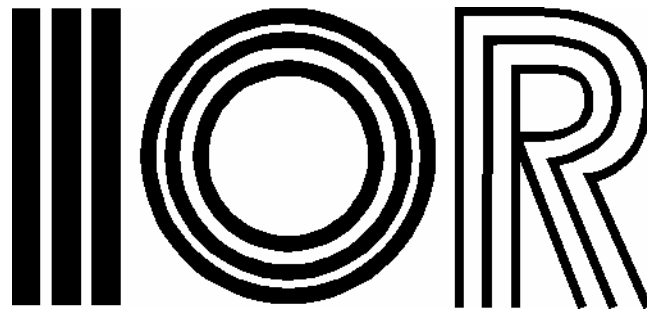


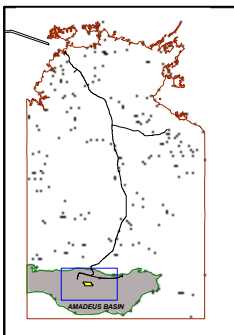
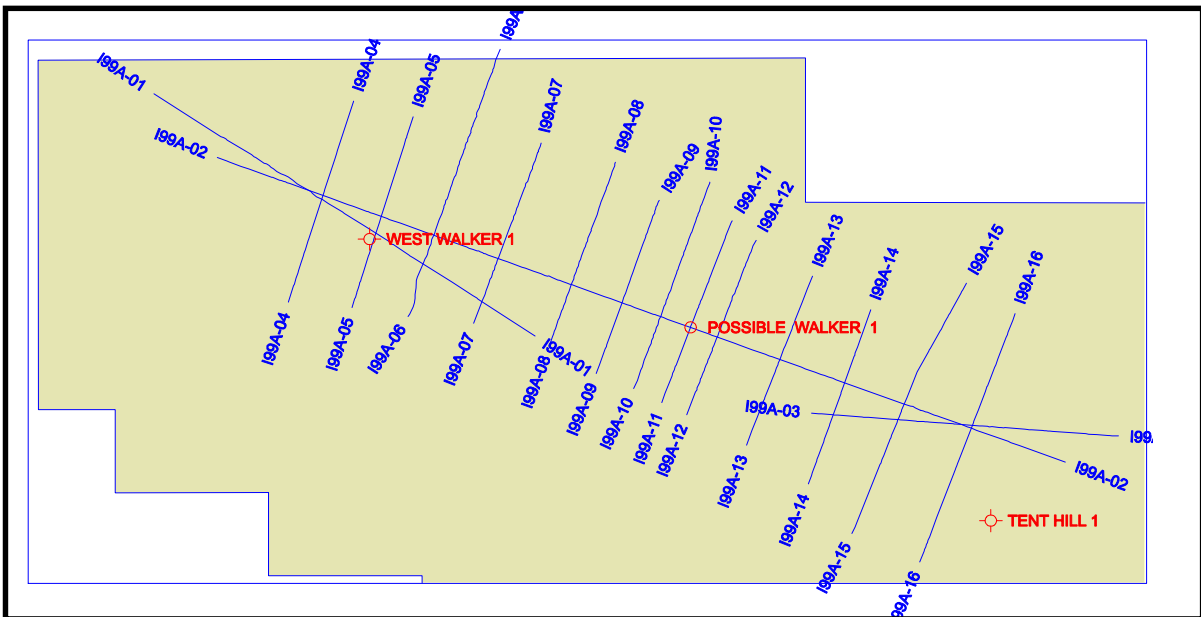
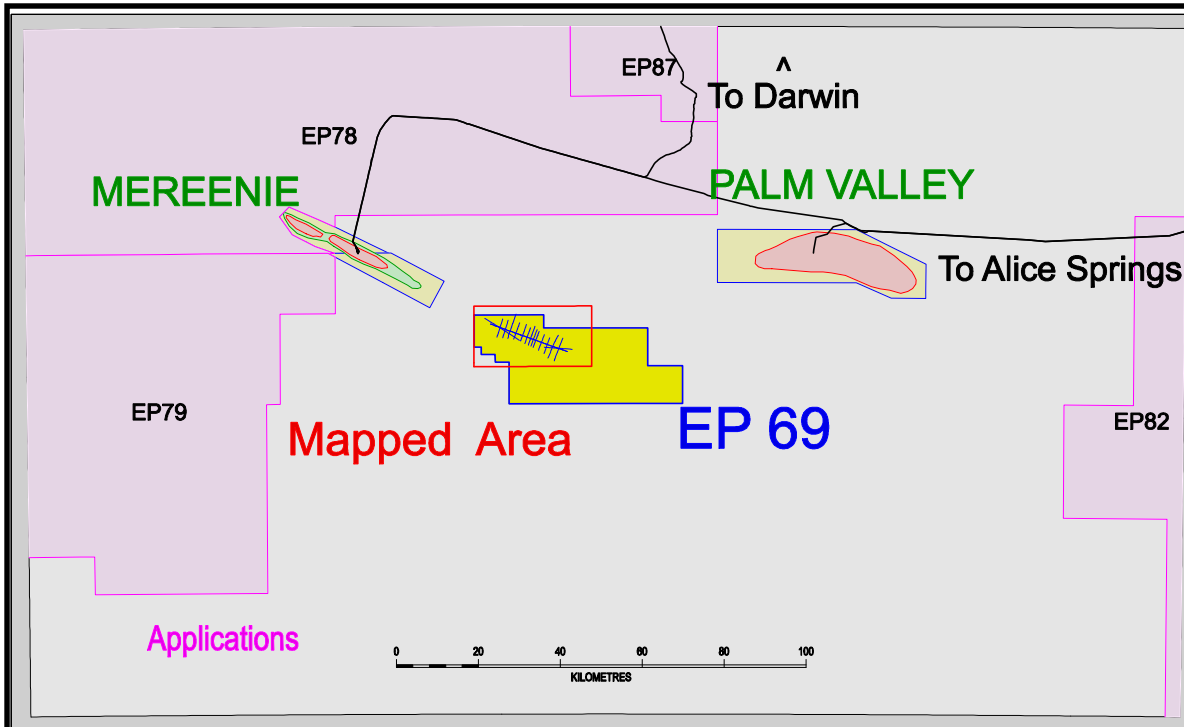
**EP 69  
1999 WEST WALKER 2D SEISMIC SURVEY  
AMADEUS BASIN**

**INTERPRETATION REPORT**



**IOR Energy Pty Ltd.  
by  
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GeoSolve Pty Ltd  
August 2005**





**Figure 1** Location Map EP 69 Amadeus Basin Northern Territory

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## **ENCLOSURES**

Enclosure 1 Pacoota TWT Map  
Enclosure 2 Surface Elevation  
Enclosure 3 Regional Geology

This report & Enclosure also submitted as PDF files  
Additionally Stacking velocities used for PSDM are submitted as digital files  
Observers Logs are included on CD in PDF format

## **Introduction**

IOR Energy as operator of the EP 69 conducted a seismic survey consisting of 99km of 2D Vibroseis Data in February-March 1999. The aim of the survey was to provide modern seismic coverage over the West Walker gas discovery to

- 1) Understand the trapping mechanism
- 2) Identify an appraisal location

GeoSolve was contracted by IOR in 2001 to map the seismic data. This report published in 2005 is a summary of that work. There has been no new work done since that time

A Report on Field Acquisition was lodged by IOR in 1999 PR1999-0066 ( J Allen Author)

A Report on the Processing was lodged by IOR in 1999 PR1999-0072 ( Robertson Research Australia)

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## **Conclusions**

A small fault has been identified as the most likely updip limit of the gas found at West Walker 1. However uncertainty about the size of the accumulation remains Following economic evaluation of the potential gas field and the associated risks it was decided not to proceed with drilling of Walker 1. The permit was subsequently relinquished.

## Previous Exploration in EP69

### Previous Seismic surveys

Year	Survey	Source	GI	Fold	Operator.	Permit
1965	West Walker	Dynamite ?	?	Single?	Magellan	OP 43
1982	Walker Creek	Vibroseis	?	12?	Pan Con	OP175
1999	West Walker	Vibroseis	20m	30	IOR	EP69

The 1965 data was not sighted.

### Wells within EP69

West Walker 1      Drilled 1982 Pancontinental P/L Suspended Gas Well  
Gas Flow Pacoota Sandstone up to 600MSCFD DST6

Tent Hill 1      Drilled 1983 Pancontinental Petroleum P/L P&A  
Fluorescence in Horn Valley Siltstone

## DATA SET

Only the 1999 seismic data were available in SEGY format. These data replaced the earlier data and were considered sufficient for mapping purposes. PSDM processed data were also available.

LAS files for both West Walker and Tent Hill were available and synthetics were generated for these wells.

Formation tops were taken from the WCRs for these wells.

## HORIZONS PICKED

A synthetic was generated at West Walker 1 and tied. Check-shot data were used and the well tie was considered adequate for interpretation purposes.

Formation	Pick	Map	Comment
Stairway	Trough	No	
Pacoota	Peak	Yes	Reservoir Zone WW 1
Goyder	Peak	No	
Pre-Cambrian	Peak	No	Basement

## MISTIES

The Walker Creek data set provided comprehensive coverage of the mapped area. Misties between the single strike line and dip lines were small even after migration as the strike line was near crestal. The Dip lines were honoured in these cases.

## **INTERPRETATION RESULTS**

### ***Regional Setting***

EP 69 539 is situated in the Northern Amadeus Basin some 200km west of Alice Springs. It is immediately adjacent to the Mereenie Oil & Gas Field . The prominent anticlinal features can be seen in outcrop and provided the earliest exploration targets in the basin.

### ***Petroleum System***

In EP 69 the Ordovician aged Horn Valley Siltstone is considered the most likely source rock for the primary target, the Pacoota Sandstone . This sand is productive at Mereenie and West Walker. The Stairway is considered a secondary target.

### ***Mapping Results***

The West Walker 1 well was drilled to drill a seismically defined anticline on trend to the Mereenie Oil & Gas Field. The well encountered significant gas shows in the Upper Pacoota Sandstone (P1) and was flared at the surface during air drilling at 1413 metres and later during DST 6. Other minor zones in the basal Stairway and Pacoota (P2 & P3) were identified. The Tent Hill 1 well did not encounter gas in the Pacoota leading to speculation that there was some kind of trapping mechanism between the wells.

At the time of drilling West Walker 1 a small closure was mapped immediately around the well . West Walker was mapped to be on a separate structure to Tent Hill based on surface mapping as the available seismic provided inadequate coverage.

The IOR West Walker seismic survey was designed to completely replace the existing coverage and enable

- 1) Identification trapping mechanism for a larger gas accumulation
- 2) Identify suitable location to test this theory

The key line in the interpretation is I99A-02 a near crestal strike line between the West Walker 1 and Tent Hill 1 structures. There is a clear break around SP 670 at the Pacoota level. The nearest dip lines I99A-11 and 12 show several faults that could be correlated with the fault in Line 2 but the mapping cannot be resolved with 2D data.

It is important to note that the fault cannot be seen on the PSDM data. However the fault has been retained in the mapping to provide an upper limit on the potential gas trapping mechanism. A review of the PSDM interval velocities along this line do not show any suspicious trends.

### **Reserve Estimates**

Note: These numbers are deterministic only. Three cases are provided .

- 1)A small structural closure around the West Walker 1 well ;
- 2)Pay sands seen at West Walker 1 are as trapped by fault seen on Line 02
- 3)West Walker is at is just below GWC of larger trap provided by fault on Line 2 thus san

		CASE 1	CASE 2	CASE 3
Area		3.3	8.3	11.3
Height		6	12	30
BRV	MM M <sup>3</sup>	20	100	339
POR		0.05	0.07	0.09
SG		0.6	0.7	0.8
1/Bg		130	140	150
Factor		35.314	35.314	35.314
OGIP	BCF	3	24	129
RF		0.6	0.72	0.8
RESERVES	BCF	2	17	103

#### Assumptions

Thin sand model , no geometric factor, sand present over entire mapped area

12m net pay

1/Bg Estimate only

Mereenie average porosity 8%



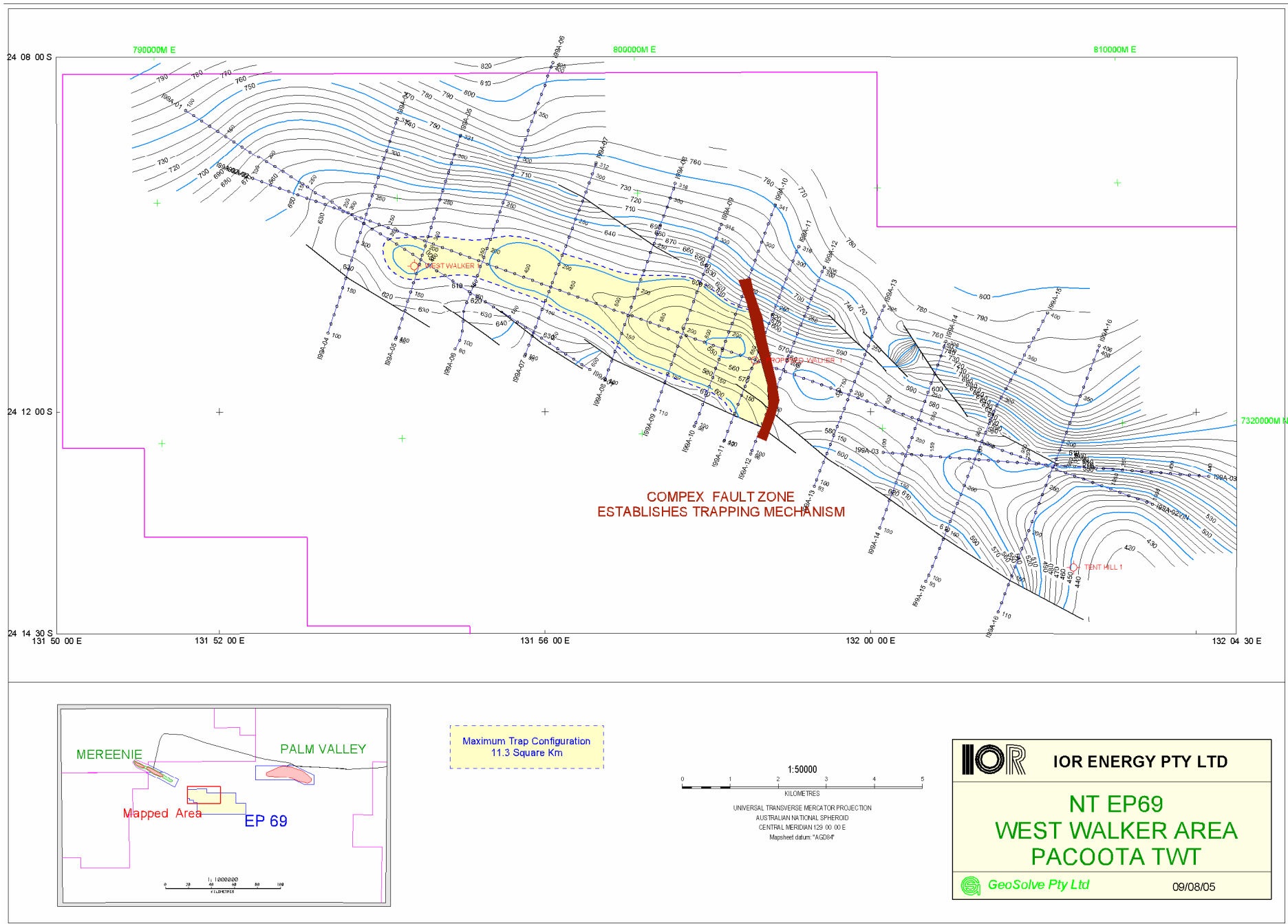


Fig 2 Pacoota TWT Map showing potential gas accumulation up-dip of West Walker 1







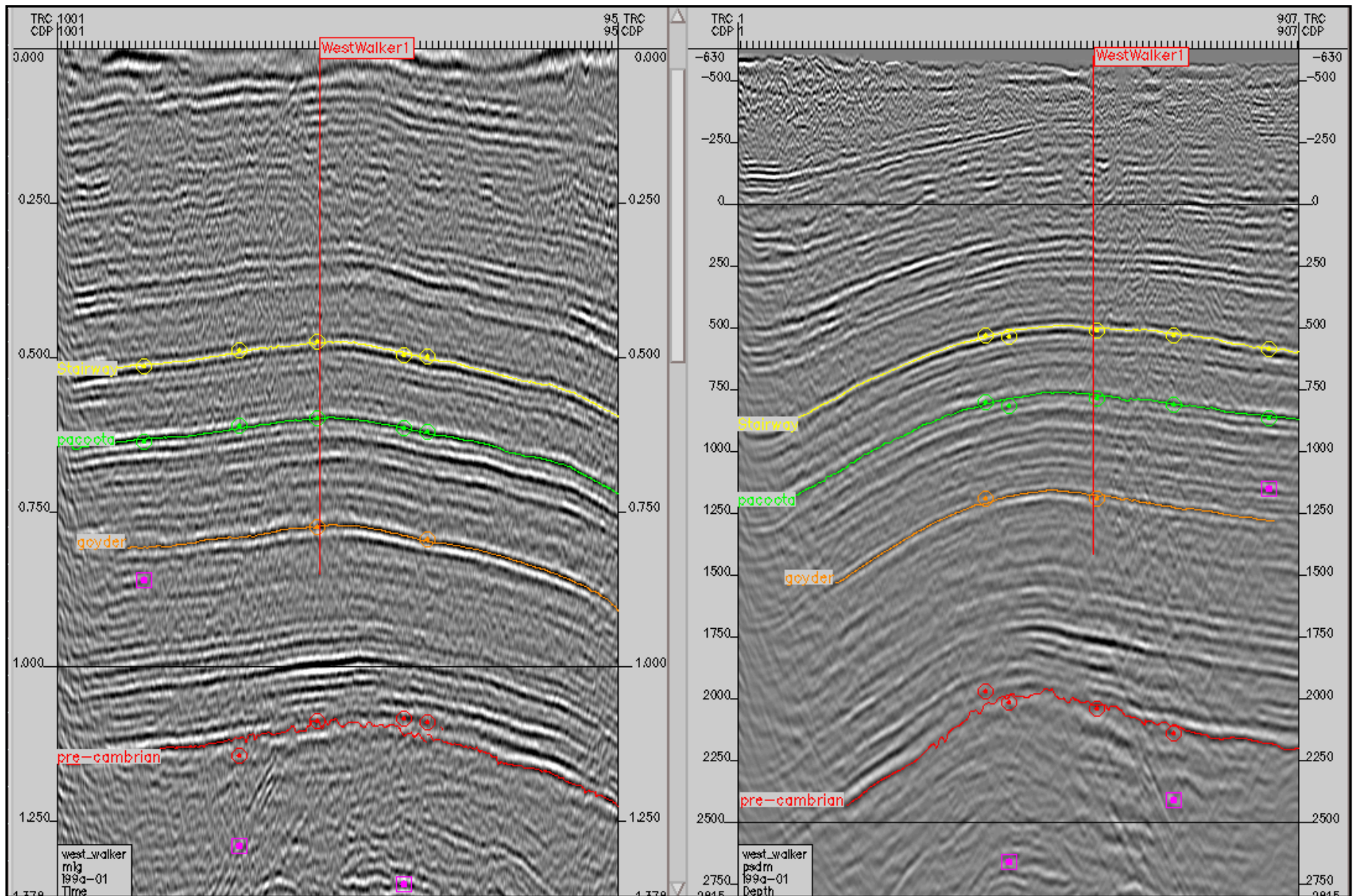
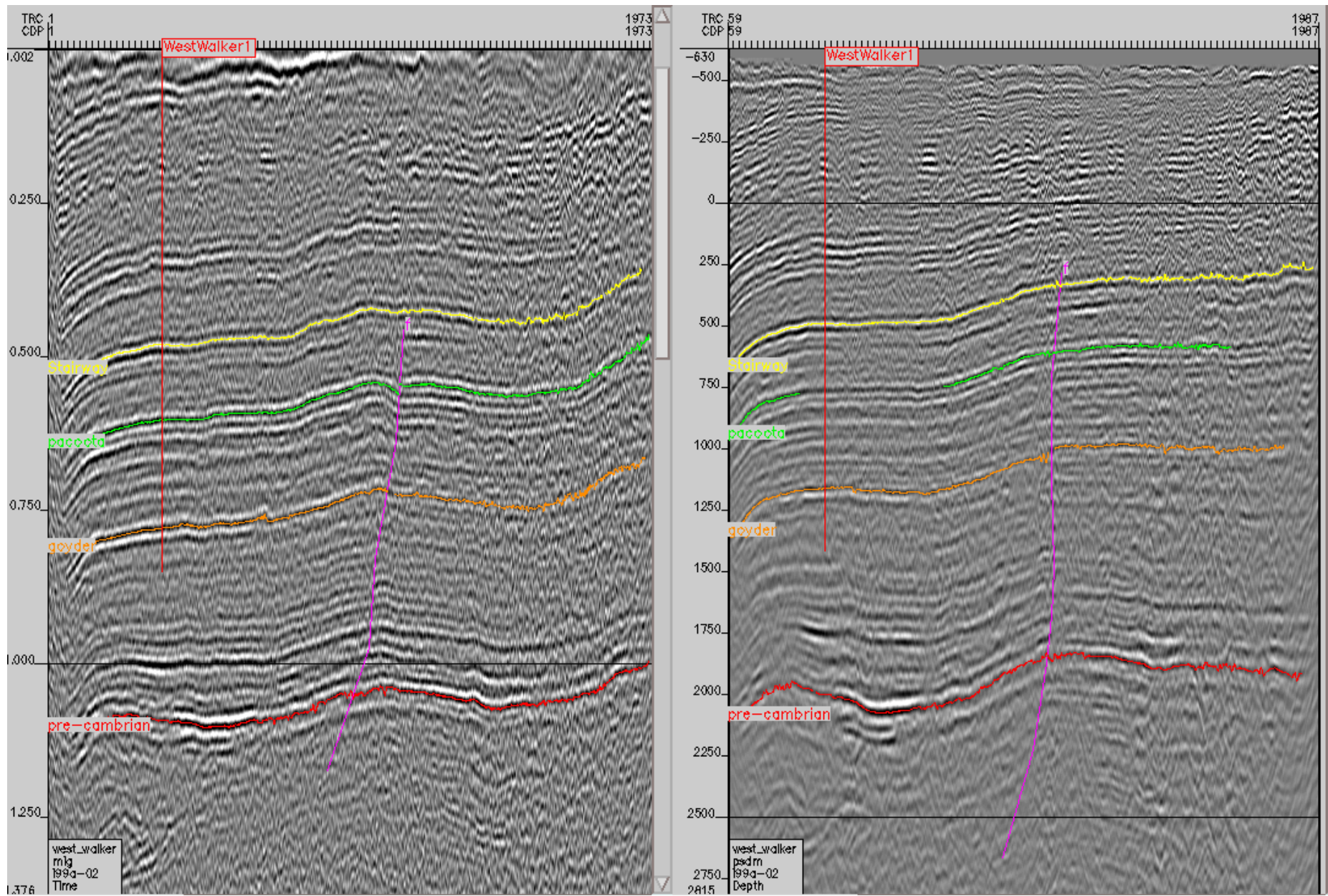


Fig 5

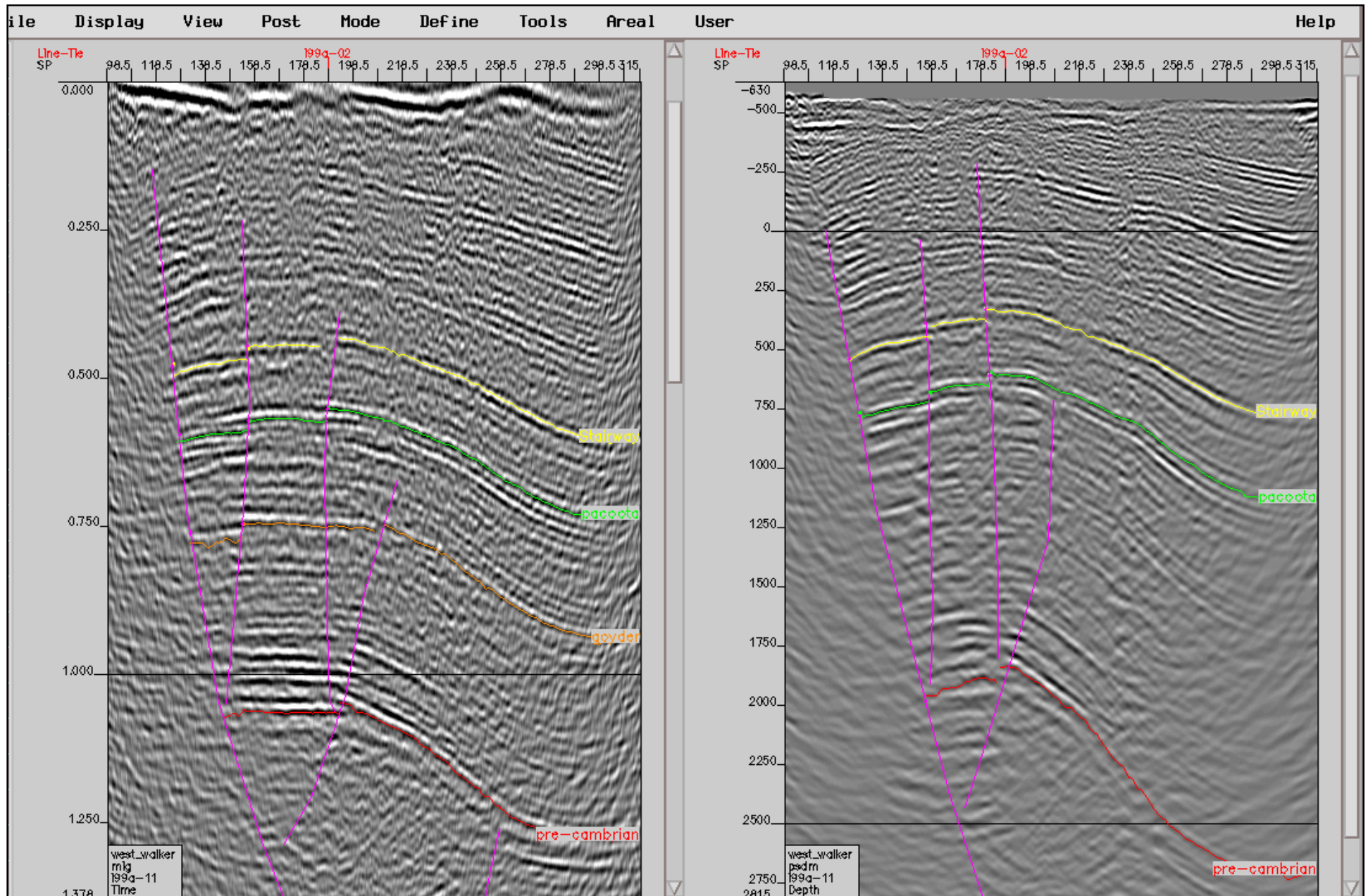
Line 10R\_99-01 Passing through West Walker 1 Well. Left hand panel is TWT and Right panel is from PSDM processing. Small 4 way dip closure indicated immediately around West Walker 1 discovery.



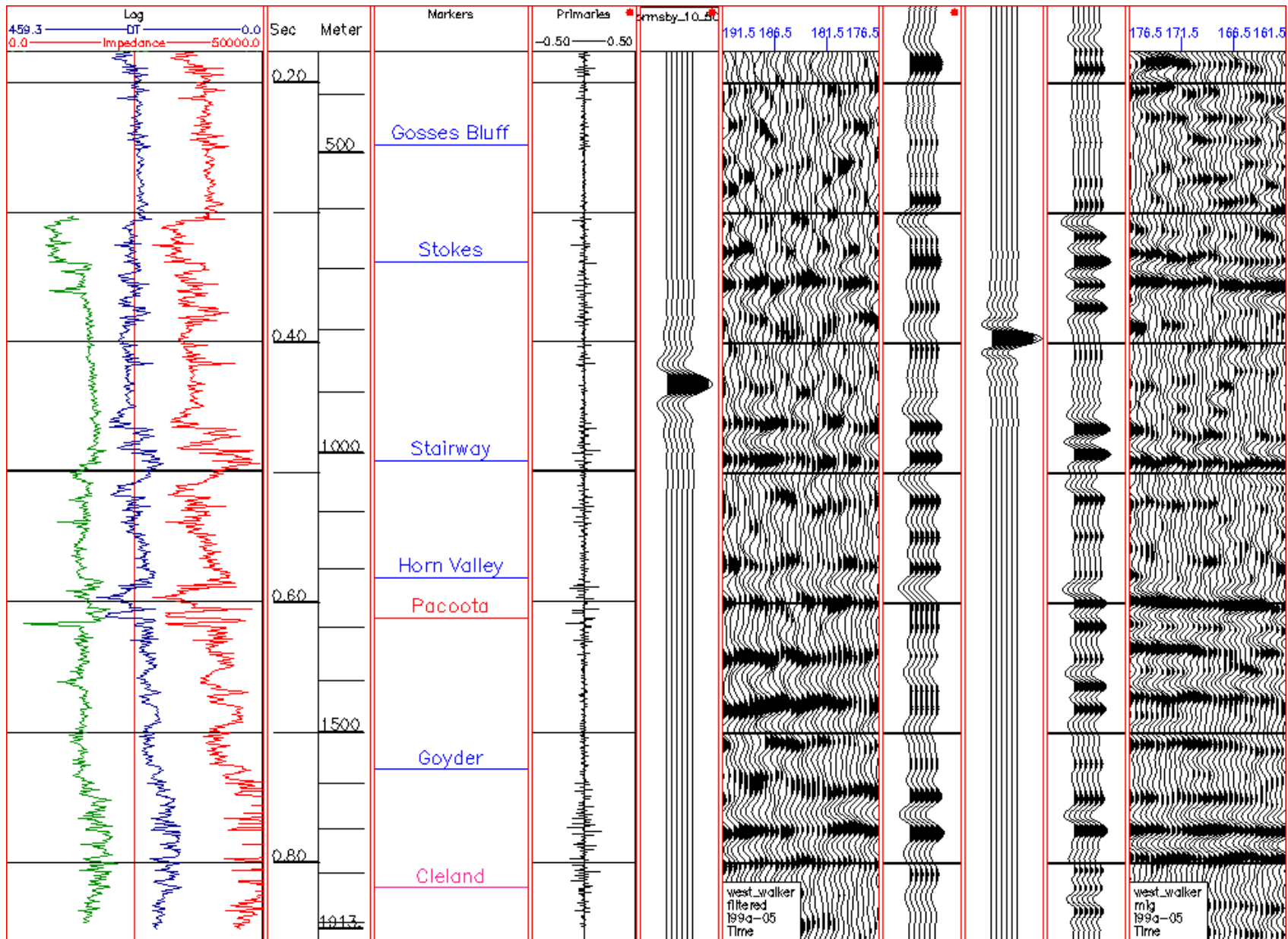


**Fig 6** Line 10R\_99-02 Passing just north of West Walker 1 Well towards Tent Hill. Left panel is TWT and Right panel is from PSDM processing. TWT section shows possible fault at Pacoota level. This is the most likely mechanism for gas trap. PSDM suggest fault exists but at deeper level. Interpretation of strike line ids fraught.





**Fig 7** Line 10R\_99-11 Nearest Dip line to interpreted fault on Line 02. Left panel is TWT and Right panel is from PSDM processing. Several faults are seen on this section at Pacoota ( Green). This supports interpretation of fault seen on line 2 but interpretation is still uncertain requiring a 3D solution.



**Fig 8** Synthetic Seismogram West Walker 1. Left synthetic trace is Ormsby 10-50, Right Synthetic trace is Ormsby 10-70Hz. Left seismic panel is Line04 Filtered Stack data. Right Seismic panel is migrated with post stack filtering and enhancement. Data correlation is good and reflectors have picked with confidence.