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Santos

13 February 2009

Dr A V Brown
Director of Mines
Department of Infrastructure, Energy and Resources
Mineral Resources Tasmania
PO Box 56
ROSNY PARK TAS 7018

Dear Dr Brown

Re: Exploration Permit T/33P – Seismic Interpretation Report

Santos Offshore Pty Ltd as Operator of Exploration Permit T/33P hereby submits the SOSN06C 2D Seismic Interpretation Report.

If you have any questions please do not hesitate to contact me on 08 8116 7866

Kind Regards

Paul Strong
Exploration Manager, Eastern Australia

Cc: S Ingarfield - Mitsui E& P Australia Pty Ltd
S Katori – Inpex Alpha Ltd

Santos

Seismic Interpretation Report

Exploration Permit T/33P

SOSN06C 2D Seismic Survey

February 2009

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Introduction

The SOSN06C 2D Seismic Survey was acquired by Santos in 2006 as part of the work commitment for permit year four. Acquisition was completed in June 2006, using the Pacific Titan vessel. Processing was undertaken by Fugro Seismic Imaging Pty Ltd and was completed in October 2006.

The SOSN06C 2D seismic survey consisted of 19 lines, totalling 500.25 km of 2D seismic, over the T/33P exploration permit (Figure 1 & 2).

Permit History

Exploration Permit T/33P in the Sorell Basin was awarded to Santos Ltd and Inpex Alpha Ltd on 22 August 2002 for an initial term of 6 years (Figure 1).

The permit is assessed to contain 77 whole or part graticular blocks covering an area of approximately 4978 km^2 (GDA).

On 14 February 2006 Mittwell Energy Resources P/L acquired a 25% share of the Santos Ltd interest. Santos now holds 55% interest. On 31 July 2007 formal notification was received that Mittwell Energy Resources Pty Ltd has completed assignment of its 25% interests in the T/32P Joint Venture to Mitsui E&P Australia Pty Ltd.

Santos Ltd is Operator of the Permit. The current interest holders in the permit are:

Company	**Percentage Interest**
Santos Offshore Pty Ltd	55%
Mitsui E&P Australia Pty Ltd	25%
Inpex Alpha Ltd	20%

The work program for the primary commitment (Years 1 to 3) and the secondary contingent term (Years 4 to 6) is set out in the following table:

PERMIT YEAR (Commencing)	PRIMARY WORK PROGRAM	INDICATIVE EXPENDITURE
One *(22 August 2002)*	500km 2D seismic survey Geological and Geophysical Studies Acquisition of multiclient uplift and remaining client data	$1,900,000
Two *(22 August 2003)*	Geological and Geophysical Studies	$500,000
Three *(22 August 2004)*	Geological and Geophysical Studies	$500,000
	TOTAL FIRM PROGRAM	$2,900,000

PERMIT YEAR (Commencing)	SECONDARY WORK PROGRAM	INDICATIVE EXPENDITURE
Four *(22 August 2005)*	500km of 2D seismic acquisition Geological and Geophysical Studies	$1,438,000
Five *(22 August 2006)*	Geological and Geophysical Studies	$500,000
Five *(18 August 2007)*	One well Geological and Geophysical Studies	$17,000,000
	TOTAL SECONDARY PROGRAM	$18,938,000

Exploration History

Described below are the results of the offshore wells closest to the T/33P exploration permit. Well completion reports issued by the Operator and the updated interpretation of seismic data provide the primary source of information for detailing the exploration history. The Jarver 1 well was drilled in Permit T/33P in Permit Year 6, and was plugged and abandoned with no shows.

Prawn-A1 (Esso, 1967). Intersected 712m of Waarre Formation equivalent. Measured porosities in the sandstone exceeded 20% with permeabilities up to 235 mD.

Clam-1 (Esso, 1969). Tested structural closure of the basal Tertiary and updip pinchout of Cretaceous sediments against the Clam High. Good reservoir sandstones with porosities up to 20% were intersected. Clam-1 reached a depth of only 1592m, intersecting Devonian conglomerates on Pre-Cambrian metamorphic basement. The penetrated sedimentary section is immature for hydrocarbon generation.

Whelk-1 (Esso, 1970). Drilled an anticlinal closure 120 km north of Clam in the southern Otway Basin to test anticipated Waarre Formation sandstones with good reservoir characteristics. Although 94m of Waarre Sandstone was intersected, top seal (Belfast Mudstone) lithologies were not developed.

Thylacine-1 (Origin, 2001). Successfully tested a mapped Waarre Formation closure, with associated amplitude anomaly. It encountered gas within the Thylacine/Flaxman/Waarre section.

Geographe-1 (Origin, 2001). This well was a successful test of a mapped Waarre Formation closure, with associated amplitude anomaly. It encountered gas within the Thylacine/Flaxman/Waarre section.

Geographe North-1 (Origin, 2001). This well drilled as a follow-up test of Geographe-1 was a dry hole (no full stack amplitude anomaly).

Thylacine-2 (Origin, 2001). This well was an appraisal to follow up success at Thylacine-1.

Cape Sorell-1 (Amoco, 1982). Planned to test a mapped Waarre closure however the section penetrated proved much younger in age and the well reached total depth at 3528m in Maastrichtian-aged sediments. Weak oil shows were reported near the base of the well.

Jarver-1 (Santos, 2008). Drilled an anticlinal closure at Thylacine Member level, which exhibited elevated seismic amplitude roughly conformable to the area of the closure. Secondary target was the Paaratte Fm sandstones, which also exhibited elevated seismic amplitudes at this location, however these did not conform to structural closure. No hydrocarbons were intersected in the borehole, with only minor fluorescence observed in the Paaratte Fm. Anomalously low bottom hole temperatures were recorded in the well, which indicate a heat flow significantly lower than the surrounding wells. Jarver-1 is interpreted to have failed due to a lack of charge, either through absence of source material, immaturity of source (if present), or by charge occurring prior to formation of the Jarver structure.

Geology and Hydrocarbon Prospectivity

The Sorell Basin formed during oblique rifting between the Australian and Antarctic continents in the Late Cretaceous and is considered to be a southern extension of the Otway Basin. While relatively open ocean conditions existed to the north and west in the Otway Basin, a restricted marine embayment was formed in the Sorell region, bounded to the southeast by a land-bridge between the two continents, which did not separate until the Eocene.

Late Cretaceous reservoir sandstones, belonging to the Waarre Formation, Flaxman Formation and Thylacine Sandstone Member, form the main productive zones within Otway Basin fields such as Casino (Santos-operated), Minerva, La Bella, Thylacine and Geographe, located north of the deep water acreage trend. These sandstones exhibit excellent reservoir quality with average log porosity in the range of 15-28% and permeabilities of up to 8 Darcies.

These sandstones are mapped extending southwards into Santos' deepwater permits. Deposition of coarse-grained siliciclastics in the Turonian-Santonian is associated with periodic fluvio-deltaic pulses into an overall upwards-deepening/fining section (Belfast Mudstone), providing an effective reservoir-seal couplet. Regional regression in the Campanian led to renewed coarse-grained, fluvio-deltaic input to the basin as the Paaratte and Timboon sandstones. Potential sealing sequences of the Skull Creek and Timboon mudstones and the Massacre Shale are observed to thicken into the basin. Mild structural inversion in the latest Cretaceous was followed by rapid subsidence and transgression resulting in retrogradation of the deltaic systems and deposition of the Wangerrip Group in the Palaeogene. Eventually the marginal sedimentary systems were drowned and, in association with the opening of the seaway in the late Eocene and subsequent formation of the Circum-Antarctic current, deposition came to be dominated by cool-water carbonates that persist to present day.

Nine offshore discoveries have been made in the Otway Basin to date proving in excess of 1.6 TCF recoverable gas. These discoveries have been full to spill, with liquids content increasing generally from north to south. Hydrocarbon charge in the basin is considered to come from Albian-aged, Eumeralla Formation source rocks.

Discussion of Seismic Record Quality

Most of the SOSN06C seismic data is of good quality, with relatively high signal:noise and most faults clearly imaged.

Unfortunately, one line (SOSN06C-17) in the south-east of the permit was inadvertently recorded obliquely between a seafloor canyon and a deeper Tertiary canyon with possible volcanic fill (Figure 9). This resulted in poor imaging due to the out-of-plane reflections, rapid lateral velocity contrasts and signal attenuation from the Tertiary canyon fill. Other seismic lines show deterioration of data locally under the Tertiary canyon, but SOSN06C-17 is affected by the two canyons for about half of its length.

Depth sections were also created as part of the processing sequence by depth-stretching the TWT stack sections using the stacking velocities. An example of their use is to give an image of the seismic with the exaggerated TWT dip on the seafloor corrected by the depth-stretch.

The SOSN06C seismic data is better quality than the SS02 and DS01 seismic data, due to better imaging of faults, improved continuity of events and higher frequency content (Figure 6).

Seismic Mapping

Area and Data Mapped

The new SOSN06C seismic data infilled the existing (Fugro) multi-client DS01 and Santos-acquired SS02 data. This SOSN06C data was spread across the permit, covering two prospects already identified, namely the Jarver Prospect and Taylor Prospect. The new data was incorporated into the existing interpretation.

Interpretation Methodology

Geoframe IESX was used in the structural interpretation of this seismic data. Well synthetics were created in Geoframe for the Thylacine, Geographe, Prawn, Whelk and Clam (Figure 4) wells, and the correlations taken into T/33P using the DS01 multi-client and older regional seismic lines. Less continuous seismic events such as the Thylacine were interpreted by bracketing/constraining the formation with more consistent chronostratigraphic horizons such as the Belfast and Waarre sequence boundaries (K90 & K77) and using the typical character of the formation (eg. Thylacine deposited on an unconformity). Although Jarver 1 was drilled after interpretation of the SOSN06C seismic data, a synthetic has been created for this well (Figure 5).

Seismic interpretation was undertaken using the all-offset pre-stack time migrated volumes. The new SOSN06C data was interpreted in conjunction with the multi-client DS01 data, the Santos-acquired SS02 data and various other regional lines required to tie the seismic to the wells.

Palynological analysis of samples from Jarver 1 indicated that some of the regionally-correlated horizons were incorrect, which is not surprising given the large distance for correlation of the deeper horizons (eg. nearest Thylacine Member pick is at Thylacine Field, ~200km to the north). For example, the horizon interpreted as Top Belfast was in fact Top Skull Creek, and the event mapped as the Base Tertiary Unconformity (T1) was shown by palynology to be T5 (Massacre Shale) in age. The event interpreted as Thylacine Member was correct, although the pre-drill depth prognosis was out by ~200m. A checkshot acquired as part of the well evaluation showed that anomalously slow velocities in the shallow section resulted in all horizons coming in significantly high to prognosis, however post-drill depth mapping suggests structural closure was still valid.

Horizons Interpreted

Key horizons interpreted include the water bottom (WB), top Wangerrip Group (T20), base Tertiary (T1/T5), top Belfast/Skull Creek, top Thylacine and Basement. Other horizons such as the top Otway group have been mapped locally, but are hard to correlate on a regional basis. As the Thylacine Member appears to onlap in some parts of the permit, an event in the lower Skull Creek / Belfast was also mapped as a moderately-conformable event two cycles above the Thylacine Member, to give a permit-scale form map at this level.

Depth Conversion

Depth conversion was undertaken in Petrosys using several different techniques, including constant interval velocities over the WB-T20, T20-K90 and K90-K84LS intervals; interval velocities extracted from the stacking velocities; and average velocities extracted from stacking velocities. The last method was used to calibrate the post-well depth structure maps.

Structure Maps Prepared

Structure maps prepared include the water bottom, T1/T5, Basal Skull Creek and Top Thylacine depth maps (Enclosures 1-4).

Play Types

The play types targeted in this permit are largely Cretaceous in age, with late-Cretaceous reservoirs (Thylacine/Flaxmans/Waarre equivalent) and top seals (Skull Creek, Belfast or intra-formational shales), with hydrocarbons sourced from the Eumeralla or Waarre coals, within faulted structural traps. These plays have been proven in the Otway Basin fields to the north.

A shallower play targeting the Paaratte Formation reservoirs has also been identified in this region. Although gas has been intersected in Paaratte reservoirs in some of the wells to the north, as yet no commercial accumulation has been discovered in this formation.

Leads and Prospects

The Jarver Prospect (Figure 7) was identified as a lead during gazettal evaluation on the multi-client DS01 seismic data. The SS02 seismic infill was designed to further delineate this lead and the SOSN06C seismic was designed to mature this to drill-ready status. Jarver was an amplitude-driven structural play, targeting Thylacine equivalent reservoirs within a four-way dip closure. Secondary reservoir targets were thought to be within the shallower Paaratte Formation. Both Thylacine and Paaratte targets have amplitude within a four-way dip closure, with an additional stratigraphic extension for the Paaratte Formation. The Jarver-1 well was drilled in 2008. Minor fluorescence was observed in the basal Paaratte Formation, but no shows were intersected. The failure of the well is thought to be caused by either lack of charge (interpreted Eumeralla section nearby may not be source material), or charge timing predating structure (bottom hole temperature is anomalously low at current day, but analysis of samples indicates temperature to have been higher in past). The amplitude observed on the seismic at the Paaratte level is related to cemented streaks (an acknowledge risk pre-drill), while the amplitude at Thylacine level is related to a small event above the Thylacine (which has an acoustic impedance contrast), which tunes with the Thylacine event near the crest of the structure due to thinning.

The Taylor Prospect (Figure 8) in the north of the permit also targets the Thylacine-equivalent reservoir, with a robust 4-way dip closure. This has an amplitude anomaly within the anticlinal closure, but the structure is heavily faulted and the amplitude is not consistent and uniform across the structure. Following the failure at Jarver-1, Taylor is now considered significantly higher risk and unattractive as a drill candidate.

Conclusions

The SOSN06C seismic data is better quality than the DS01 and SS02 seismic data. The main difference is higher frequency content, better imaging and reduced noise in the SOSN06C data.

Interpretation of the SOSN06C seismic data and incorporation into the regional grid led to the maturation of the Jarver Prospect, which was drilled as Jarver-1 in 2008.

The failure of the Jarver-1 well has increased the risk on the Taylor Prospect, to the point where the prospect is no longer an attractive drill target.

Figures

Permit Location Map

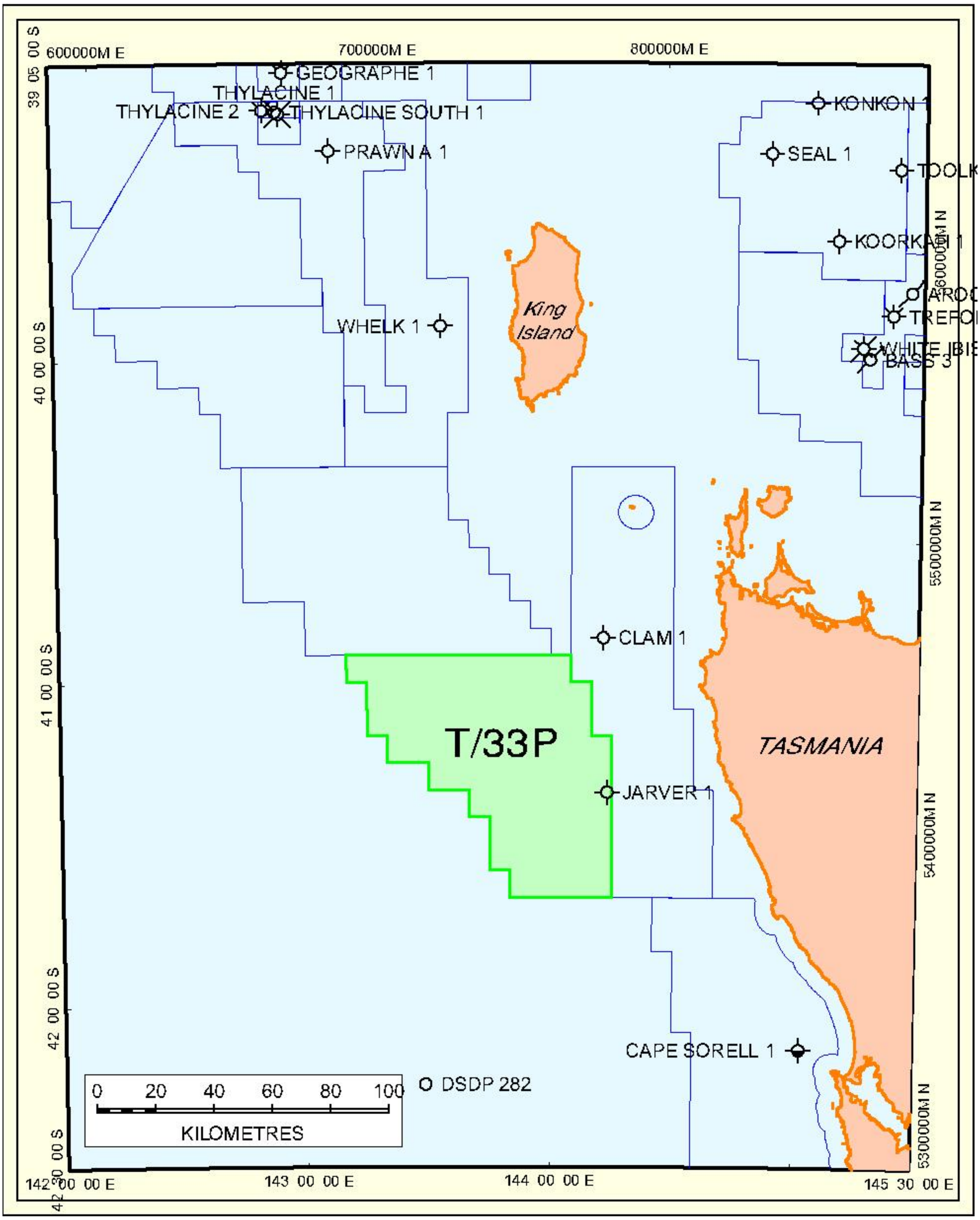

Figure 1. Permit T/33P Location Map

Data Location Map

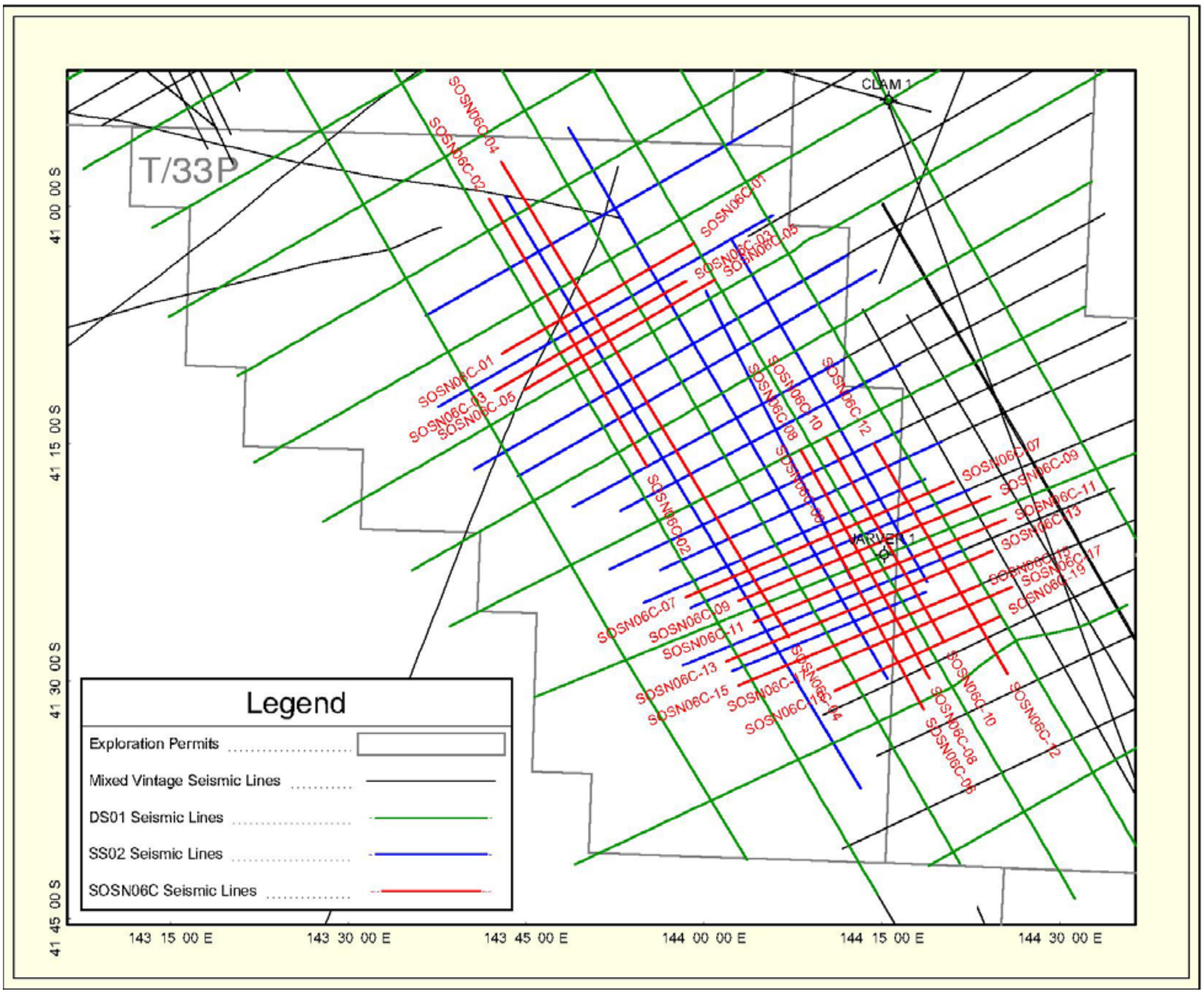

Figure 2. Seismic Line Location Map

Stratigraphic Chart

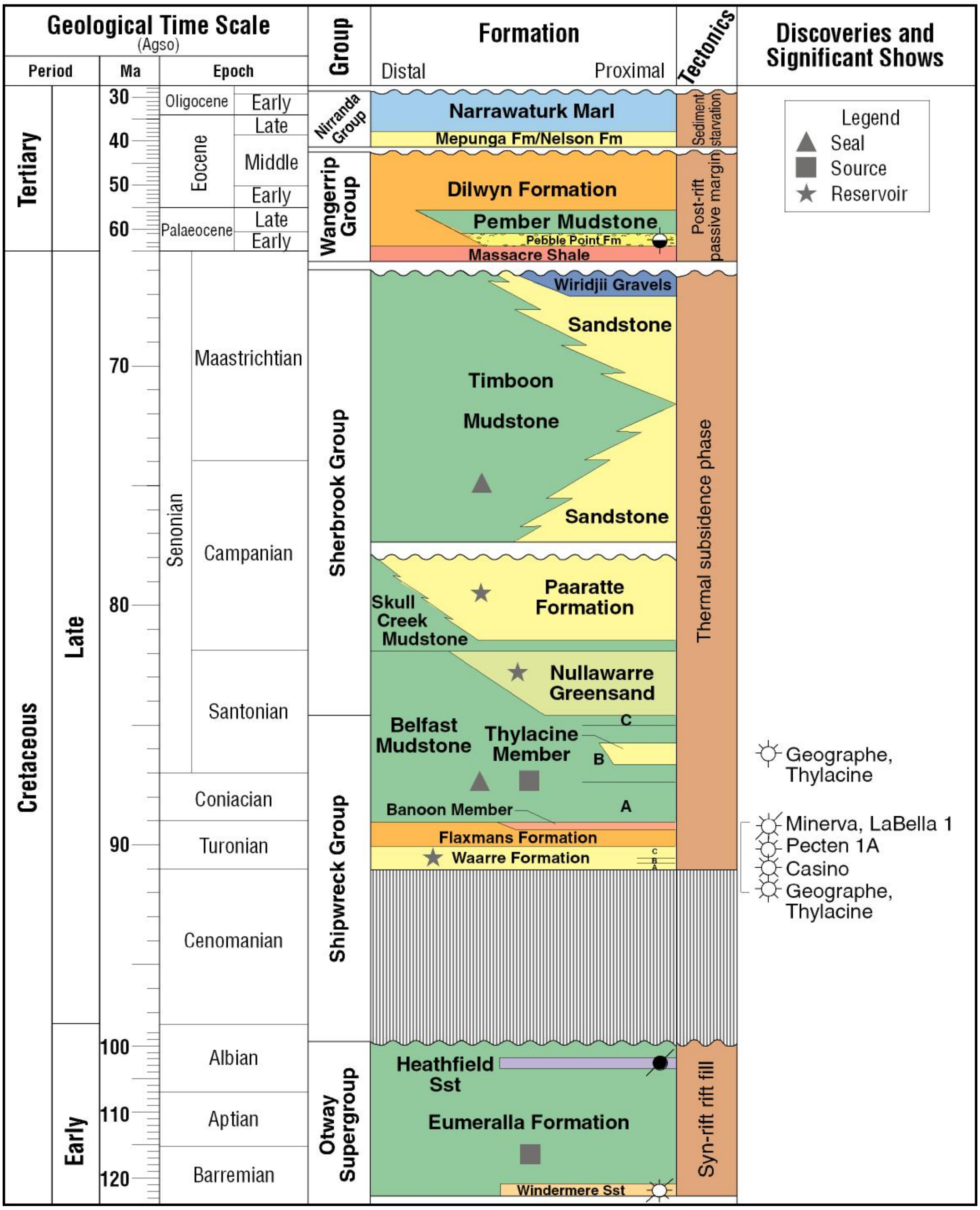

Figure 3. Stratigraphic Chart

Synthetic Seismograms

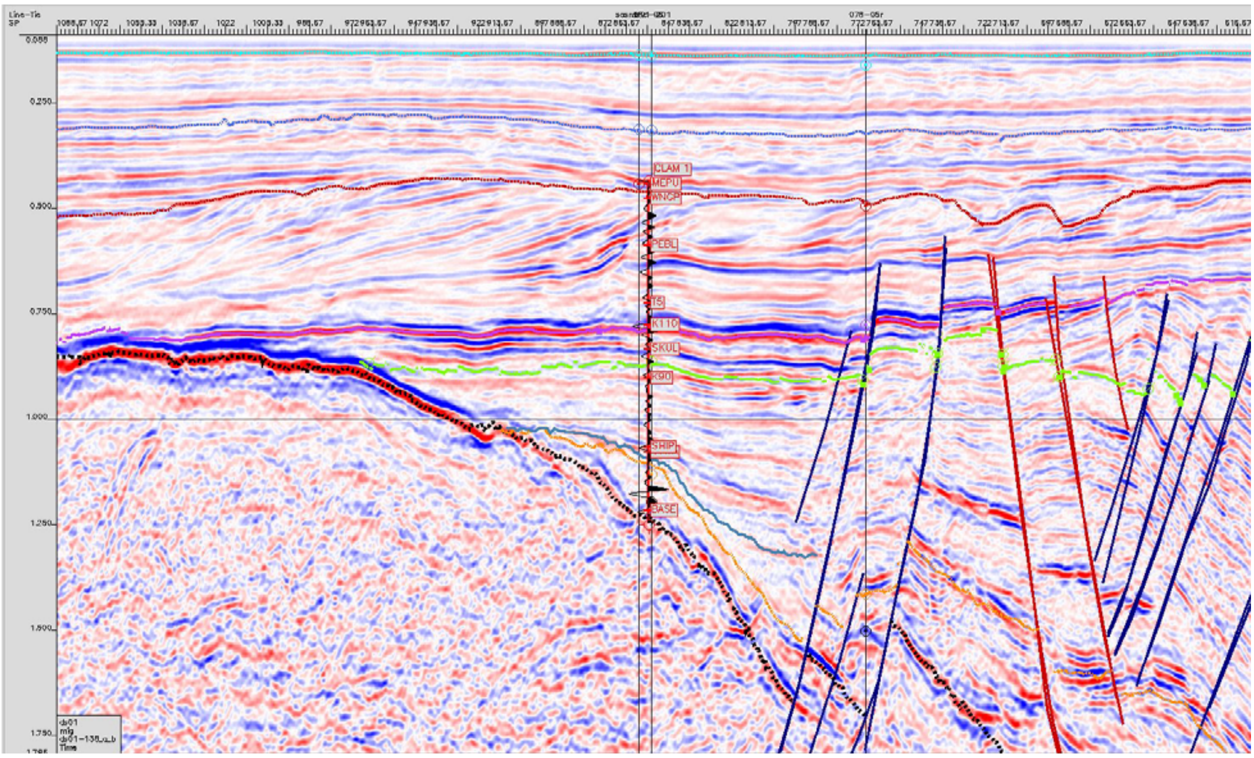

Figure 4. Synthetic seismogram at Clam 1.

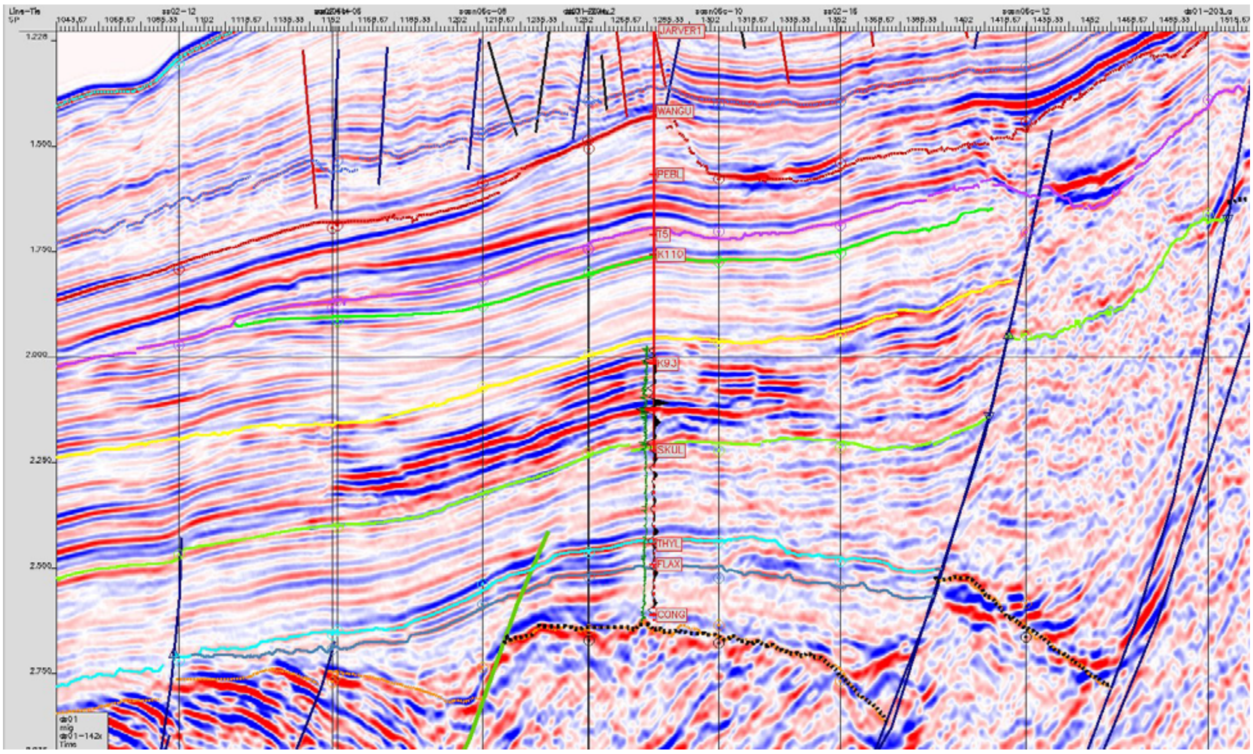

Figure 5. Synthetic seismogram at Jarver 1.

Data Quality Comparison

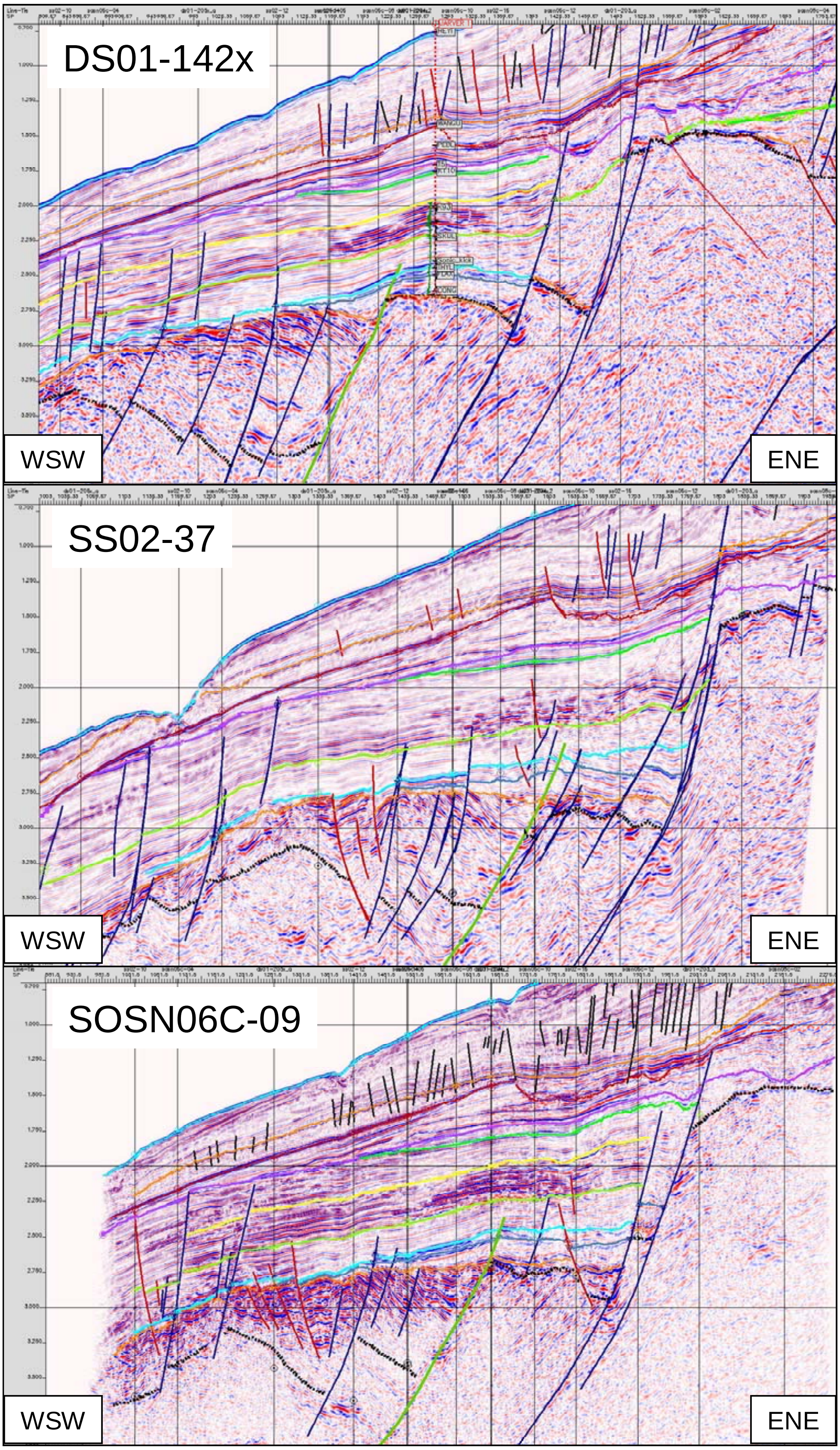

Figure 6. Seismic data quality comparison between DS01, SS02 and SIOSN06C surveys.

Interpreted Seismic Sections

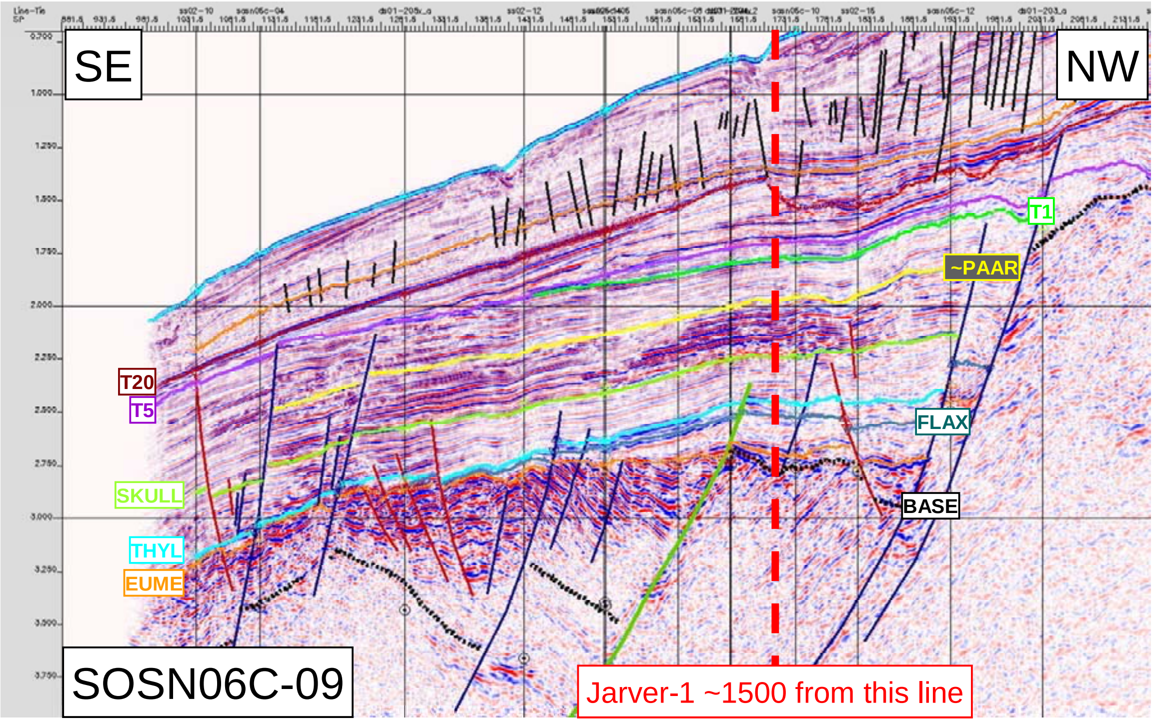

Figure 7. Seismic TWT section (line SOSN06C-09) adjacent to the Jarver-1 well showing the amplitude anomaly at both Thylacine and Paaratte levels, as well as the truncation beneath the Skull Creek/Belfast.

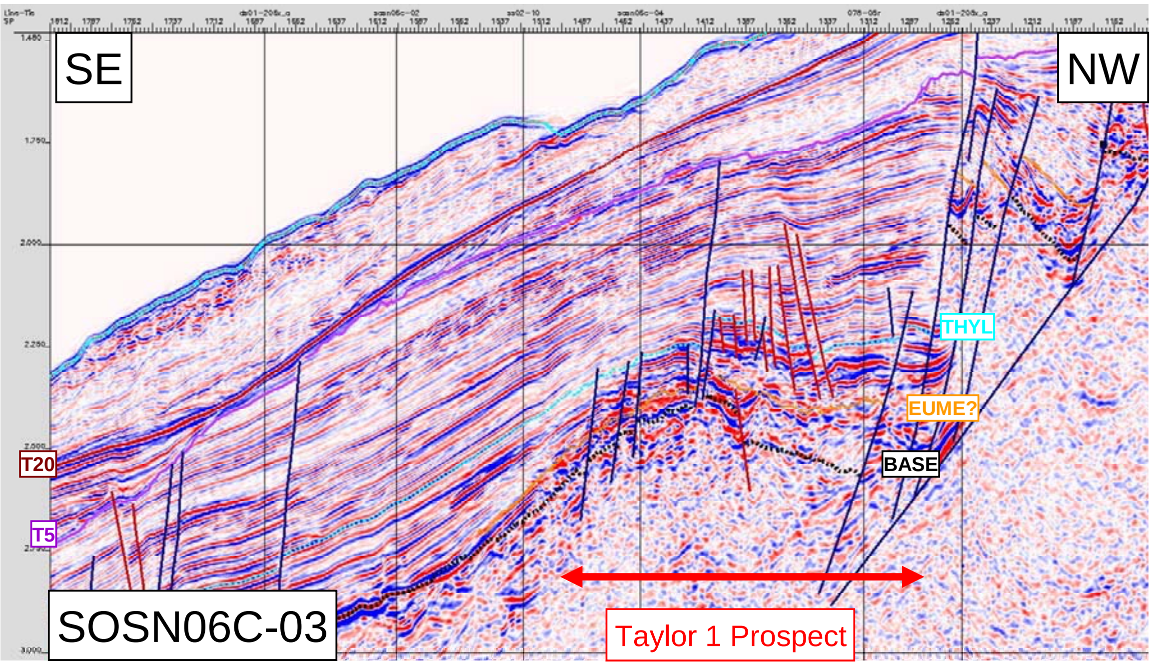

Figure 8. Seismic TWT section (line SOSN06C-03) through the Taylor Prospect, showing high amplitudes in the Thylacine Mbr equivalent, with very heavy faulting.

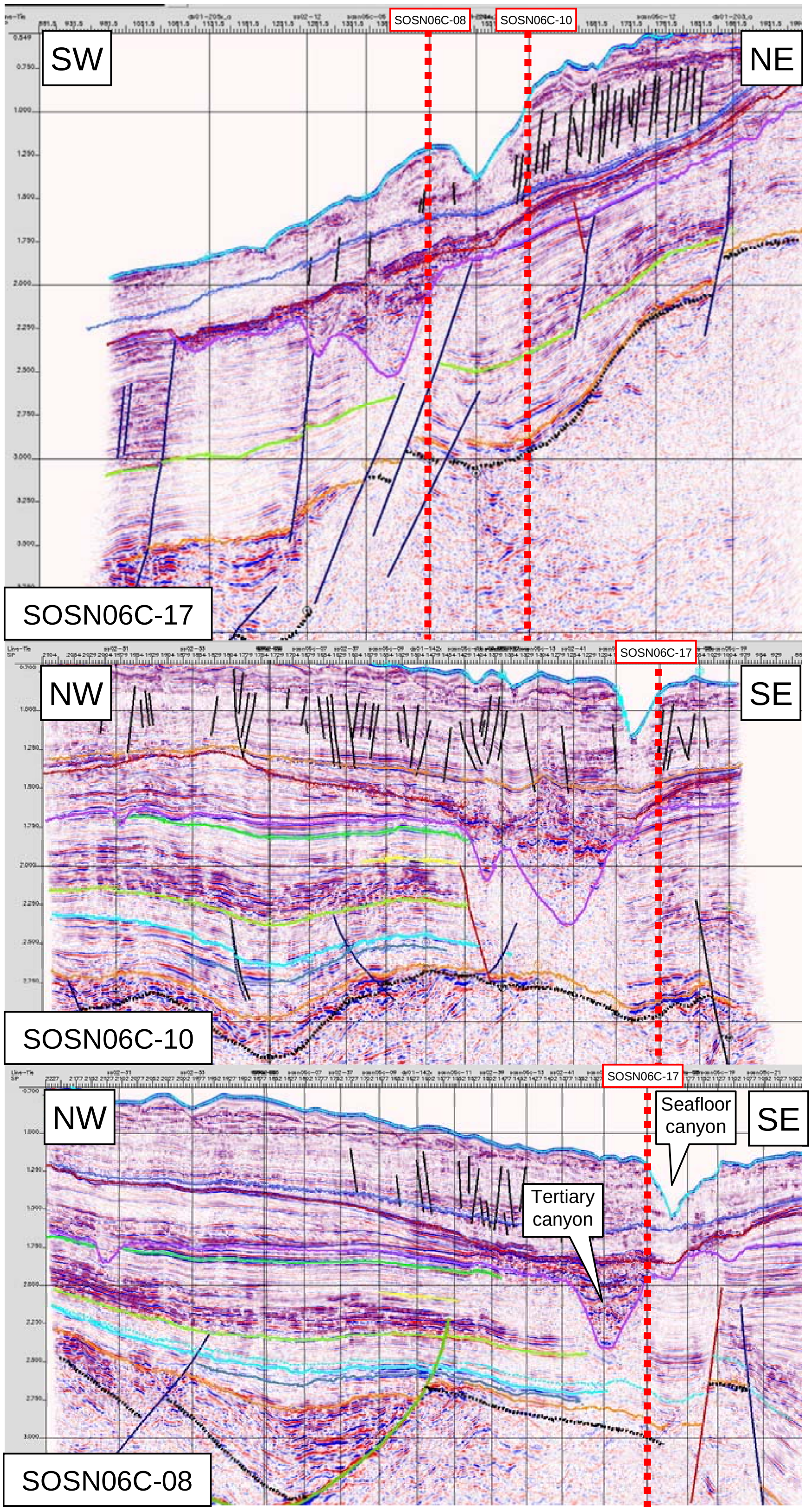

Figure 9. Poor data quality on line SOSN06C-17. Intersecting lines SOSN06C-08 and SOSN06C-10 show both surface and Tertiary canyons clearly.

Enclosures - Maps of Key Horizons

Enclosure 1. Water bottom depth structure map

Enclosure 2. Base Tertiary Unconformity depth structure map

Enclosure 3. Near Base Skull Creek Depth Map

Enclosure 4. Top Thylacine depth structure map (Jarver area)