

**ASX: NWE****31 July 2012**

## **June Quarterly Activities Report**

### **Highlights**

#### **Australian Exploration Program**

- During the Quarter, preparation continued for the hydraulic fracture stimulation of the Arrowsmith 2 well, located in EP413, northern Perth Basin, Western Australia.
- On 29 July the stage one High Cliff Sand Stone frac was successfully conducted and completed.
- The High Cliff Sandstone zone is currently producing gas to surface in the early stages of the cleanup and well testing phase.

#### **United Kingdom Exploration Program**

- Initial interpretation of the Razorback prospect incorporating the Q1/12 seismic survey was completed and results confirm the Razorback prospect appears structurally robust.



Figure 1. Flare at Arrowsmith-2 at 7:00am, Tuesday 31<sup>st</sup> July 2012.

Table 1. Norwest's current acreage position

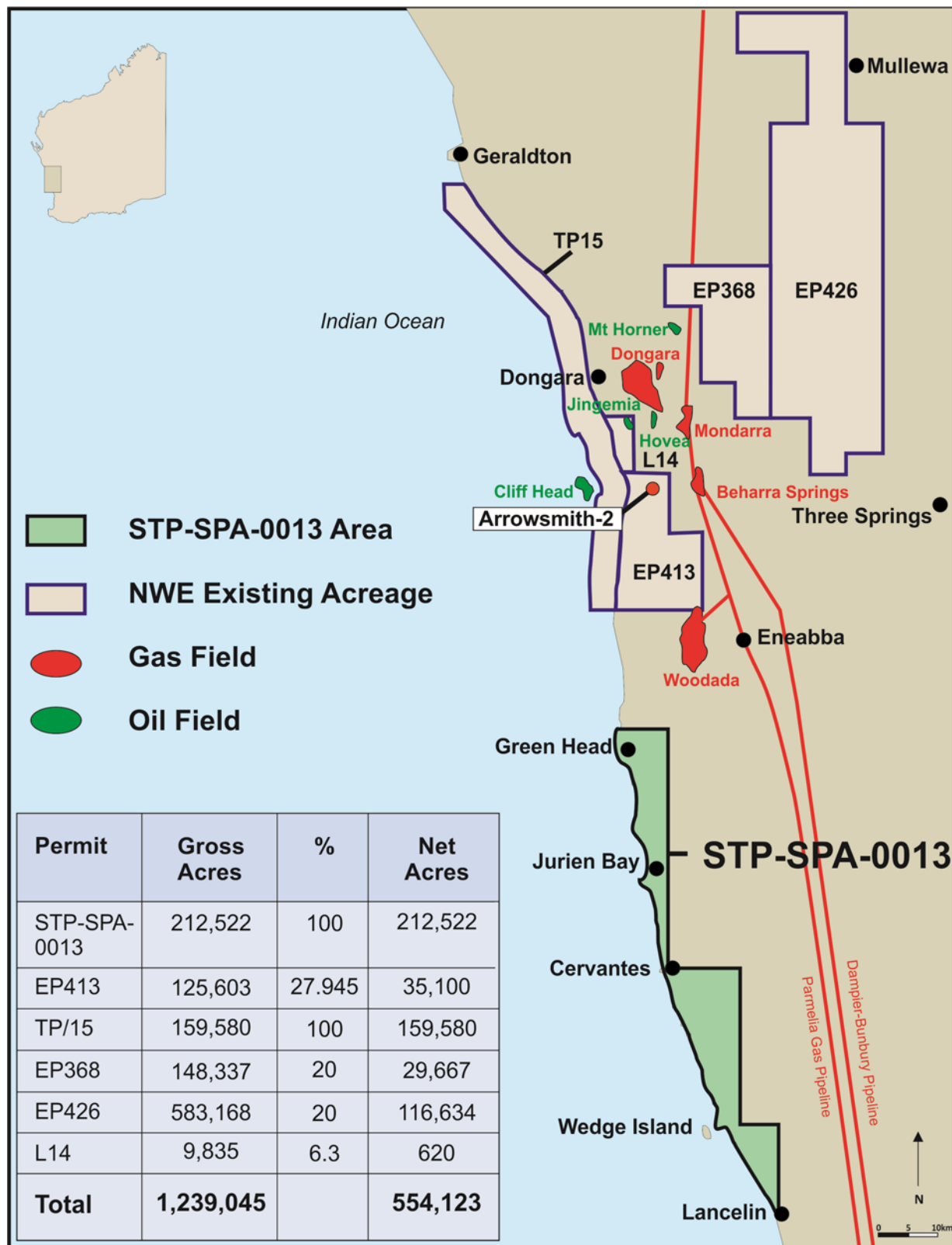


Fig 2. Perth Basin Acreage

## Northern Perth Basin

### EP413 - Norwest 27.945% (Operator)



*Fig 3. Arrowsmith-2 location with frac spread and all ancillary equipment in position*

### Arrowsmith -2 Hydraulic Fracture Stimulation Program

During the Quarter, preparation continued for the hydraulic fracture stimulation of the Arrowsmith 2 well, located in EP413, northern Perth Basin, Western Australia.

This extensive preparation culminated on Sunday 29<sup>th</sup> July when the first stage of the hydraulic fracture stimulation was conducted and completed successfully and without incident. Stage one of the program was carried out on the deepest target in the well, the High Cliff Sandstone ( HCSS ), between 3255 - 3295m. The well is now undergoing cleanup and flow back operations utilising the Expro well test equipment.

The well is currently unloading water and gas, with the percentage of water cut continually reducing with a visible flare evident and strengthening throughout the day of 30<sup>th</sup> July 2012, and stronger again this morning, as shown in Figure 1 on page 1.

As the well is still cleaning up, it has not yet been possible to measure accurate gas flow rates, however as the rate continues to improve to a sustained rate of flow, measurements will commence utilising the well test equipment on site.

These operations are expected to continue for a number of days, with fluid and gas flow rates being closely monitored once cleanup is complete. The frac spread has now commenced mobilisation across to one of the other two wells in the program both operated by Norwest's JV partner AWE.

The HCSS is a tight gas target – if the initial flow back period indicates a sufficient flow rate of gas, Norwest will isolate this zone and continue with the stimulation program for the other zones above. At a later date, Norwest will then re-enter the well to conduct an extended well test on the HCSS to improve understanding of the reservoir and to assess the commercial viability of the HCSS and the potential to convert Arrowsmith-2 into a producing gas well.





*Fig 4 & 5 Arrowsmith-2*

The Arrowsmith-2 well was drilled on permit EP413, in the northern Perth Basin, Western Australia in June 2011. Arrowsmith-2 is an evaluation well, being used primarily to assess the technical and commercial viability of the shale/tight gas formations in the region. There are a number of target horizons in the well being tested for shale/tight gas potential including:

- Kockatea Shale (450m)
- Carynginia Formation (250m)
- Irwin River Coal Measures (330m)
- High Cliff Sandstone (22m)

Post drilling, an extensive logging and coring evaluation program was undertaken by Norwest staff, in consultation with a team of international shale gas experts. Results from this rigorous process have allowed Norwest to fully optimize the design of the stimulation program. Additionally, Norwest has brought together a world-class team to assist with the final stages of this significant project.

The upper three zones of interest in the Arrowsmith-2 well (IRCM, Carynginia Formation and Kockatea Shale) are considered shale gas targets. From core and log data, each of these zones shows potential for shale gas production, however the flow back and well testing phase of this program, post frac, will assist in determining commercial viability. As this is a vertical well, with relatively short intervals for stimulation, high gas rates are not anticipated, however these flow rates can be scaled up to estimate production from future horizontal wells.

Post fracture stimulation of Arrowsmith-2, Norwest will be able to provide a contingent resource estimate. These results are expected to become available in the third quarter of 2012.

The Joint Venture Partners in EP413 are:

Norwest Energy	27.945% (operator)
AWE Limited	44.252% (via subsidiary ARC Energy Ltd)
Bharat PetroResources Ltd	27.803%

### TP/15 - Norwest 100% (Operator)

Norwest Energy has been granted the renewal of Petroleum Exploration Permit TP/15 by the DMP for a further five (5) year term to May 2017.

During the five year term Norwest will undertake technical studies, acquire 15 km of seismic and drill one exploration well.

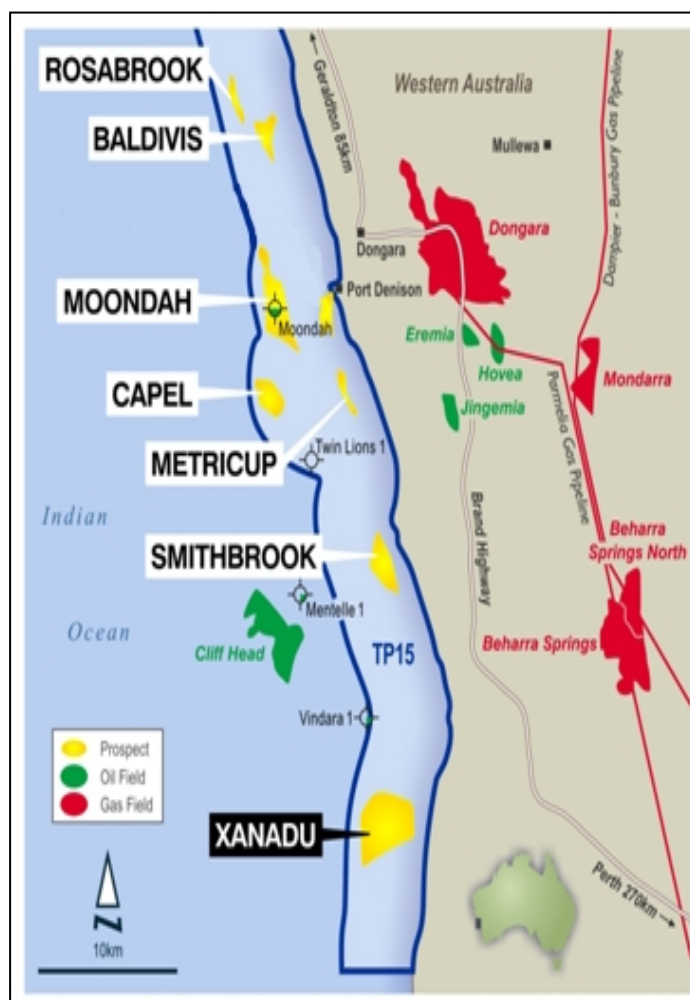


Fig 6. TP/15 Prospect Location Map

Exploration Permit TP/15 is located in the offshore northern Perth Basin, in close proximity to the Dongara gas field, as well as the Cliff Head, Jingemla and Eremia oil fields.

The permit occupies the three nautical mile wide state territorial waters boundary of Western Australia adjacent to the township of Port Denison, covering an area of 647.2km<sup>2</sup>.

Norwest sees potential in the permit, particularly with the portfolio of prospects including Xanadu, with its potential for un-risked OIP of 90 MMbbls (see graphic below). With the granting of an additional five year term, Norwest is committed to further evaluating this permit.

A recent report by CSIRO suggests they have developed a process for better estimating the ability of faults to seal and form a valid trap. It is Norwest's intention to incorporate this process to be able to better predict which traps leak and which are valid.

Prospect	STOOIP MMbbls	EUR MMbbls
Capel	134	40
Smithbrook	74	22
Xanadu	90	28
Baldivis	24	7
Rosabrook	10	3
Metricup	7	2
<b>Total</b>	<b>339</b>	<b>102</b>

Table 2. TP/15 Prospects

### STP-SPA-0013 Special Prospecting Authority (SPA) - Norwest 100% (Operator)

STP-SPA-0013 is a compilation of 21 onshore blocks in the northern Perth Basin, covering 860km<sup>2</sup> and located between Lancelin and Green Head. In Q1/2012, Norwest applied to the DMP to convert the SPA to a conventional six year petroleum exploration permit. Norwest is awaiting confirmation from the DMP that the conversion to exploration permit has been approved.

The interpretation of the data from a gravity gradiometry, magnetic and DTM survey carried out in 2011, along with existing seismic constrained by 8 nearby wells indicated three separate hydrocarbon systems that are considered prospective:

1. Deep shale gas – the recently acquired data has identified relatively deep grabens in the eastern portion of the block that potentially provide hydrocarbon source rocks and prospectivity for shale gas.
2. Shallow shale gas – potential for shale gas in the shallow portion of the permit was identified and supported by a third party study commissioned by Norwest in 2010. Conclusions are that the Kockatea Shale has the potential maturity to produce gas, contains fair TOC and composed predominantly of Type II kerogen.
3. Conventional traps – in-house mapping identifies some conventional leads that require additional seismic to confirm validity.

Once Norwest receives the award of the exploration permit from the DMP the work program will be implemented.



Fig 7. Map showing SPA location

### L14 Jingemia oil field - Norwest 6.278%

The L14 production licence contains the Origin Energy operated Jingemia oil field. Lying to the northwest of EP413, the L14 production licence offers Norwest a revenue stream for oil produced.

Jingemia is estimated to have initially contained 12 MMbbls OIP with 4.6MMbbls produced to date. During the June quarter the Jingemia field produced 19,428.29 barrels with 1,219.71 bbls net to Norwest for revenue of A\$143,938.50.

The Joint venture partners in L14 are:

Origin Energy	49.189%	(Operator)
Arc Energy Ltd	44.141%	
Norwest Energy NL	6.278%	
Roc Oil (WA) Pty Ltd	0.250%	
J Geary	0.142%	

**EP368 and EP426 - Norwest 20%**

The North Erregulla prospect straddles the boundary between EP368 and EP426. Interpretation by Empire has outlined a large structure up dip of the North Erregulla 1 well which encountered 3m of oil in the Wagina (Permian age) reservoir.

The North Erregulla 3D 100km<sup>2</sup> seismic survey is currently scheduled to be carried out in Q1/ 2013. The survey is designed to improve the structural interpretation of the North Erregulla prospect. The North Erregulla 1 well was drilled by WAPET in 1967, and recent interpretations indicate the well was drilled significantly down-dip from the crest, suggesting there is potentially a large up-dip oil accumulation. In addition the prospect has gas potential in the deeper High Cliff Formation. The 3D seismic data to be acquired will provide a better picture of where to locate the follow-up well and a better estimate of the resource potential.

Apart from the conventional targets at North Erregulla, Norwest also considers the permits prospective for shale gas, in particular the lower Kockatea Shale formation, one of the key shale sequences present throughout the northern Perth Basin.

The joint venture partners in EP368 & EP426 are

EP 368	EP 426
Empire Oil & Gas N.L. (Operator) 40% Norwest Energy 20% Origin Energy Limited 40% ( earning)	Empire Oil & Gas N.L. (Operator) 21.11% Norwest Energy 20% ERM Power Limited 13% Allied Oil & Gas Plc 5% Origin Energy Limited 40% (earning)

**Timor Sea****AC/P22 - Puffin (Norwest 1.25% ORRI)**

Nothing to report.

**Wessex Basin, United Kingdom**

**PEDL238 - Norwest 50% Operator, Wessex Exploration PLC 50%**

**PEDL239 - Norwest 75% Operator, Wessex Exploration PLC 25%**

**P 1928 - Norwest 65% Operator, Wessex Exploration PLC 35%**

Norwest's P1928 comprising five Promote exploration blocks 98/6b, 98/7b, 98/8, 98/12 (Part) & 98/13 (Split) are located in the Wessex Basin, offshore southern England in the English Channel, adjacent to its two existing onshore licenses, PEDL 238 and PEDL 239.



The initial interpretation of the Razorback prospect incorporating the recent seismic survey is complete. The Razorback infill seismic survey was acquired in Q1/2012 to reduce the exploration risk of the prospect prior to making a drill or drop decision.

The recently completed data processing confirms Norwest's view that the Razorback prospect appears to be structurally robust. Our technical team has been testing specialised processing techniques to enhance the deeper horizons. This work will improve our understanding of structural timing, which in turn allows a more confident estimation of the risk associated with hydrocarbon migration.

Norwest has had an approval from Department Of Energy and Climate Change (UK energy regulators) to defer the PEDL 239 "drill or drop decision" for 2 years, thus providing additional time for technical analysis.

The Razorback prospect is located in a central position on the Isle of Wight and is the highest ranked prospect in PEDL 239. Razorback is located relatively close to the giant Wytch Farm field. The primary target is the Triassic Sherwood Sandstone reservoir and there is a secondary target, the Jurassic Oolite reservoir. Razorback is estimated to contain 43 MMbbls oil in place (P50).

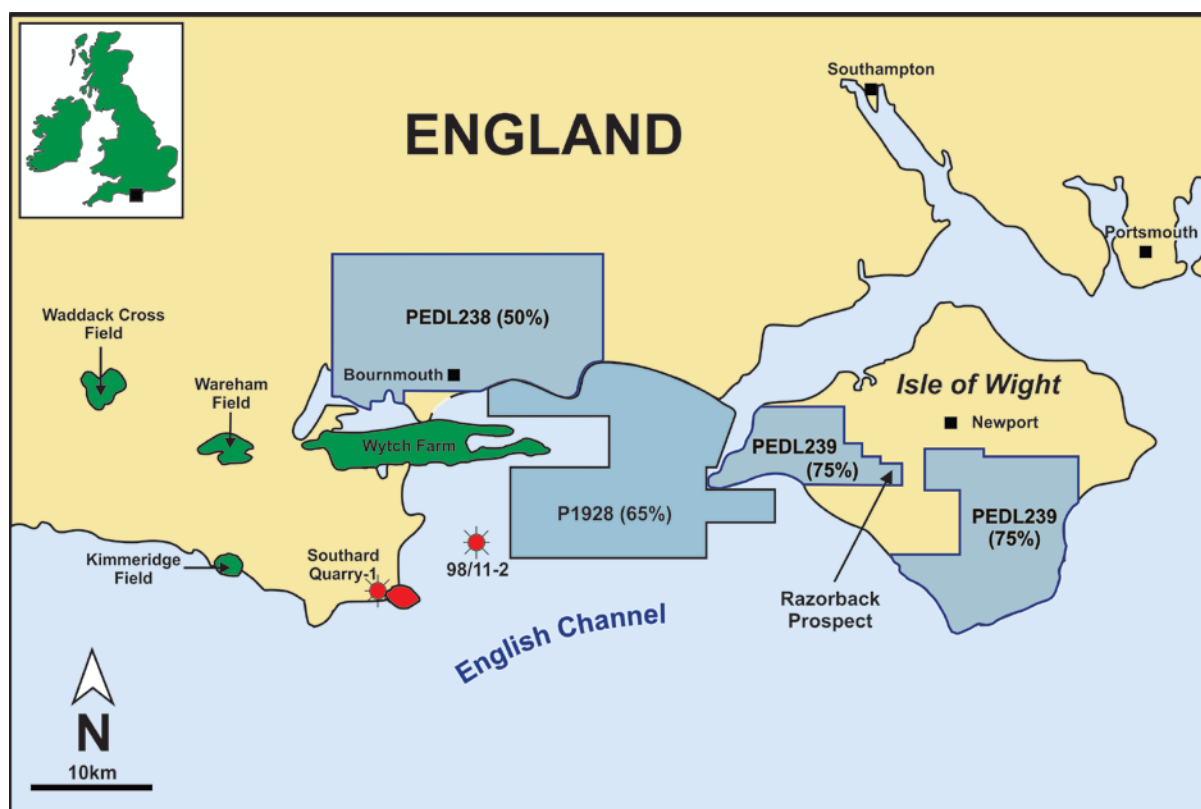


Fig 8. Norwest's acreage in the UK

<b>PEDL238 (NWE 50%)</b>	<b>P50 risked recoverable MMbbl</b>	<b>P50 unrisked recoverable MMbbl</b>	<b>P50 STOOIP MMbbl</b>
Mooneye	3.88	53.88	134.7
Sockeye	0.42	7.84	19.6
Hammerjaw	2.34	13.52	42.7
Coho	0.57	10.76	26.9
Beluga	1.45	8.92	22.3
<b>PEDL 239 (NWE 65%)</b>			
Razorback	2.09	14.12	43.1
<b>P1928 -Offshore (NWE 65%)</b>			
Stickleback	6.4	20	50
Triggerfish	1.1	4	10
Remora	0.3	1.6	4
Steelhead	0.9	5	13
Stingray	1.9	11	27
Recently awarded blocks (Wessex Basin): 98/6b, 98/7b, 98/8, 98/12(part) & 98/13 (split) as part of the UK's 26 <sup>th</sup> seaward O&G licensing round, second tranche. (Approximately 180km <sup>2</sup> ).			

Table 3. Summary of potential reserves

## Corporate

During the June Quarter, Norwest announced a Share Purchase plan of 100 million shares offered at 5 cents each, to raise \$5m. The issue was successfully concluded in July 2012. The funds raised from the issue will be used to further the Company's Australian and International oil & gas exploration activities and also to supplement the working capital of the Company.

## Competent Person

The technical content of this announcement is based on information compiled by or under the direction of Mr. Andrew Sutherland of Dataco Australasia Pty Ltd. Mr. Sutherland holds a Bachelor Degree in Science and a Master Degree in Business. He has 30 years' experience in petroleum exploration. Mr. Sutherland has consented in writing to the inclusion of the information stated in the form and context in which it appears.



**norwest**  
E N E R G Y

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