.4	6891912.7	32.19	DHBC03-77
78	BC03-27	269+16	371419.5	6892342.9	19.93	DHBC03-78
79	BC03-20	362	372121.6	6892762.2	18.84	DHBC03-79
80	BC03-20	400	373343.4	6893495.9	20.65	DHBC03-80
81	BC03-21	223+12	370410.4	6887460.1	28.13	DHBC03-81
82	BC03-32	387+12	371088.2	6887869.2	30.11	DHBC03-82
83	BC03-26	386+17	372453.0	6888705.7	21.12	DHBC03-83
84	BC03-27	366+35	373144.5	6889118.8	19.17	DHBC03-84
85	BC03-21	328	373781.3	6889471.4	29.84	DHBC03-85
86	BC03-21	380	375428.7	6890515.4	33.90	DHBC03-86
87	BC03-21	427	376941.6	6891419.6	30.57	DHBC03-87
88	BC03-21	466+21	378209.5	6892190.6	25.21	DHBC03-88
89	BC03-21	495+12	379136.3	6892742.2	27.69	DHBC03-89
90	BC03-21	533+23	380360.0	6893493.2	23.90	DHBC03-90
91	BC03-22	227	371039.9	6884958.1	21.64	DHBC03-91
92	BC03-22	285	372897.0	6886090.9	32.08	DHBC03-92
93	BC03-22	308	373169.9	6886135.8	35.83	DHBC03-93
94	BC03-22	328+32	374294.5	6886956.7	20.53	DHBC03-94
95	BC03-22	350	374977.3	6887360.6	20.57	DHBC03-95
96	BC03-22	381	375956.9	6887987.3	21.49	DHBC03-96
97	BC03-22	425	377368.7	6888841.1	32.14	DHBC03-97
98	BC03-23	260	378671.5	6888546.8	27.53	DHBC03-98
99	BC03-23	329+1	380863.7	6889922.8	25.67	DHBC03-99
100	BC03-23	368+33	382132.6	6890711.8	35.30	DHBC03-100
101	BC03-23	405	383293.7	6891411.0	20.96	DHBC03-101
102	BC03-23	446	384602.2	6892218.0	25.06	DHBC03-102
103	BC03-23	490	386010.1	6893078.7	22.70	DHBC03-103
104	BC03-24	210	370354.4	6882351.3	27.51	DHBC03-104
105	BC03-24	263	372044.0	6883398.3	22.30	DHBC03-105
106	BC03-24	317	373767.1	6884462.2	41.62	DHBC03-106
107	BC03-24	341	374535.8	6884929.7	24.83	DHBC03-107
108	BC03-24	361	375174.7	6885322.8	27.90	DHBC03-108
109	BC03-24	381	375807.9	6885724.7	20.11	DHBC03-109
110	BC03-24	414	376862.9	6886371.8	23.58	DHBC03-110

**PRE DRILLING LOCATIONS**

**Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71****PEL 107** Continued (Pre-drilling surveyed location only)

	Line	Station	Easting	Northing	Elev	Number
111	BC03-24	447	377920.3	6887013.9	20.13	DHBC03-111
112	BC03-24	526	380448.8	6888558.4	25.50	DHBC03-112
113	BC03-24	554+23	381348.4	6889143.7	23.63	DHBC03-113
114	BC03-24	594	382604.1	6889921.1	29.86	DHBC03-114
115	BC03-24	631	383780.1	6890657.8	24.06	DHBC03-115
116	BC03-24	672+30	385122.4	6891467.7	25.69	DHBC03-116
117	BC03-24	720	386627.0	6892399.2	21.78	DHBC03-117
118	BC03-24	770+22	388245.6	6893389.3	32.20	DHBC03-118
119	BC03-25	279	372827.6	6882034.0	29.30	DHBC03-119
120	BC03-25	332	374521.4	6883073.2	31.90	DHBC03-120
121	BC03-25	356+16	375304.3	6883549.2	37.63	DHBC03-121
122	BC03-26	200	369100.4	6894841.8	20.04	DHBC03-122
123	BC03-26	347	371756.5	6890011.1	27.82	DHBC03-123
124	BC03-26	600	376302.7	6881684.0	32.84	DHBC03-124
125	BC03-27	326	372416.3	6890470.0	33.89	DHBC03-125
126	BC03-28	292	379998.6	6891330.8	29.32	DHBC03-126
127	BC03-28	404	382194.6	6887750.5	28.68	DHBC03-127
128	BC03-28	454	383167.5	6886147.6	23.67	DHBC03-128
129	BC03-28	473+10	383555.0	6885537.3	26.66	DHBC03-129
130	BC03-28	517	384404.7	6884135.2	32.98	DHBC03-130
131	BC03-29	235	370391.3	6885999.0	25.45	DHBC03-131
132	BC03-29	315	371097.7	6887750.0	37.97	DHBC03-132
133	BC03-26	419+22	373051.7	6887616.6	27.70	DHBC03-133
134	BC03-27	399+21	373728.7	6888043.3	23.62	DHBC03-134
135	BC03-29	380	375027.3	6888841.1	23.05	DHBC03-135
136	BC03-29	422	376369.9	6889664.3	30.67	DHBC03-136
137	BC03-30	260+22	367917.2	6891797.4	27.33	DHBC03-137
138	BC03-30	282+19	368603.3	6892250.0	20.20	DHBC03-138
139	BC03-30	304	369279.5	6892688.4	19.89	DHBC03-139
140	BC03-26	250+19	370017.6	6893184.2	24.93	DHBC03-140
141	BC03-30	350+15	370730.3	6893648.6	25.04	DHBC03-141
142	BC03-30	390	371974.3	6894460.2	16.94	DHBC03-142
143	BC03-31	225+7	369161.8	6889619.4	34.05	DHBC03-143
144	BC03-31	247	369857.0	6890050.2	20.11	DHBC03-144
145	BC03-31	267+13	370498.0	6890463.5	25.93	DHBC03-145
146	BC03-26	319	371242.1	6890926.4	34.52	DHBC03-146
147	BC03-31	312+30	371940.0	6891372.0	26.84	DHBC03-147
148	BC03-31	334	372615.9	6891791.1	16.51	DHBC03-148
149	BC03-32	203+17	367683.7	6893865.3	20.27	DHBC03-149
150	BC03-32	307+8	369602.2	6890480.7	19.08	DHBC03-150
151	BC03-33	209+17	366981.6	6893430.3	36.27	DHBC03-151
152	BC03-33	354+11	369681.8	6888717.7	17.08	DHBC03-152

**PRE DRILLING LOCATIONS**

**Coordinates are Map Grid of Australia 1994 (MGA Zone 54) and AHD71****PEL 91** (Pre-drilling surveyed location only)

	Line	Station	Easting	Northing	Elev	Number
153	BC03-39	229+5	365996.9	6905217.9	22.06	DHBC03-153
154	BC03-39	258+14	365948.8	6906313.0	23.52	DHBC03-154
155	BC03-39	302+34	365889.8	6907981.8	20.82	DHBC03-155
156	BC03-39	347+23	365793.7	6909655.6	24.88	DHBC03-156

**PEL 92** (Pre-drilling surveyed location only)

	Line	Station	Easting	Northing	Elev	Number
157	BC03-34	211	337473.7	6896889.3	19.23	DHBC03-157
158	BC03-34	249	338898.3	6896879.7	18.26	DHBC03-158
159	BC03-34	297	340698.6	6896900.5	19.26	DHBC03-159
160	BC03-34	343	342423.4	6896885.5	32.52	DHBC03-160
161	BC03-34	386	344035.7	6896900.5	29.60	DHBC03-161
162	BC03-35	226	338974.9	6898308.0	39.49	DHBC03-162
163	BC03-35	270+32	340656.5	6898319.2	19.99	DHBC03-163
164	BC03-35	317+21	342408.4	6898322.5	24.65	DHBC03-164
165	BC03-35	363+24	344136.1	6898348.2	18.49	DHBC03-165
166	BC03-36	205	339109.9	6900016.8	20.19	DHBC03-166
167	BC03-36	244+12	340065.9	6899978.0	18.01	DHBC03-167
168	BC03-36	292	342371.3	6899927.5	30.99	DHBC03-168
169	BC03-36	340	344171.1	6899902.8	18.35	DHBC03-169
170	BC03-37	207	338777.1	6901035.9	35.09	DHBC03-170
171	BC03-37	253+9	340511.6	6901014.4	18.63	DHBC03-171
172	BC03-37	300	342264.6	6900990.1	27.05	DHBC03-172
173	BC03-37	350	344139.0	6900943.4	24.15	DHBC03-173
174	BC03-38	206+35	340721.1	6894735.0	20.99	DHBC03-174
175	BC03-38	250	340712.5	6896350.1	25.54	DHBC03-175
176	BC03-38	410+25	340498.8	6902369.7	17.77	DHBC03-176
177	BC03-38	430+18	340524.8	6903111.8	20.64	DHBC03-177

**PRE DRILLING LOCATIONS**

## ***Photographs***



**Line Clearing Machine**

**Base Station on  
Line BC03-10**



**Seismic Line BC03-10**

## ***Environmental Monitoring Points***



## Environmental Monitoring Points

**Coordinates are MGA94, Zone 54**

Number	Line	Stn	Easting	Northing
1	BC03-13		472764	7032848
2	BC03-28	525	384555	6883875
3	BC03-30		366623	6890940
4	BC03-35		340888	6898325



**EMP01 Looking North**



**EMP01 Looking South**



**EMP02 - Looking South East**



**EMP02 Looking North West**



**EMP 03 - Looking North East**



**EMP 03 - Looking South West**



**EMP 04 Looking East**



**EMP 04 - Looking West**

## ***Safety Meeting Minutes***

**2003 Albus 2D Seismic Survey****Safety Meeting****Fly Camp #1 - Semaphore #1 Well Site****Date: 17th August 2003****Attendees****Denham and O'Keeffe****DSS****Client Rep**

Mark Gill

Ron Weekes

Bruce Beer

Bill Bebbington

Mark Lefebvre

Mick Jonas

Tony Morcom

Kim Townsend

Craig Davey

John Talbot

**Comments****Meeting commenced at 18:30.****Topics discussed:**

Driving with care on the main road, especially at crests of dunes. Other traffic must be expected on the rig road. Always drive with headlights on.

Be sure you can rely on your radio. Make a check call if things have been quiet for a while.

Be on the lookout for loose fencing wire left on the ground. There have been quite a few pieces noted in this area.

The kitchen floor is normally mopped mid-morning and is therefore very slippery until dry.

Do not approach a machine (dozer, grader, truck, etc) without making sure the operator is aware of your location. This is normally done by 2-way radio.

Dozer operators have very limited forward vision most particularly when advancing over a dune. Make sure you are well clear of the machines and keep a lookout for their dune pole.

Dune poles are most effective when mounted on the front of vehicles. Never mount them at the back.

Wet cell batteries are not to be carried in the cabin area of vehicles. They should be secured in the rear tray.

The rig road has some sharp bends so keep speed down and be alert.

**2003 Albus Seismic Survey****Safety Meeting****Fly Camp - Main Road Spencer - Tantanna, Mulka Station****Date: 7th September 2003****Attendees****Denham and O'Keeffe****DSS**

Mark Gill

Ron Weekes

Bill Bebbington

Mark Lefebvre

Mick Jonas

Craig Davey

Kim Townsend

John Talbot

**Comments****Meeting commenced at 18:30.****Topics discussed:**

Field safety should include caution regarding camels. The males particularly can be aggressive.

Make sure the fuel valve is turned off after refuelling.

There is a reasonable volume of traffic on the road and visibility is limited by the rolling dunes.

Be sure to check carefully when entering or leaving the road. This is particularly applicable at the camp

All traffic to observe the speed limit on roads and drive at a safe speed on the lines.

When a bull dozer has to cross the road another person with a vehicle and radio should keep a lookout on the road and ensure there is no other traffic.

Bull dozer should not park on line near the base of a dune - always park up off line.

Everyone must observe normal personal hygiene rules at all times but particularly in the kitchen.

Beware a slippery floor in the kitchen. This can be from oil spillage from the deep frier which will normally be cleaned away each morning.

**2003 Albus Seismic Survey****Safety Meeting****Fly Camp - Christies #1 Rig Road, Mungeranie Station****Date: 14th September 2003****Attendees****Denham and O'Keeffe****DSS**

Mark Gill

Ron Weekes

Bill O'Keeffe

Mark Lefebvre

Maureen O'Keeffe

Craig Davey

Mick Jonas

Kim Townsend

John Talbot

**Comments****Meeting commenced at 18:30.****Topics discussed:**

There are areas of crabhole ground so drive to the conditions.

Christies #1 is still a busy work area with occasional trucks and light vehicles using the road. Drive carefully, observe speed limits and be prepared for other traffic.

Some sections of the road to Moomba are quite narrow - caution.

Stay on the cleared lines. Do not venture off line or track.

A reminder that with the warmer weather be sure to carry plenty of water and that the container is in a secure position.

The sand dunes are considerably softer here so have tyres inflated accordingly.

There is a lot of old wood on the ground - any person hand clearing should beware insects - scorpions and millipedes.

Always bring your rubbish back to camp. No littering on site.

At camp - do not drive over the layflat drain hoses. A blocked hose is a health hazard.

## ***Chronological Summary***



### Chronological Summary

<u>DATE</u>	<u>OPERATIONS</u>
8 <sup>th</sup> August	DSS crew (Ron Weekes, Mark Lefebvre, Tony Morcom and Craig Davey) mobilising.
9 <sup>th</sup> August	DSS crew mobilising.
10 <sup>th</sup> August	DSS crew arrive fly camp #1 at Semaphore #1 well site by 10:30am. Job startup induction with project, cultural heritage and site safety plans.
11 <sup>th</sup> August	Line pointing commenced and survey control scouted. <i>Line Pointing: 18.61kms (10.5 hours)</i>
12 <sup>th</sup> August	Deviations around dunes inspected and confirmed correct. Windy day with sand blowing back on to cleared lines. Tony Morcom back on site from Innamincka job. <i>Line Pointing: 18.20kms (10 hours)</i> <i>Chain and Survey: 14.4000kms</i>
13 <sup>th</sup> August	Line clearing and survey continued. Some problems encountered with the list of heritage sites supplied. <i>Line Pointing: 24.52kms (10.5hours)</i> <i>Chain and Survey: 28.7625kms</i>
14 <sup>th</sup> August	Lightly damp ground from overnight rain. Work continued. <i>Line Pointing: 24.30kms (11 hours)</i> <i>Chain and Survey: 29.0250kms</i>
15 <sup>th</sup> August	Reworking of line 05 to make easier access for heavy vehicles. Some more problems with the heritage clearance list. <i>Line Pointing: 20.04ms (10 hours)</i> <i>Chain and Survey: 22.0875kms</i>
16 <sup>th</sup> August	Access between ends of lines cleared. Control survey observed by static GPS  <i>Line Pointing: 18.92kms (11 hours)</i> <i>Chain and Survey: 11.7375kms</i>



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17 <sup>th</sup> August	Another access cleared. Weekly safety meeting in camp for all personnel.  <i>Line Pointing: 19.98kms (11 hours)</i> <i>Chain and Survey: 29.5875kms</i>
18 <sup>th</sup> August	Line clearing and chain and survey complete in PEL 110. Camp move planned for next day.  <i>Line Pointing: 18.93kms (9 hours)</i> <i>Chain and Survey: 27.9000kms</i>
18 <sup>th</sup> August	Camp move to Beantree Creek for work on other project.
5 <sup>th</sup> September	Line pointing commenced and survey control observed by static GPS.  <i>Line Pointing: 17.33kms (8.0 hours)</i>
6 <sup>th</sup> September	Line clearing continued and chain and survey commenced. Contact with Tantanna field supervisor regarding construction of pipeline crossings for vehicles.  <i>Line Pointing: 23.90kms (11 hours)</i> <i>Chain and Survey: 18.0750kms</i>
7 <sup>th</sup> September	Line clearing continued south of Tantanna to Gidgealpa pipeline. Slow going due to high dunes. Weekly safety meeting for 0.5 hrs.  <i>Line Pointing: 20.19kms (10.5 hours)</i> <i>Chain and Survey: 22.2750kms</i>
8 <sup>th</sup> September	Two pipeline crossings constructed at lines 27 and 28.  <i>Line Pointing: 11.14kms (11 hours)</i> <i>Chain and Survey: 23.6250kms</i>
9 <sup>th</sup> September	Change of dozer operator. Steep dunes continue to slow production. Static GPS to extend control.  <i>Line Pointing: 15.28kms (11 hours)</i> <i>Chain and Survey: 22.7375kms</i>
10 <sup>th</sup> September	Line clearing and survey continued north of pipeline. New line 39 scouted.  <i>Line Pointing: 15.96kms (11 hours)</i> <i>Chain and Survey: 18.5250kms</i>

---

11 <sup>th</sup> September	Fewer dunes allow better production. Longer travel times due to distance from camp. <i>Line Pointing: 19.93kms (11.0 hours)</i> <i>Chain and Survey: 19.5000kms</i>
12 <sup>th</sup> September	Better production because of fewer dunes and wider flat swales. Dozer 7 floated 10km north of current area to new line 39. <i>Line Pointing: 22.43kms (11 hours)</i> <i>Chain and Survey: 17.2125kms</i>
13 <sup>th</sup> September	Line clearing and survey completed for PELs 91 and 107. Dozers floated to Christies for work on PEL92. <i>Line Pointing: 12.76kms (7.0hours)</i> <i>Chain and Survey: 18.9750kms</i>
14 <sup>th</sup> September	Camp move to near Christies #1 well. Line clearing commenced and static GPS observed to establish survey control. Weekly safety meeting. <i>Line Pointing: 21.08kms (10 hours)</i> <i>Chain and Survey: 0.0000kms</i>
15 <sup>th</sup> September	Line clearing completed for Albus 2D. Mark Lefebvre out on break. Replacement surveyor Lynne Baker arrived in afternoon. <i>Line Pointing: 15.93kms (8.1 hours)</i> <i>Chain and Survey: 16.2000kms</i>
16 <sup>th</sup> September	Chain and survey completed for Albus 2D. Crew stay at camp location for Christies 3D. <i>Chain and Survey: 20.8125kms</i>
28 <sup>th</sup> September	Report writing in Yeppoon.
29 <sup>th</sup> September	Report writing in Yeppoon.
30 <sup>th</sup> September	Report writing in Yeppoon.
7 <sup>th</sup> October	Final Operations Report completed.

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## **APPENDIX 4**

### **DATA PROCESSING REPORT ROBERTSON'S RESEARCH**

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**Integrated Services in  
Petroleum Exploration and Production**

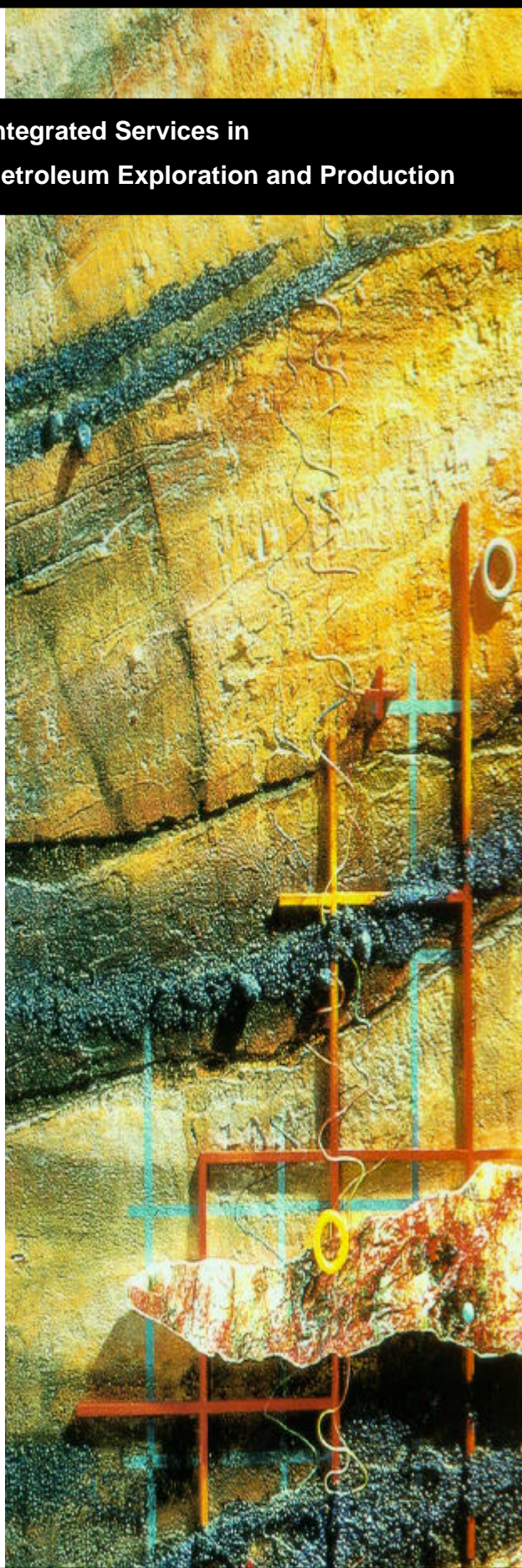
**Processing Report  
for  
Beach Petroleum Ltd  
  
2003 ALBUS 2D Seismic  
Processing**

**February 2004**

Robertson Research  
Australia Pty. Ltd.

69 Outram Street  
West Perth WA 6005

Tel: +61 (0)8 9322 2490  
Fax: +61 (0)8 9481 6721  
E-mail: [info@robres.com.au](mailto:info@robres.com.au)



**SEISMIC DATA PROCESSING**  
**REPORT FOR**  
**BEACH PETROLEUM LTD**  
**2003 ALBUS 2D SEISMIC PROCESSING**

**LOCATION : SOUTH AUSTRALIA**

**PERMIT : PEL 107, 110, 91 & 92 COOPER BASIN**

**COMPILED BY : ROBERTSON RESEARCH  
AUSTRALIA PTY. LTD.**

**FEBRUARY 2004**

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1.     **INTRODUCTION**

The 2003 ALBUS 2D Seismic Survey was acquired by Trace Energy Services from 29<sup>th</sup> Aug to the 2<sup>nd</sup> Oct 2003. These consisted of 39 lines with total length of 360 km. All lines have 124 channels and sweep frequency 5 – 90 Hz recorded at 2 ms sample rate and group interval of 37.5m. This round of acquisition was conducted over permit area PEL 91 PEL 92, PEL 107 and PEL 110.

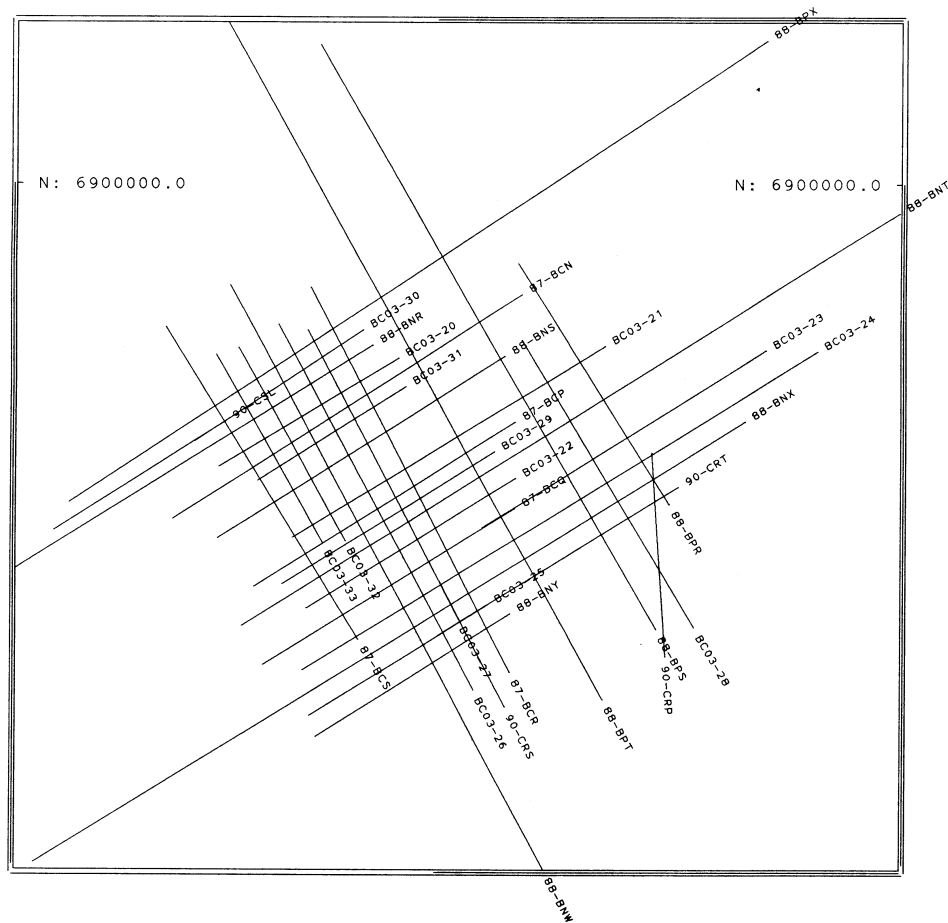
A further 591 km of seismic reprocessing from various vintages was to be processed together with the new 2D seismic data.

Processing was conducted by Robertson Research Australia at their Perth office. Processing was completed in Feb 2004.

Processing flow was based on last year Nautilus/Strombus seismic processing program.

### 1.1a LINE LOCATION MAP

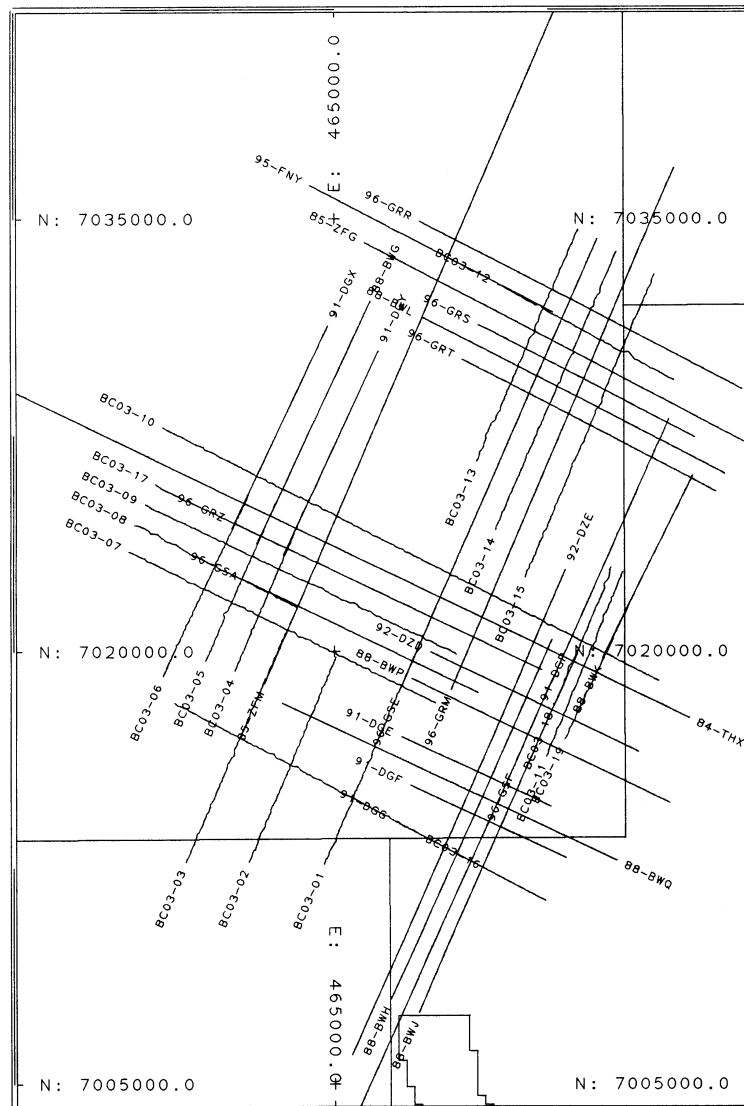
**Figure 1 : 2003 Albus Seismic Survey PEL 107**





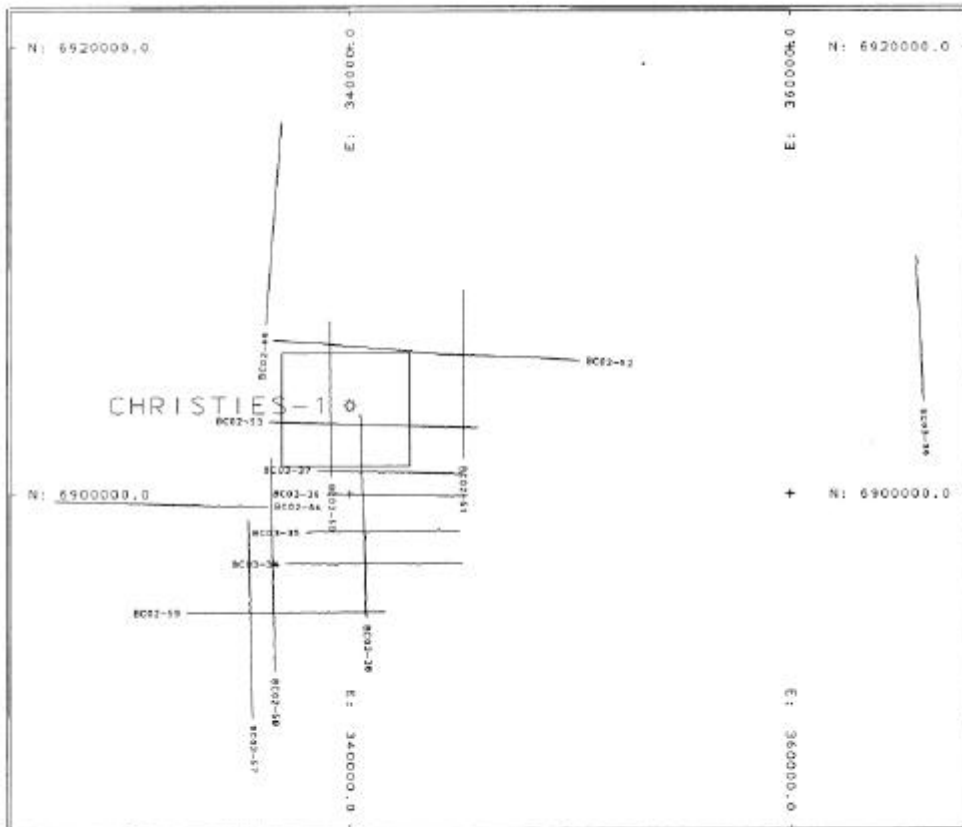
## LINE LOCATION MAP

**Figure 2 : 2003 Albus Seismic Survey PEL 110**

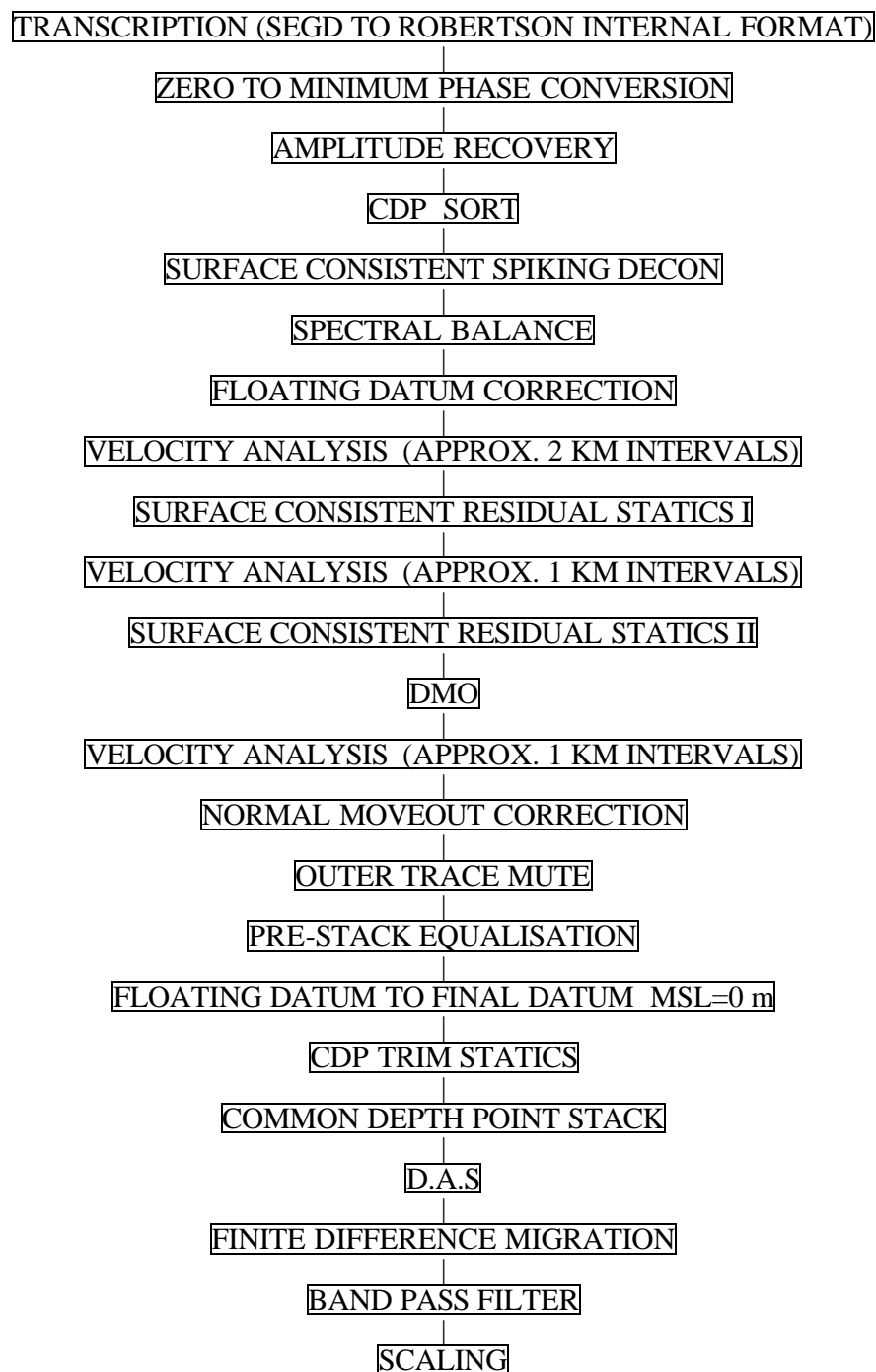


1.1c **LINE LOCATION MAP**

**Figure 3 : 2003 Albus Seismic Survey PEL 91 & PEL 92**



1.2 **PROCESSING SEQUENCE DIAGRAM:**  
**(BC03-01 to BC03-39)**



### 1.3 **FINAL DISPLAYS**

Final stacks and Migrated stacks were plotted to file as digital prints (cgm+ format) at

Vertical scale : 10 cm/sec Horizontal scale 1 : 20 000

These displays were archived to exabyte tape.

### 1.4 **ARCHIVE DATA**

The following stacked data type was archived in SEG Y format for all lines.

- |    |                      |    |                         |
|----|----------------------|----|-------------------------|
| A. | Raw stack            | C. | Raw migrated stack      |
| B. | Final filtered stack | D. | Filtered migrated stack |

There is a description block separating each data set which contains the line number and a description of the data which follows.

All exabytes were produced in SEG Y 5.0 GB format.  
The time of first sample is -200 ms.

### 1.5 **DATA DISPOSITION TO BEACH PETROLEUM**

1. Digital prints in CGM+ format on exabyte tape ( Three copies)
2. Archive SEG Y stack on exabyte ( Three copies)
3. Final stacking velocities in Western format
4. Observers logs and supporting documents
5. All field tapes

### 1.6 **LINE SUMMARY**

Table 1 **Survey Statistics**

	PEL 110	PEL 107	PEL 91	PEL 92	Total
No of lines	19	14	1	5	39
Line No Range	BC03-01 to 19	BC03-20 to 33	BC03-39	BC03-34 to 38	BC03-01 - 39
Line length	164.2 km	152.9 km	6.5 km	37.2 km	360.8 km
No upholes	72	80	4	21	177
Average hole depth	32.6 m	30.8 m	30.8 m	30.6 m	31.4 m
Reprocessing Lines	27	19	0	0	46
Reprocessing km	320.9 km	270.4 km		0 km	591.338 km

Table 2 New and reprocessed lines PEL 110

NEW LINES				REPROCESSED LINES			
Line	Station		KM	Line	Station		KM
	Start	End			Start	End	
BC03-01	200	427	8.55	84-THX	215	915	26.29
BC03-02	200	406	7.62	85-ZFG	694	1007	15.37
BC03-03	200	432	8.74	85-ZFM	200	490	12.71
BC03-04	200	362	6.11	88-BWG	200	400	9.34
BC03-05	200	359	6.07	88-BWH	200	564	13.69
BC03-06	200	386	7.01	88-BWJ	200	564	13.69
BC03-07	200	519	12.0	88-BWK	200	388	7.08
BC03-08	200	370	6.41	88-BWL	400	672	12.03
BC03-09	200	522	12.11	88-BWP	200	468	10.08
BC03-10	200	720	19.54	88-BWQ	200	544	12.93
BC03-11	200	385	6.97	91-DGE	200	354	5.81
BC03-12	200	387	7.05	91-DGF	200	360	6.03
BC03-13	200	434	8.81	91-DGG	200	360	6.03
BC03-14	200	480	10.57	91-DGP	200	604	15.18
BC03-15	200	505	11.47	91-DGX	200	408	7.83
BC03-16	200	457	9.67	91-DGY	200	408	7.83
BC03-17	200	332	4.99	92-DZD	200	416	8.13
BC03-18	200	338	5.21	92-DZE	200	692	18.48
BC03-19	200	336	5.14	95-FNY	200	456	9.64
				96-GRM	200	664	19.76
				96-GRR	200	540	12.78
				96-GRS	200	428	8.58
				96-GRT	200	468	10.08
				96-GRZ	200	520	12.03
				96-GSA	200	440	9.03
				96-GSE	200	656	17.13
				96-GSF	200	490	13.24
		Total	164.2			Total	320.9

Table 3 New and reprocessed lines PEL 107

NEW LINES				REPROCESSED LINES			
Line	Station		KM	Line	Station		KM
	Start	End			Start	End	
BC03-20	200	407	7.80	87-BCN	200	609	15.41
BC03-21	200	563	13.65	87-BCP	200	505	11.51
BC03-22	200	444	9.19	87-BCQ	200	494	11.06
BC03-23	200	532	12.49	87-BCS	200	559	13.50
BC03-24	200	800	22.54	87-BCR	200	626	16.01
BC03-25	200	408	7.84	88-BNR	200	495	11.14
BC03-26	200	608	15.34	88-BNS	200	536	12.64
BC03-27	200	521	12.08	88-BNT	200	740	20.28
BC03-28	200	530	12.41	88-BNW	200	851	24.49
BC03-29	200	448	9.34	88-BNX	200	1027	31.08
BC03-30	200	399	7.50	88-BNY	200	427	8.59
BC03-31	200	373	6.53	88-BPR	200	479	10.54
BC03-32	200	417	8.18	88-BPS	220	883	24.90
BC03-33	200	413	8.03	88-BPT	550	962	15.49
				88-BPX	200	540	12.79
				90-CRP	200	399	7.53
				90-CRS	200	340	5.29
				90-CRT	200	479	10.54
				90-CSL	200	399	7.54
		Total	152.9			Total	270.4

Table 4 New line PEL 91

NEW LINES			
Line	Station		KM
	Start	End	
BC03-39	200	374	6.56
		Total	43.72

Table 5 New lines PEL 92

NEW LINES			
Line	Station		KM
	Start	End	
BC03-34	200	414	8.06
BC03-35	200	386	7.01
BC03-36	200	371	6.45
BC03-37	200	373	6.53
BC03-38	200	442	9.11
		Total	37.16

## 2 ACQUISITION PARAMETERS

Source	4 LRS315 vibrators in line
Source Array	37.5 m (12.50 m Pad to Pad )
Array Centre	Centred midway between stations
Number of Sweeps	2 standing sweeps per VP
Vib Moveup	stacked shots - no moveup
Sweep Length	3 sec
Sweep Frequencies	Linear upswing 5 - 90 Hz
Cosine Taper	200 ms
Source Interval	37.5 m
Source Effort	160 sec/km
Sweep Control	Pelton Advance 2 Model 5
Accelerometers	Pelton M51 High Performance
Similarity System	Pelton VIB-SIG
Peak Force	40,500 lbs
Hold Down Weight	41,000 lbs
Vibrator Drive Level	Force Control On - 75% Peak Force
Phase Lock	Ground Force Phase Lock
Fold	62
No. Data Channels	124
Spread Type	Split Spread
Offsets	2306.25 -18.75 -VP- 18.75 - 2306.25 m
Group Interval	37.5 m
Geophone Array	12 phones in series over 37.5 m Centred on pegs
Geophone spacing	3.125 m
Geophone Type	Sensor SM4 /SSM24 10 Hz
Recording Instrument	Sercel 388 - 24 Bit Telemetry System
Record Length	4 seconds (Correlated)
Correlation Type	Zero Phase
Sample Period	2 ms
Tape Format	SEGD
Recording Filters	none

### 3. **FIELD DATA AND SUPPORT MATERIAL**

The following support information was provided.

- a) Observers' Reports
- b) Floppy disks containing co-ordinate and elevation information
- c) Intersections listing
- d) Old section, uphole plots and map

### 4. **PROCESSING TECHNIQUES AND PARAMETER VERIFICATION**

A comprehensive suite of tests was conducted which included FK filtering, deconvolution, pre-stack spectral whitening, Dmo, mute, post-stack migration, post-stack spectral whitening and bandpass filter.

The adjustment and fine tuning of the parameters to achieve the final processing sequences was discussed between Danny Burns and Doug Roberts on behalf of Beach Petroleum and representatives of Robertson Research.

#### 4.1 **TRANSCRIPTION**

Field data recorded in SEG-D format were transcribed to Robertson internal format. 124 data channels recorded at 2 ms sample rate was output.

#### 4.2 **GAIN RECOVERY**

Gain recovery was used to compensate for spherical divergence and absorption losses. A gain curve of  $8.0t + 6 \log(t)$  was chosen and applied to the data. This was arrived at after both performing amplitude analysis of a few records to obtain values for (a) and (b) and then by testing various parameters on shot records to find an optimum value for (a) and (b) in the equation:  $\text{Gain} = (a)t + (b)\log t$ .



#### 4.3 **REFRACTION STATICS**

Refraction statics were used to help reduce the structural biases introduced by weathering anomalies. Here refraction breaks were picked using Green Mountain Geophysics "Millennium" series refraction statics package. The "GMG - Millennium" package then used the measured travel time from shot to receiver to extract information about the near surface layer. Over many shots and many receivers, it was determined whether the ray paths are direct arrivals or refracted along one of the layers modeled by the package. A model was developed to estimate the velocities and the delay times for each refractor under each source and each station.

The Green Mountain Geophysics Millennium package allows us some options in calculating the final statics solution. For velocity analysis either a "Simple" or "Reciprocal" approach may be employed. In terms of delay time algorithms a Gauss-Seidel Iterative method, an Extended Generalized Reciprocal Method (EGRM) or a hybrid of the two may be employed.

In calculating the final statics solution using the Millennium GMG package Robertson have employed the Reciprocal method for velocity analysis and the Hybrid method for delay time analysis.

The refraction statics solution were computed to a datum of 0 metre. Variable weathering velocities were interpreted at uphole locations shot along the line and a variable refractor velocity derived from the first breaks. These upholes were also used as calibration points. A two layer modelling was best suited for the Cooper Basin data.

#### 4.4 **FK FILTERING**

FK filtering was initially tested on shot records. Velocity filter of +/- 800 m/s was applied in the shot domain to address ground roll noise. The FK records look cleaner and the FKstack demonstrate cleaner low frequency data but with slight attenuation of the higher frequency. Recommended against FK.

#### 4.5 **DECONVOLUTION**

A very extensive deconvolution test was conducted. Testing included predictive deconvolution and surface consistent deconvolution. Test of different gaps, white noise, operator length and number of windows were looked at. Deconvolution derivation and application windows were designed from shot records. Stack panels and their autocorrelations were displayed both unfiltered and filtered. Recommended surface consistent spiking deconvolution using 0.1 % white noise with two windows.

#### 4.6 **VELOCITY ANALYSIS**

Robertson interactive velocity analysis package (MGIVA) incorporates a map of the project seismic lines as well as the velocity analysis ( semblances and fully interactive gathers and stacks). The map function facilitates consistency in velocity picking in an areal sense and should greatly improve the confidence one has in the resultant velocity model. The velocity functions from neighbouring analyses can be superimposed on the semblance display as a guide to picking the current location. Each analysis comprised 30 CDPs stacked with 15 velocity functions with adjustable percent variation on the central input function. A contoured power display based on power of stack of the inner 3 CDPs and a display of the central CDP gather with NMO corrections, and stack panels of the 15 velocity functions plus a picked velocity stack panel

Three passes of velocity analysis was picked for this cooper basin dataset. The first pass was performed at every 2 km. Then residual statics was computed followed by a second pass velocity analysis at 1 km interval. A final pass of velocity analysis was performed after Dmo, at the same 1 km interval.

#### 4.7 **RESIDUAL STATICS**

Robertson's NEBULA package was used to determine surface-consistent residual statics. A pilot trace is cross correlated with each data trace and the cross correlation functions are summed for each shot and station. The peak of each summed cross correlation is used to determine the static for each shot and receiver. The shifts from anomalous cross correlations are given a low weighting in the decomposition. The pilot trace is formed by summing adjacent traces; the number of traces summed, and the individual weight assigned to them is kept constant. Three iteration passes are used with statics generated in previous iterations being applied to the data for the current iteration. The pilot trace correlation is started from alternate ends of the line on successive iterations in order to ensure penetration of a reasonable pilot trace into poor signal-to-noise areas.

#### 4.8 **MUTING TRIALS**

Mutes were selected by inspecting a series of stacked panels with increasing offsets included into each successive panel. An outer trace mute was applied to the data to remove any high amplitude noise at earlier times on the record and over-stretched moveout reflectors. The mute has a 60 ms taper.

#### 4.9 **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. The frequency range is divided into equal numbers of trapezoidal filters, each may overlap the other. The trace is then filtered through each of these filters, AGC gain and summed. This technique suppress the low frequency (ground roll) better and

enhances the higher frequency as well. Production filter of 5-10-90-95 Hz was used. We recommended the SPECB option.

#### 4.10 **DIP MOVEOUT**

DMO was used primarily in correcting velocity distortion due to the dipping events, but also useful as a scattered noise reduction technique. A constant DMO velocity of 1500 m/s was used. This translates to a maximum dip of +/- 25 ms per trace for CDP interval of 18.75 m on 62 equal offsets.

Robertson's DMO program applies 2-D convolution operators to map the data accurately from non-zero to zero offsets. The convolution is conveniently implemented by the summation method, applied to traces in common offset order. This procedure also achieves the desirable partial migration, whereby traces with common mid-points, but different source-receiver offsets, relate to the same subsurface locations after DMO for all dips.

#### 4.11 **POST-STACK SPECTRAL WHITENING**

Post-stack spectral whitening is employed using a routine called AVZPD. This is a zero phase deconvolution that requires user to define the desired output spectrum in terms of Butterworth shape bandpass filters at various times. The program determines an inverse operator for each window which will attempt to shape the amplitude spectrum of the trace to the requested Butterworth filter.

Test panel using various bandpass filter of 10-90, 10-80, and 10-70 Hz with both single and dual windows design were looked at. These test were compared with decon after stack.

#### 4.12 **DECONVOLUTION AFTER STACK**

Stack panels over selected cdp range was tested with different gap and operator length. These panels and their autocorrelations were displayed. Recommended using a gap of 20ms and operator length of 120ms. This compare more favourably than the 10-80 Hz AVZPD routine in that it has achieved about the same spectral whitening but without the background noise.

#### 4.13 **FINITE DIFFERENCE MIGRATION**

The migration method uses the technique of downward continuation in order to map reflectors to their true time position. Depth step of 12 ms was used. Trials with varying percentages 95%, 100% and 105% of the stacking velocity was performed. The migration with 100% smoothed stacking velocities was recommended.

#### 4.14 **FILTER TRIAL**

A suite of filter sets was applied to a panel of stacked CDPs with only one set of filters on each panel. Filtering was performed in the frequency domain by applying a cosine-squared function. The cosine-squared cut-off filters are described by four frequencies F1, F2, F3 and F4. A time variant filter was selected from the series of filter trials.

## 5. SUMMARY OF THE PROCESSING PARAMETERS

1. Transcribe SEG-D data into Robertson internal format
2. Phase conversion : Convert from zero to minimum phase
3. Application of synthetic gain curve of  $8.0t + 6\log(t) - 98$
4. Statics – floating datum correction using refraction statics calibrated to upholes
5. CDP Sort : Nominal fold 62
6. Surface Consistent Spiking Deconvolution
  - Operator Length : 120 ms
  - Gap : 2 ms
  - White Noise : 0.10%
  - Design windows : 100 – 2000 & 1800 - 3000 ms @ near offset
  - : 1300 – 2300 & 1900 - 3200 ms @ far offset
7. Spectral Balance : using 15 equal trapezoidal filters between frequency range 5-10-90-95 Hz.
8. Velocity analysis on MGIVA
  - Frequency of analyses : 2 Km intervals
  - Velocity range : 1000 to 5000 m/s
  - Number of CDP/analysis : 30
9. Surface consistent residual statics I
  - Number of pilot traces : 9
  - Max static shift +/- 25 ms
10. Velocity analysis on MGIVA
  - Frequency of analyses : 1 Km intervals
  - Velocity range : 1000 to 5000 m/s
  - Number of CDP/analysis : 30
11. Surface consistent residual statics II
  - Number of pilot traces : 9
  - Max static shift +/- 20 ms
12. DMO correction
  - Constant velocity used : 1500 m/s

62 equal offset planes

13. Interactive velocity analysis using 'MGIVA'  
 Frequency of analyses : 1 Km intervals  
 Velocity range : 1000 to 5000 m/s  
 Number of CDP/analysis : 20  
 Number of 2% increment panels per analysis :15
  
14. NMO correction - velocity functions referenced to surface.
  
15. Outer trace mute  

Offset (m)	:	150	200	600	1330	2307
Time (ms)	:	0	200	550	1200	1900
  
16. Scaling – 500ms AGC gates
  
17. Floating datum to sea level correction  
 New time origin of -200 ms
  
18. CDP Trim Static  
 7 trace weighted pilot  
 maximum shift +/-8 ms
  
19. Common depth point stack – nominal fold of 62
  
20. Deconvolution after stack  
 Gap 20ms Operator length 120 ms  
 0.1 % white noise
  
21. F.D. Migration  
 Wave- equation method – 2<sup>nd</sup> order solution  
 12 ms depth step  
 100% smoothed stacking velocity
  
22. Bandpass Filter  

Application Time (ms)	Freq (Hz)
500	13 - 17 -- 85 - 95
1000	10 - 14 -- 75 - 85
2200	10 - 14 -- 65 - 75
  
23. Scaling  
 Dual window AGC with lengths of 1000 and 400 ms  
 50% application

## 6. PHASE ANALYSIS

Table Final Phase Shift

VINTAGE	FIELD CREW	CORRELATION PHASE	FINAL PHASE SHIFT (degrees)
84-T	SSL	Minimum	+90
85-Z	SEISCOM	Minimum	0
87-B	SSL (574)	Zero	-90
88-B	SSL (574)	Zero	-90
90-C	SSL (082)	Zero	0
91-D,92-D	HGS (1852)	Zero	0
95-F,96-G	GECO PRAKLA (161)	Zero	0
BC03	TRACE ENERGY	Zero	0

All Final stack data has final phase shift applied relative to SANTOS adopted normal polarity. This standard polarity is equivalent to data recorded by GSI crew. This has to be adopted as field crew recording polarities are different from each other. Most field crew maintain their relative phase different to GSI over the years except for SSL. Within SSL, each crew used a different "normal" polarity.

## 7. ARCHIVE LISTING

### SEG Y Trace Header Locations

BYTE	DESCRIPTION	BYTE	DESCRIPTION
17-20 (32-bit)	SPNO*100 static	97-98 (16-bit)	source residual
21-24 (32-bit)	CDP number	99-100 (16-bit)	rcvr residual static
41-44 (32-bit)	Elevation*10	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)	refractorvel*10	117-118 (16-bit)	Sample interval
		189-192 (32-bit)	SP number * 100

Client : Beach Petroleum Ltd.  
 Survey : 2003 Albus Seismic survey  
 Area : Pel 110 Cooper Basin S.A.  
 Dataset : Migrated, Final, Raw stack, Raw mig  
 Record length : 3 or 4 s  
 Sample rate : 2 or 4 ms  
 Time of 1st sample : -200 ms

file#	line	cdp range	stn range
1	BC03-01	1-456	200.5-428.0
2	BC03-02	1-413	406.5-200.5
3	BC03-03	1-466	200.5-433.0
4	BC03-04	1-325	362.5-200.5
5	BC03-05	1-322	200.5-361.0
6	BC03-06	1-373	386.5-200.5
7	BC03-07	1-640	200.5-520.0
8	BC03-08	1-342	370.5-200.0
9	BC03-09	1-646	200.5-523.0
10	BC03-10	1-1042	200.5-721.0
11	BC03-11	1-372	200.5-386.0
12	BC03-12	1-375	387.5-200.5
13	BC03-13	1-470	434.5-200.0
14	BC03-14	1-560	202.0-481.5
15	BC03-15	1-612	200.5-506.0
16	BC03-16	1-514	200.5-457.0
17	BC03-17	1-264	200.5-332.0
18	BC03-18	1-278	338.5-200.0
19	BC03-19	1-274	337.0-200.5
20	84-THX	1-1394	915.0-218.5
21	85-ZFG	1-769	658.5-1042.5
22	85-ZFM	1-578	201.5-490.0
23	88-BWG	1-448	201.0-424.5
24	88-BWH	2-727	201.5-564.0
25	88-BWJ	1-725	563.5-201.5
26	88-BWK	2-375	201.5-388.0
27	88-BWL	1-589	376.5-670.5
28	88-BWP	1-533	467.5-201.5
29	88-BWQ	2-687	201.5-544.0



30	91-DGE	1-305	353.0-201.0
31	91-DGF	1-319	201.5-360.5
32	91-DGG	1-319	359.5-200.5
33	91-DGP	1-804	201.5-603.0
34	91-DGX	1-413	201.5-407.5
35	91-DGY	1-415	201.5-408.5
36	92-DZD	1-428	201.5-415.0
37	92-DZE	1-979	201.5-690.5

38	95-FNY	1-512	456.5-201.0
39	96-GRM	61-991	665.5-200.5
40	96-GRR	1-682	200.5-541.0
41	96-GRS	1-458	428.5-200.0
42	96-GRT	1-538	200.5-469.0
43	96-GRZ	1-641	200.5-520.5
44	96-GSA	1-481	440.5-200.5
45	96-GSE	1-913	656.5-200.5
46	96-GSF	1-643	200.5-521.5

Client	: Beach Petroleum Ltd.
Survey	: 2003 Albus Seismic survey
Area	: Pel 107 South Australia
Dataset	: Migrated, Final, Raw stack, Raw mig
Record length	: 3 or 4 s
Sample rate	: 2 or 4 ms
Time of 1st sample	: -200 ms

file#	line	cdp range	stn range
1	BC03-20	1-415	407.5-200.5
2	BC03-21	1-728	200.5-564.0
3	BC03-22	1-489	444.5-200.5
4	BC03-23	1-665	532.5-200.5
5	BC03-24	1-1203	200.5-801.5
6	BC03-25	1-417	408.5-200.5
7	BC03-26	1-818	200.5-609.0
8	BC03-27	1-644	521.5-200.0
9	BC03-28	1-662	200.5-531.0
10	BC03-29	1-497	448.5-200.5
11	BC03-30	1-400	200.5-400.0
12	BC03-31	1-348	200.5-374.0
13	BC03-32	1-435	417.5-200.5
14	BC03-33	1-428	200.5-414.0
15	87-BCN	1-817	609.0-201.0
16	87-BCP	2-611	201.0-505.5
17	87-BCQ	1-585	493.5-201.5
18	87-BCR	1-849	625.5-201.5
19	87-BCS	1-718	201.5-560.0
20	88-BNR	2-591	201.0-495.5
21	88-BNS	1-669	535.5-201.5
22	88-BNT	2-1542	201.0-971.0
23	88-BNW	2-1304	201.0-852.0
24	88-BNX	2-1653	201.0-1026.5
25	88-BNY	2-454	201.0-427.0
26	88-BPR	2-559	201.0-479.5
27	88-BPS	1-1324	221.5-883.0
28	88-BPT	1-1520	961.5-202.0
29	88-BPX	2-1653	201.0-1026.5
30	90-CRP	2-396	201.0-398.0
31	90-CRS	1-277	339.5-201.5
32	90-CRT	2-558	201.0-479.0

33      90-CSL      2-399      201.0-399.5

Client	: Beach Petroleum Ltd.
Survey	: 2003 Albus Seismic survey
Area	: Pel 91/92      South Australia
Dataset	: Migrated, Final & Raw stacks
Record length	: 4 s
Sample rate	: 2 ms
Time of 1st sample	: -200 ms

file#	line	cdp range	stn range
1	BC03-34	1-430	200.5-415.0
2	BC03-35	1-373	386.5-200.5
3	BC03-36	1-344	200.5-372.0
4	BC03-37	1-348	374.0-200.5
5	BC03-38	1-485	442.5-200.5
6	BC03-39	1-349	374.5-200.5

8. **CONCLUSIONS AND ACKNOWLEDGEMENTS**

Overall the processing of this project proceeded in a smooth and timely manner with good communication and co-operation between Robertson Research and Beach Petroleum. Robertson Research Australia would like to thank Danny Burns and Doug Roberts for their co-operation and immediate replies to queries.

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Alex Tan  
ROBERTSON RESEARCH AUSTRALIA