Multi-Client Projects
3D Seismic Interpretation Databases

Cooper-Eromanga Projects

Modiolus

Worrior

Callabonna

Total Depth Exploration Services
21 Churchill Avenue, Subiaco, WA, Australia, 6008.
www.totaldepth.com.au
Multi-Client Projects
Cooper-Eromanga Basin

Multi-Client 3D Seismic interpretation project data packages are now available individually, collectively or on a subscription basis for purchase over the entire Cooper-Eromanga basins that span across South Australia and Queensland.

Cooper-Eromanga Basins Project
Total Depth Pty Ltd has applied unique/patented pre-interpretation processing technology to entire 3D seismic datasets creating query-able databases of seismic surfaces and their attributes to the openfile 3D seismic survey from the Cooper-Eromanga basins, Australia’s largest onshore petroleum province. More than 13,000 km² of openfile 3D seismic datasets are available over the Cooper-Eromanga basins and Total Depth will grow their pre—interpretation processing libraries as more data becomes available.

Pre-Interpretation Processing Technology:
Total Depth Pty Ltd deploys technologies that enable the automated, and cost-effective analysis of entire 3D seismic datasets (single or multi-volume). These processing technologies are unique in that the analysis is consistently applied across any input data (volume, volume(s) or data libraries). One technology, using patented genetic segmentation, simultaneously grows populations (surfaces) of genetically and spatially similar waveforms until virtually every peak and trough surface in a seismic volume is catalogued into a queryable spatial database of attributes. A second complimentary technology that is designed specifically for the analysis of digital data, calculates the geometric properties associated with the Dupin Indicatrix for each and every data point. The resulting spatial database can be queried to identify and extract objects often difficult to even visualize using conventional methods.

Key Benefits to the Interpretation Teams:
An independent assessment of entire data volumes provides a significant technical advantage over conventional analysis methods. Unbiased extraction processes ensure that human expertise is engaged where it has the most value. Namely, interpretation and deciding what needs to be included into the geological model.
Since pre-interpretation analysis is automated and applied consistently throughout the input dataset producing a database of high quality attributes in a timely and cost-effective manner, any interpreter can spend more of their valuable time focused on understanding the results and their economic potential. Moreover, this approach is so time efficient it encourages more multi-disciplinary collaboration between technical teams and management. Consequently, the collective knowledge base of the group can be integrated. This enables a better understanding of risk, accelerates the decision making process and embraces the unique insights each team member can apply to technical challenges.

Deliverables
For each 3D Survey a license to a Basic Data Package and an Interpretation Package can be purchased. Additional products and services can be purchased upon request. The final data and projects are delivered on External Hard Drives and accessible in a Windows environment.

Anticipated Costs
The data packages are now available for purchase from Total Depth Pty Ltd. Pricing is determined by the number of projects acquired and the desired set of deliverables. For a full quote on products available please contact us via phone or email.

Total Depth Exploration Services
Website: www.totaldepth.com.au, Tel: +61 8 9382 4307; email: info@td.iinet.net.au
South Australian 3D Seismic Surveys

Aquilla 3D Seismic Survey
Bilbarrin 3D Seismic Survey
Barina/Farina 3D Seismic Survey
Bauhaus 3D Seismic Survey
Beckler 3D Seismic Survey
Bookaburdie 3D Seismic Survey [CP007C]
Bygots/Kobari 3D Seismic Survey [CP006B]
Burrungule 3D Seismic Survey
Cabernet 3D Seismic Survey
Caladan/Daralingie 3D Seismic Survey [SA01-2]
Calamina 3D Seismic Survey
Calabonna 3D Seismic Survey
Carrington 3D Seismic Survey
Cottabob 3D Seismic Survey
Coolbah 3D Seismic Survey
Cooonate 3D Seismic Survey
Cordillo 3D Seismic Survey
Cowalla, Hackett, Tindlipie 3D Seismic Survey
Cuttapine 3D Seismic Survey
Dirkalla 3D Seismic Survey
Dullingar/Burke 3D Seismic Survey
Dundimna 3D Seismic Survey
Flax Juniper 3D Seismic Survey
Fly Lake 3D Seismic Survey
Gaschnitz Pilot 3D Seismic Survey [CP0113B]
Gidgealpa 3D Seismic Survey
Gidgealpa Unit 3D Seismic Survey

Queensland 3D Seismic Surveys

Acuus 3D Seismic Survey
Alpa SE62 3D Seismic Survey
Baralaba 3D Seismic Survey
Bellaloe Creek 3D Seismic Survey
Bodalla South 3D Seismic Survey
CESN05- Jackson/Naccowlah 3D Seismic Survey
CESN06B- Cook 3D Seismic Survey
CESN07- Watson 3D Seismic Survey
CESN08- Patroclus 3D Seismic Survey
CESN08E- Wallawanny 3D Seismic Survey
CESN08F- Geerca 3D Seismic Survey
CESN08G- Bowen 3D Seismic Survey
CESN09- Cusineri 3D Seismic Survey
Dalwogan-Condabri 3D Seismic Survey

Goyder/Milliata 3D Seismic Survey
Greater Litchfield 3D Seismic Survey [CESAN12]
Greater Strzelecki 3D Seismic Survey
Harpoone 3D Seismic Survey
Hassellgrove 3D Seismic Survey
Hillview 3D Seismic Survey
Iius 3D Seismic Survey
Jazacanda Ridge 3D Seismic Survey
Jacenza 3D Seismic Survey
James 3D Seismic Survey [CP006]
Jasmine 3D Seismic Survey
Jonothan 3D Seismic Survey
Lake Hop 3D Seismic Survey
Lignum 3D Seismic Survey
Limbatus 3D Seismic Survey
McKirlay 3D Seismic Survey [CP005]
MEI 3D Extension Seismic Survey [SA98]
Merrimota 3D Seismic Survey
Mirage 3D Seismic Survey
Modiolus 3D Seismic Survey
Mollchubs 3D Seismic Survey
Moorana 3D Seismic Survey
Mudrange 3D Seismic Survey
Mulka 3D Seismic Survey
Munathor Intl 3D Survey
Murterre Horst 3D Seismic Survey
Nangwarri 3D Seismic Survey
NE Murreee Horst 3D Seismic Survey [CP03]
Nephrite 3D VSP and Micro Seismic Survey

Neritus 3D Seismic Survey
Nunga Mix 3D Seismic Survey
Paranta 3D Seismic Survey
Pondrinnie 3D [1995] Seismic Survey
Pondrinnie Extension 3D [1997] Seismic Survey
Quasar 3D Seismic Survey
Raven/Moonangona 3D Seismic Survey
Reg Sprogg 3D Seismic Survey
Rincon 3D Seismic Survey
Rogan 3D Seismic Survey
Sellicks 3D Seismic Survey
Soldius 3D Seismic Survey
Spencer Kiana Muterro 3D Seismic Survey
Spinzel 3D Seismic Survey
Sprigg Extension 3D Seismic Survey
St George 3D Seismic Survey
Stokes 3D Seismic Survey [S0932D]
Swan Lake 3D Seismic Survey
Tallerrange 3D Seismic Survey
Tilbooroo 3D Seismic Survey
Tirrawarra 3D Seismic Survey [CP0117]
Toolachee Field 3D Seismic Survey
Trim 3D Marine Seismic Survey
Verona 3D Seismic Survey
Wilkimie 3D Seismic Survey
Wingman 3D Seismic Survey
Wolgalla 3D Seismic Survey
Worrior 3D Seismic Survey

Total Depth Exploration Services
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Please find links below to some one page summaries from the Multi-Client Seisnetics projects from the Cooper-Eromanga Basin.

1. Aquillus 3D Seismic Survey
2. Callabonna 3D Seismic Survey
3. Calpurnus 3D Seismic Survey
4. Caseolus 3D Seismic Survey
5. Charo 3D Seismic Survey
6. Christies 3D Seismic Survey
7. Fly Lake 3D Seismic Survey
8. Harpoon 3D Seismic Survey
9. Irus 3D Seismic Survey
10. Lake Hope 3D Seismic Survey
11. Lignum 3D Seismic Survey
12. Limbatus 3D Seismic Survey
13. Modiolus 3D Seismic Survey
14. Mollichuta 3D Seismic Survey
15. Moomba Big Lake 3D Seismic Survey
16. Moorari Repro 3D Seismic Survey
Between September and December 2011 Terrex seismic acquired the **Aquillus 3D** for Beach Energy. The survey covers approximately 358km² of the Cooper-Eromanga basin and the Balgowan, Basham, Burners, Stunsail, Kalladein and Pennington fields. The main objective was to mature leads to prospect status within the Jurassic formations.

**Aquillus 3D: Multi-Client Project**

**Aquillus 3D Location Map**

**Aquillus 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Date Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquillus 3D</td>
<td>12th September 2011 to 5th December 2011</td>
</tr>
</tbody>
</table>

**GeoPopulation Database**

<table>
<thead>
<tr>
<th>Total No. of GeoPops</th>
<th>5,087</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Area (km²)</td>
<td>358</td>
</tr>
</tbody>
</table>

**Basin**

Cooper-Eromanga Basin

**Fields**

Balgowan, Basham, Burners, Stunsail, Kalladein, Pennington

**Permits**

PEL 91

**Inlines/ Xlines**

IL=1 to 2157
XL=1 to 996

**Operator**

Beach Energy

**Time Range**

0 to 3000ms

**Contractor**

Terrex Seismic Pty Ltd

**Processing**

Velseis Processing

**State**

South Australia

*Values from 'aquillus_2181_ott ers pm_6m_tir sw_filterd_sgy' volume Seisnetics GeoPopulation database.*
The Callabonna 3D covers approximately 38sq km of the Cooper-Eromanga basin and was acquired by Terrex Seismic processed by WesternGeco in August 2008 for Santos Ltd. The primary aim of the survey was to more accurately define the extent of the Callabonna field for development with high quality 3D seismic data. The seismic interpretation databases will help in more accurately defining subtle structural characteristics of the Callabonna structure, a low relief four-way dip closed anticline, while the fitness and amplitude maps can be used to review and assess the stratigraphic characteristic of the field.

**Callabonna 3D Quick Facts:**

- **Survey:** Callabonna 3D CPSN08D
- **Date Acquired:** 2008
- **GeoPopulation Database:** Total No. of Geops 6319*
- **3D Area (Km²):** 38
- **Basin:** Cooper-Eromanga Basin
- **Fields:** Callabonna
- **Permits:** PPL 176, PEL 104
- **Inlines/Xlines:** IL: 2000-2351
  - XL: 10000-10367
- **Operator:** Santos Ltd
- **Time Range:** 0 to 4.0s
- **Contractors:** Terrex Seismic
  - WesternGeco
- **State:** South Australia

*Values from 'callabonna_2054_final_pstm_monk_sgy' volume database.
The 2010 **Calpurnus 3D** seismic survey covered an area of approximately 213.5 km² of the South West Cooper-Eromanga basin in South Australia. Terrex Seismic were contracted out to acquire the survey and the data was processed by CGGVeritas.

The primary objective of the survey was to mature leads to prospect status. While also contributing to overall understanding of the geological model in the area.
The **Caseolus 3D** covering 587km² of the Cooper-Eromanga basin was acquired by Terrex seismic in 2013 for Beach Energy Ltd. The main objective of the survey was to provide a more comprehensive understanding of this region of the basin. The survey also intended to provide more detail on potential channel sands within the Namur-Hutton sandstones that could be prospective drilling targets.

**Location Map**

![Location Map](image)

**Caseolus 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Date Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caseolus 3D 13CP04</td>
<td>12/02/2013 to 14/06/2013</td>
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</tbody>
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<table>
<thead>
<tr>
<th>GeoPopulation Database*</th>
<th>Total No. of GeoPops</th>
<th>3D Area (km²)</th>
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<tbody>
<tr>
<td>10,493</td>
<td>684</td>
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<table>
<thead>
<tr>
<th>Basin</th>
<th>Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooper Basin</td>
<td>Growler, Spitfire, Burners, Bagowen, Sellicks, Pennington</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permits</th>
<th>Inlines/ Xlines*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL91,92</td>
<td>IL= 5565 to 7931 XL= 5739 to 7054</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operator</th>
<th>Time Range*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beach Energy Ltd</td>
<td>0 to 3998ms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractor</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrex Seismic GeoKinetics</td>
<td>South Australia</td>
</tr>
</tbody>
</table>

*Values from '2213_StkPstm.sgy' volume Seisnetics GeoPopulation database.

**GeoPopulations(Fitness Ribbon): 2.5D and 3D View**

**TWT Attribute Map**

**Amplitude Map**
Charo 3D: Multi-Client Project

The Charo 3D covering approximately 47sq km of the Cooper basin was acquired by Terrex Seismic Pty Ltd for Santos in August 2008. The main aim of the survey was to accurately map and define the Charo field through high quality 3D seismic data. The seismic interpretation databases will help in more accurately defining the subtle Birkhead Santcher channel and potentially reveal other prospective channel sands.

Charo 3D Location Map

Charo 3D Quick Facts:

- **Survey**: Charo 3D M.S.S. 08CP04
- **Date Acquired**: 04/08/2008 to 12/08/2008
- **GeoPopulation Database**: Total No. of GeoPops 7780*
- **3D Area (Km²)**: 47
- **Basin**: Cooper Basin
- **Fields**: Charo, Snatcher
- **Permits**: PPL177, PEL111
- **Inlines/ Xlines**: IL= 2000 to 2383 XL= 10000 to 10435
- **Operator**: Santos Ltd
- **Time Range**: 0 to 4000ms
- **Contractors**: Terrex Seismic Pty Ltd WesternGeco
- **State**: South Australia

*Values from 'charo_2053_final_pstm_monk.sgy' volume database.

GeoPopulations: 2D View

Cadna-Owie Formation Top: TWT Attribute Map

Adori Sst Formation: Fitness Attribute Map

Tel: +61 8 9382 4307; email: info@td.iinet.net.au, Website: www.totaldepth.com.au
The Christies 3D survey was acquired by Trace Energy Services (now known as Terrex Seismic) between the 7th and 10th of October 2003. The survey covered approximately 29km² of the Cooper-Eromanga basin. The primary objective of the survey was to provide detailed structural and stratigraphic data over the Christies field. The Christies field was discovered in June 2003 with the drilling of the Christies-1 well, the main reservoir are the Hutton/Birkhead sandstone units. The survey was also designed to identify any secondary objectives in the Namur Sandstone and the Poolowanna formation.

GeoPopulations: 3D View

TWT Attribute Map with Wells

Amplitude Attribute Map

Tel: +61 8 9382 4307; email: info@td.iinet.net.au, Website: www.totaldepth.com.au
Fly Lake 3D: Multi-Client Project

Between January and August 2000 Santos Ltd recorded five 3D seismic surveys including Fly Lake, Goyder-Miluna, Beckler, Cowralli-Hackett-Tindilpie, Swan Lake and the Cascade 2D seismic survey called the SA 2000 survey.

The Fly Lake 3D survey covers approximately 119 sq km of the Cooper-Eromanga basin and was acquired by Geco Prakla Australia. The survey was recorded to provide 3D seismic coverage of the Fly Lake field and Santos’ petroleum production license 18 (PPL18).
The Harpoono 3D was acquired in 2005 by Stuart Petroleum (now Senex) who contracted out Trace Energy (now known as Terrex) to acquire the 205 square kilometre seismic 3D survey. The acquired data was processed by Velseis Processing Pty Ltd in their Brisbane offices. Over 17,000 GeoPopulations were generated from the Harpoono 3D. The TWT attribute maps clearly define the Dunoon and Murteree high structures, while the fitness and amplitude maps will also provide stratigraphic insights into prospective zones such as in the Murta and Birkhead. Overburden horizons provide key information for shallow hazard studies.

**Location Map**

**Harpoono 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Harpoono 3D</th>
<th>Date Acquired</th>
<th>June to August 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>GeoPopulation Database</td>
<td>Total No. of GeoPops 17272</td>
<td>3D Area (Km²)</td>
<td>205</td>
</tr>
<tr>
<td>Basin</td>
<td>Cooper-Eromanga Basin</td>
<td>Fields</td>
<td>Harpoono</td>
</tr>
<tr>
<td>Permits</td>
<td>PEL 113, PEL94</td>
<td>Inlines/ Xlines</td>
<td>IL: 1-1502 XL: 1-982</td>
</tr>
<tr>
<td>Operator</td>
<td>Stuart Petroleum Pty Ltd (Senex)</td>
<td>Time Range</td>
<td>0 to 3.0s</td>
</tr>
<tr>
<td>Vessel</td>
<td>Terrex Seismic Velseis</td>
<td>State</td>
<td>South Australia</td>
</tr>
</tbody>
</table>

*Values from 'harpoon_1882-3_filtmig.sgy' volume database.

![Harpoono 3D Location Map](image)

**Cadna-Owie Formation Top: TWT Attribute Map**

**GeoPopulations: 2D View**

**Namur Formation Top: Amplitude Attribute Map**

Tel: +61 8 9382 4307; email: info@td.iinet.net.au, Website: www.totaldepth.com.au
Between September and November 2012 Terrex Seismic Pty Ltd acquired the **Irus 3D** covering approximately 587 km² of the Cooper basin for Beach Energy Ltd. The survey was recorded over the exploration permits PEL91, 92 and 106 and was designed to enhance the understanding of the regional framework over this portion of the basin. The secondary objective was to provide high quality 3D seismic coverage of potential leads and prospects in the region.

**Location Map**

**Irus 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Irus 3D</th>
<th>Date Acquired</th>
<th>08/09/2012 to 17/11/2012</th>
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</thead>
<tbody>
<tr>
<td>GeoPopulation</td>
<td>Total No. of GeoPops 14,259</td>
<td>3D Area (Km²)</td>
<td>599</td>
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<tr>
<td>Database*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Basin</td>
<td>Cooper Basin</td>
<td>Fields</td>
<td>Canunda, Raven, Udacha</td>
</tr>
<tr>
<td>Permits</td>
<td>PEL91, PEL92, PEL106</td>
<td>Inlines/ Xlines*</td>
<td>IL= 9972 to 11763 XL= 8785 to 10762</td>
</tr>
<tr>
<td>Operator</td>
<td>Beach Energy Ltd</td>
<td>Time Range*</td>
<td>0 to 3996ms</td>
</tr>
<tr>
<td>Contractor</td>
<td>Terrex Seismic</td>
<td>State</td>
<td>South Australia</td>
</tr>
</tbody>
</table>

*Values from `irus_2209_Final_PSTM_FullFoldStack_COV.sgy` volume database.
Lake Hope 3D: Multi-Client Project

The Lake Hope 3D was collected as part of the 1992 Hume Seismic survey which also included the acquisition of the Dirkala and Gidgealpa 3Ds. The survey was recorded in December 1992 and was the second 3D to be recorded in the area after the Cuttapirrie 3D in 1981. It was designed to provide high density 3D coverage over the existing Lake Hope fields including the Sturt, Sturt East, Tantanna, Taloola and Malgoona and provide further insights in the target structures flanks. The main target intervals ranged from the Top Namur sandstone through to the Merrimelia formation.

Location Map

Lake Hope 3D Quick Facts:

<table>
<thead>
<tr>
<th>Survey</th>
<th>Lake Hope 3D AKA 1992 Hume Seismic Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Acquired</td>
<td>10/11/1992 07/12/1992</td>
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<tr>
<td>GeoPopulation Database*</td>
<td>Total No. of GeoPops 9,912</td>
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<tr>
<td>3D Area (km²)</td>
<td>140</td>
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<tr>
<td>Basin</td>
<td>Cooper-Eromanga Basins</td>
</tr>
<tr>
<td>Fields</td>
<td>Tantanna, Taloola, Sturt, Sturt East, Malgoona</td>
</tr>
<tr>
<td>Permits</td>
<td>PPL63, PPL64, PRL175, PRL176, PEL512</td>
</tr>
<tr>
<td>Inlines/Xlines*</td>
<td>IL= 2 to 656 XL=1 to 613</td>
</tr>
<tr>
<td>Operator</td>
<td>Santos Ltd</td>
</tr>
<tr>
<td>Time Range*</td>
<td>0 to 4000ms</td>
</tr>
<tr>
<td>Contractor</td>
<td>Halliburton Geophysical Services</td>
</tr>
<tr>
<td>State</td>
<td>South Australia</td>
</tr>
</tbody>
</table>

*Values from "LakeHope_FiltMig_4byte.sgy" volume Seisnetics GeoPopulation database.
Senex Energy contracted Terrex Seismic to conduct the Lignum 3D survey which covers approximately 317km² of the western flank of the Patchawarra Trough of the Cooper basin. The main objective of the survey was to identify new drilling targets while maturing existing leads in the exploration and production licenses PEL104, PEL111, PPL230 and PPL243. The main targets were stratigraphic Birkhead formation channel prospects, secondary targets were convention Triassic Tinchoo formation prospects in the north and deep unconventional Patchawarra and Epsilon formation prospects in the south.

**Lignum 3D Quick Facts:**
- **Survey:** Lignum 3D
- **Date Acquired:** November 2012 to January 2013
- **GeoPopulation Database:** Total No. of GeoPops 33,137
- **3D Area (km²):** 317
- **Basin:** Cooper Basin
- **Fields:** Tigercat, Martlet, Mustang, Snatcher
- **Permits:** PEL104, PEL111, PPL230, PPL243
- **Inlines/ Xlines:** IL=1999 to 3260, XL=9999 to 10651
- **Operator:** Senex Energy Ltd
- **Time Range:** 0 to 2996ms
- **Contractor:** Terrex Seismic Pty Ltd
- **State:** South Australia

*Values from 'lignum_2205_5Dint_Final_PSTM_FullFold_Stack.InvQ_padded.sg' volume_Secrnetics_GeoPopulation database.*
Limbatus 3D: Multi-Client Project

Beach Energy contracted Terrex Seismic to acquire the Limbatus 3D within the PEL 91 at the end of 2011. The survey covers approximately 153 km² of the Western Flank oil fairway within the Cooper-Eromanga basin.

The main objectives of the survey was to mature structural and stratigraphic leads and prospects along the Birdsville track ridge within the potential Jurassic reservoir formations.

**Location Map**

![Location Map](image)

**Limbatus 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Date Acquired</th>
<th>6th December 2011 22nd January 2012</th>
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</thead>
<tbody>
<tr>
<td>GeoPopulation Database*</td>
<td>Total No. of GeoPops</td>
<td>20,326</td>
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<tr>
<td>Basin</td>
<td>3D Area (km²)</td>
<td>153</td>
</tr>
<tr>
<td>PEL 91</td>
<td>Fields</td>
<td>N/A</td>
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<td>Time Range*</td>
<td>0 to 3000ms</td>
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<tr>
<td>Contractor</td>
<td>State</td>
<td>South Australia</td>
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</tbody>
</table>

*Values from 'limbatus_2182_ovt_crs_spatm_sft_sw_filtered.sgy' volume Seisnetics GeoPopulation database.
Between May and July 2008 Beach Petroleum Ltd contracted Terrex Seismic services to shoot the Modiolus 3D covering approximately 346 sq km of the Cooper-Eromanga basin. Located approximately 100 kms West of Moomba the main aim of the survey was to evaluate a number of prospects already identified within exploration permits PEL91 and PEL 92, whilst providing a high quality seismic coverage of the Bauer field. The seismic interpretation databases will help in more accurately defining the subtle structural and stratigraphic characteristics of the Bauer field. The fitness and amplitude maps can be used to review and assess the prospective Birkhead channels sands.

**Location Map**

**Modiolus 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Modiolus 3D</th>
<th>Date Acquired</th>
<th>30/05/2008 to 26/07/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>GeoPopulation</td>
<td>Total No. of GeoPops</td>
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</tr>
<tr>
<td>Database</td>
<td>Basin</td>
<td>Cooper Basin</td>
<td></td>
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<tr>
<td></td>
<td>Fields</td>
<td>Amo, Basham, Bauer, Chiton, Kaladema, Hanson, Parona, Sceale, Snellings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Permits</td>
<td>PEL91, PEL92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inlines/ Xlines</td>
<td>IL=1766 to 3993, XL=10255 to 11389</td>
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<tr>
<td></td>
<td>Operator</td>
<td>Beach Petroleum</td>
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<tr>
<td></td>
<td>Time Range</td>
<td>0 to 4000ms</td>
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</tr>
<tr>
<td></td>
<td>Contractor</td>
<td>Terrex Seismic Western Geco</td>
<td>South Australia</td>
</tr>
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</table>

*Values from 'modiolus_2078_2079_final_pstm_monk.sgy' volume database.
The Mollichuta 3D covering 254 sq km of the Cooper basin was acquired by Terrex Seismic and processed by CGG Veritas in 2009. The primary aim of the survey was to more accurately define the extent of Growler oil field for development. The survey was also designed to evaluate the Birkhead Formation for prospective reservoir quality channel sands similar to the Snatcher and Charo reservoirs, including the Wirraway, Warhawk and Tigercat. The seismic interpretation databases will help in more accurately defining subtle structural characteristics of the Growler structure, a low relief four-way dip closed anticline, while the fitness and amplitude maps can be used to review and assess the prospectivity of the Birkhead channel sands through comparison with similar analogues from neighbouring 3D’s.

**Mollichuta 3D Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Mollichuta 3D 09CP02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Acquired</td>
<td>04/03/2009 to 01/03/2009</td>
</tr>
<tr>
<td>GeoPopulation Database</td>
<td>Total No. of GeoPops 32,454*</td>
</tr>
<tr>
<td>Area (Km²)</td>
<td>254</td>
</tr>
<tr>
<td>Basin</td>
<td>Cooper Basin</td>
</tr>
<tr>
<td>Fields</td>
<td>Char, Growler, Martlet, Snatcher, Spits, Tigercat, Warhawk, Wirraway</td>
</tr>
<tr>
<td>Permits</td>
<td>PEL104, PEL111, PRL 15</td>
</tr>
<tr>
<td>Inlines/Xlines</td>
<td>IL= 2003 to 2965</td>
</tr>
<tr>
<td></td>
<td>XL= 10001 to 10897</td>
</tr>
<tr>
<td>Operator</td>
<td>Senex Energy (Formerly known as Victoria Petroleum)</td>
</tr>
<tr>
<td>Time Range</td>
<td>0 to 5098ms</td>
</tr>
<tr>
<td>State</td>
<td>South Australia</td>
</tr>
<tr>
<td>Contractor</td>
<td>Terrex Seismic CGG Veritas</td>
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</tbody>
</table>

*Values from ‘mollichuta_2123_final_pstn_whitening.sgy’ volume database.
In 1997 Santos ran a major seismic acquisition programme in the Cooper-Eromanga basin as operator of PEL 5 and PEL 6. The ‘SA 97 Seismic Survey’ recorded 2,713km² of 2D data and 4 3D seismic surveys including the Toolachee, Pondrinnie, Dullingari Burke and Moomba Big Lake. The Moomba Big Lake 3D covered an area of approximately 806 km², was acquired by Geco-Prakla Australia and processed by Western Geophysical and Digital Exploration. Due to the size, location and significance of the Moomba field the main oil and gas production facility for the Cooper-Eromanga basin is situated in Moomba.

Moomba Big Lake 3D Quick Facts:

- **Survey**: Moomba Big Lake 3D
- **Date Acquired**: 11/05/1997 to 14/07/1997
- **GeoPopulation Database**: Total No. of GeoPops 23,375
- **3D Area (Km²)**: 806
- **Basin**: Cooper Basin
- **Fields**: Big Lake, Kinalie, Moomba, Moomba East, Moomba North, Moomba Northwest, Namur
- **Permits**: PPL8, PPL9, PPL11
- **Inlines/ Xlines**: IL= 2576 to 3919 XL= 3152 to 4448
- **Operator**: Santos Ltd
- **Time Range**: 0 to 2800ma
- **Contractor**: Geco-Prakla (Australia) Pty Ltd
- **State**: South Australia

*Values from ‘SPECW_PSTM.sgy’ volume database.*
Moorari Repro 3D: Multi-Client Project

The Moorari 3D was originally acquired in 1994 by Geco-Prakla, in 2007 the 3D seismic volume was reprocessed by CGG Veritas as part of the acquisition of the Tirrawarra 3D. The reprocessed seismic survey covers approximately 33km² of the Cooper-Eromanga basin and was designed to provide highly detailed coverage of the Moorari field.

**Location Map**

**Moorari 3D Repro Quick Facts:**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Moorari 3D</th>
<th>GeoPopulation Database*</th>
<th>Total No. of GeoPops 8,337</th>
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</thead>
<tbody>
<tr>
<td>Date Acquired</td>
<td>Originally acquired in 1994, Reprocessed in 2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3D Area (km²)</td>
<td>33</td>
<td></td>
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<tr>
<td>Basin</td>
<td>Cooper-Eromanga Basin</td>
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<tr>
<td>Fields</td>
<td>Moorari, Woolkina</td>
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</tr>
<tr>
<td>Permits</td>
<td>PPL 19, PPI 193, PRL 108, PRL 203, PEL 638</td>
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<tr>
<td>Inlines/ Xlines*</td>
<td>IL= 800 to 1231 XL= 1000 to 1463</td>
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<tr>
<td>Operator</td>
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<td></td>
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<tr>
<td>Time Range*</td>
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<tr>
<td>Contractor</td>
<td>Geco-Prakla CGG Veritas Reprocessing</td>
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<tr>
<td>State</td>
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</tr>
</tbody>
</table>

*Values from ‘???’ volume Seisnetics GeoPopulation database.

**Fitness Attribute Map**

**GeoPopulations: 2D View**

**TWT Attribute Map with Wells**