



**SEAAOC CONFERENCE  
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**Nexus Energy Limited  
Crux Field – Liquids Project**

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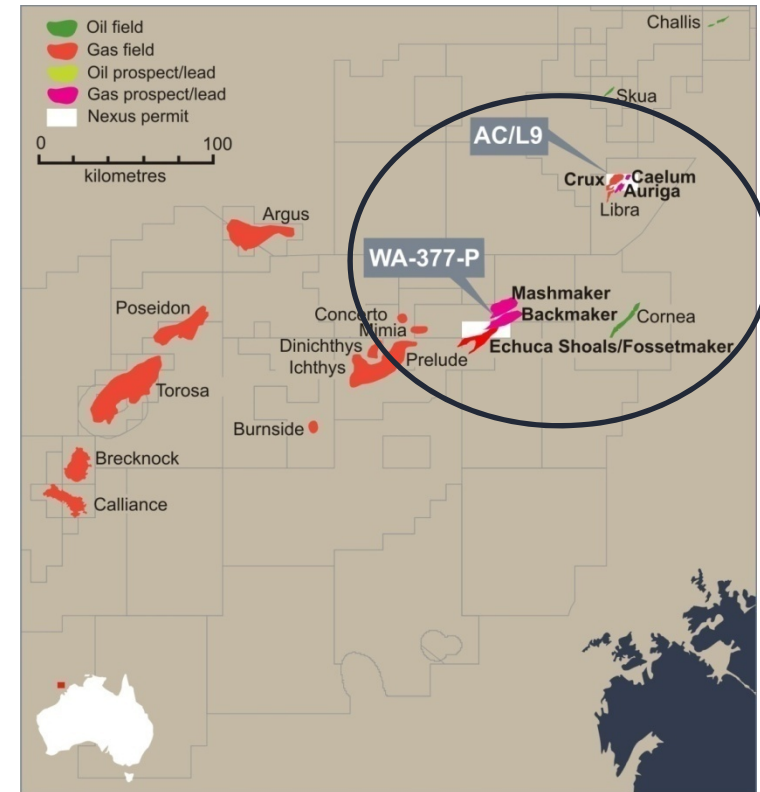
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- **Introduction to the Crux gas/condensate field**
  - Historical overview
  
- **Subsurface – geology and geophysics**
  - Confidence in the subsurface geology critical to field development plan
  
- **Development plan**
  - Similar developments underpin Crux planning
  
- **Project status**
  - Experienced team in place
  - Engineering studies on track with clear deliverables and target dates

- Located in AC/L9, Browse Basin offshore NW Australia, in water depth about 170m
- Equity situation
  - Nexus 85% of liquids
  - Osaka Gas 15% of liquids
  - Gas rights sold to Shell
- AC/L9 production licence granted 23/2/09
  - Liquids project
- Crux 2P Liquids
  - 62 – 70 MMbbls (7 – 10 years life)
- Identified near field prospects
  - Auriga & Caelum



## Production Licence Status

- 2005 AC/P23 title transfer to Nexus 100%
- 2006 Nexus sells gas rights to Shell
- 2007 Osaka Gas acquires 15% equity in permit area
- 2009 Production licence for liquids project AC/L9 awarded

## Seismic Acquisition

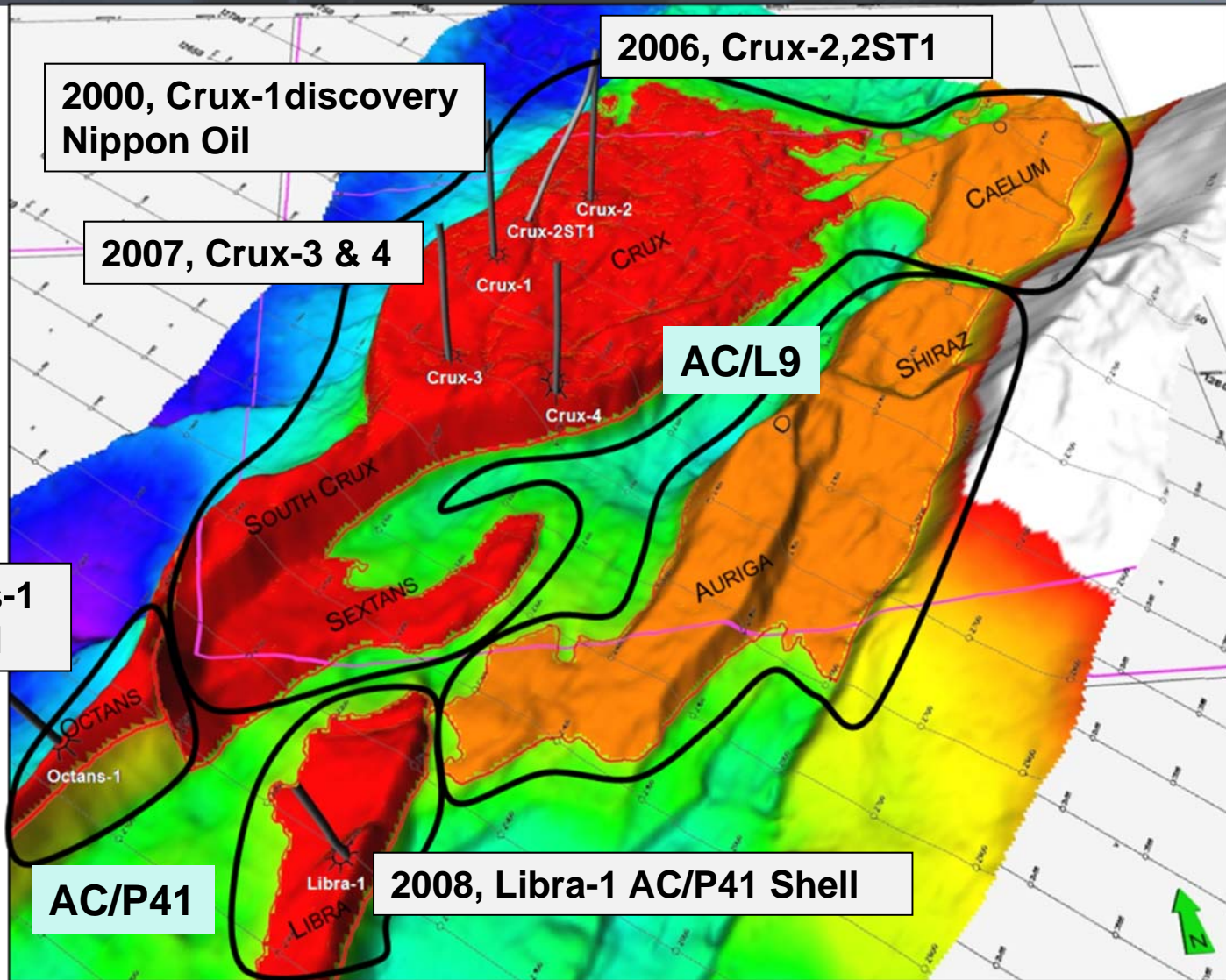
- 2005 Crucis 3D seismic (AC/L9)
- 2007 Octantis 3D seismic (AC/P41)

## Drilling – 7 Wells Impact On Crux

- 2000 AC/P23 - Crux-1 (Nippon Oil)
- 2006 Crux-2 & 2ST1 (Nexus)
- 2007 Crux-3 & 4 (Nexus)
- 2008 Libra-1 (AC/P41, Shell)
- 2009 Octans-1 (AC/P41, Shell)
- All seven wells intersected gas/condensate bearing sands



# Crux exploration & appraisal drilling history



Perspective map showing well locations

## **Seven modern boreholes with comprehensive data acquisition (logs, cores, pressure & test data)**

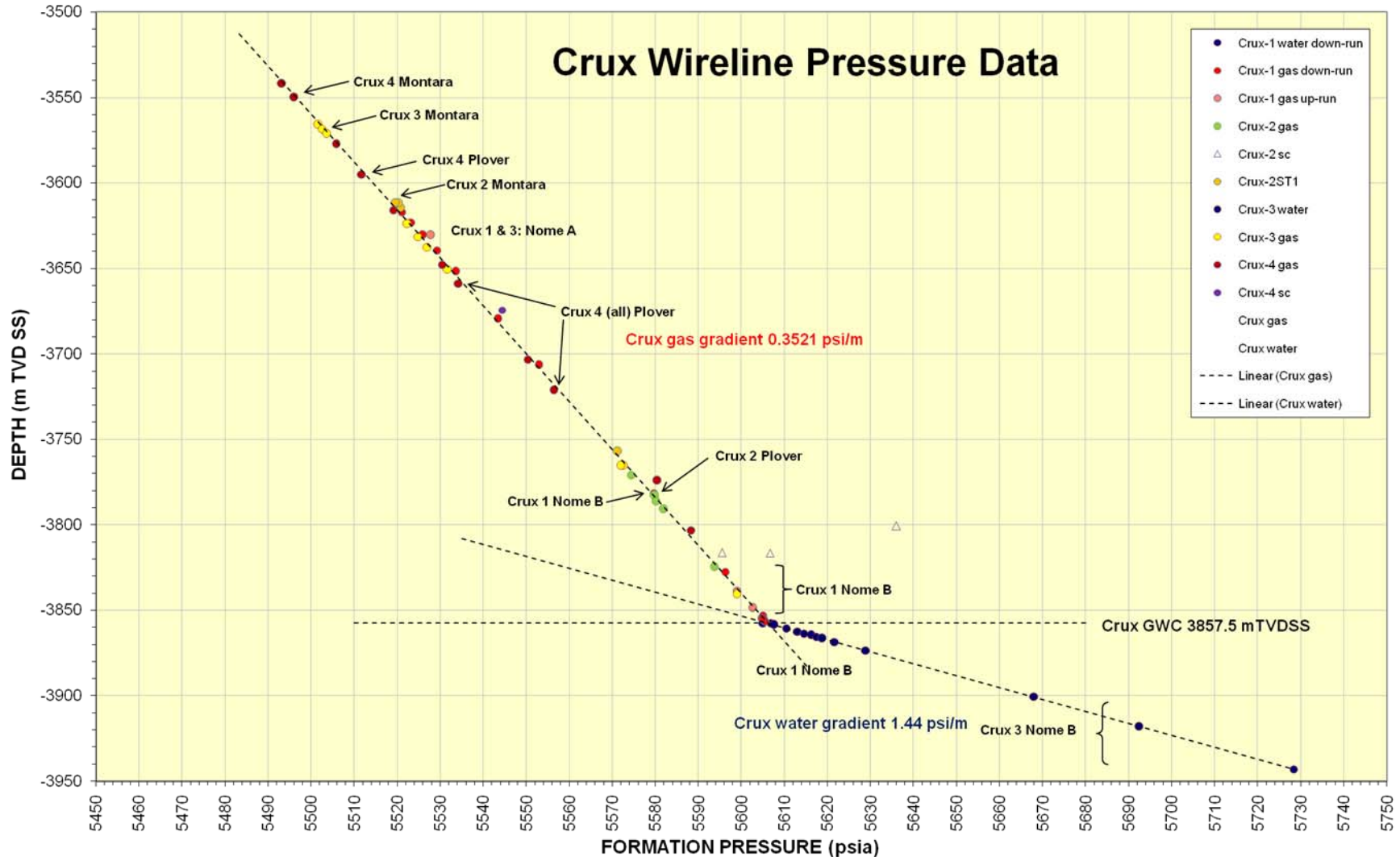
### **■ Petrophysical well evaluation is reliable**

- Three gas/condensate reservoir units – Nome, Plover and Montara
- All gas sands in pressure communication - common field wide GWC
- Reservoirs exhibit good to excellent porosity and permeability
- The Nome sands (15% porosity, ~ 1 D permeability) contain about 80% of identified reserves

### **■ Well/seismic ties facilitates confident seismic interpretation**

- Consistent well/seismic match across the field
- Leads to reliable time and depth mapping
- Well data critical calibration for seismic inversion processing (subsurface lithology prediction, direct gas indications and pay probability estimates)

## Crux Wireline Pressure Data



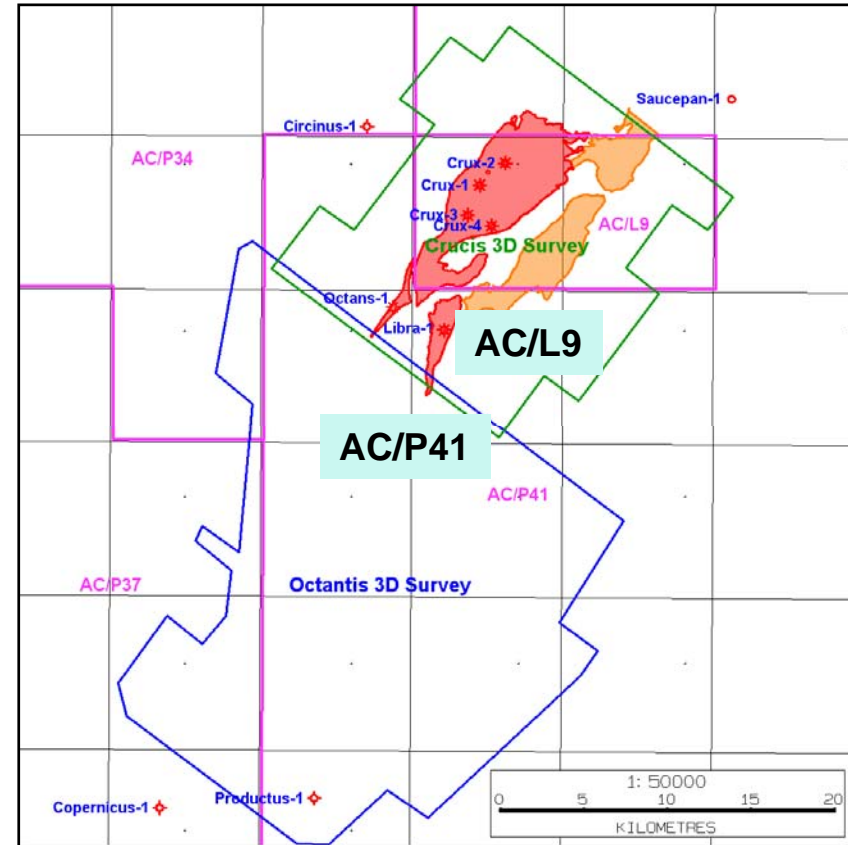
**Pressure data indicates a single gas column that is greater than 300m**



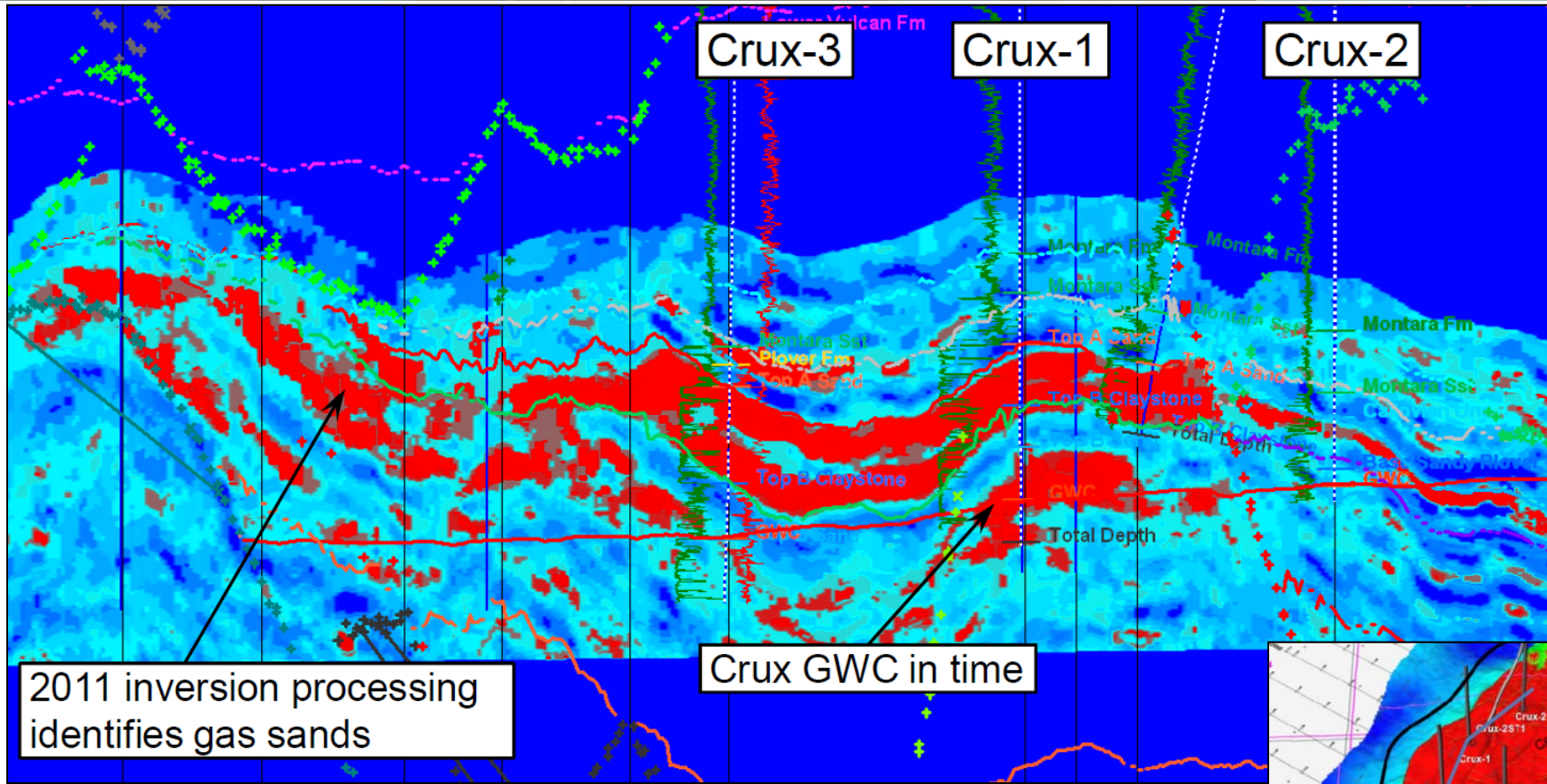
- 2005 Crucis 3D, 286 km<sup>2</sup>, AC/L9
- 2007 Octantis 3D, 501 kms<sup>2</sup>, AC/P41
- Data reprocessed & merged
- Two phases of inversion processing

The 2011 Crucis 3D inversion produced significantly improved data quality which has enhanced ability to predict both sand and “pay” probability

2011 project accessed additional wells (Crux-3, Crux-4, Libra-1, Octans-1) plus used the reprocessed Crucis seismic

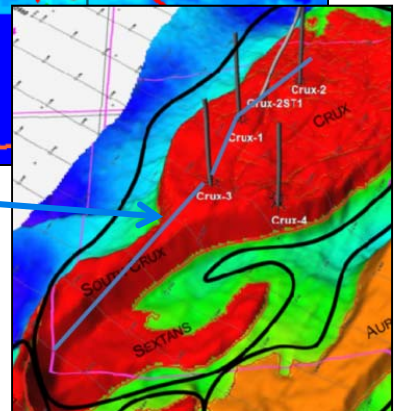


# Inversion seismic “sees” gas sands



Crux GWC in time

Line of section



Seismic prediction of gas sands aids well planning and reserves assessment

## High quality well and seismic data base

- Confidence in:
  - seismic mapping
  - geological model building
  - reservoir simulation
  - reserves evaluation (GCA independent analysis closely aligned with the Nexus assessment)

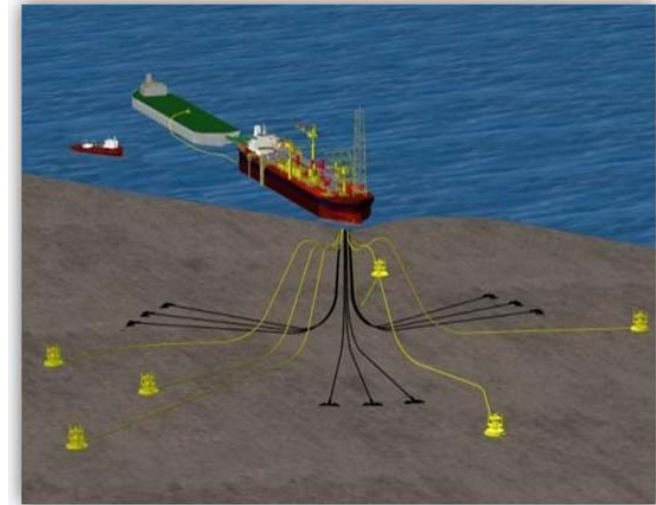
## Lowers uncertainties in field development planning

- High connectivity of permeable gas bearing sands/sweep efficiency
- No geological barriers to gas flow such as internal faulting or permeability barriers
- Confidence in reserve estimate reflected in limited P10/P90 range

- **Gas recycling scheme**
- **Four producers, four injectors**  
Plan to re-use Crux-2/ST1 & Crux-4, both currently suspended
- **“Big-bore” wells**  
High gas flow rates & large-scale gas injection facilities (proven in other offshore Australia operations)
- **Produced condensate stored in the FPSO facility, then transferred to crude oil shuttle tankers**
- **Gas re-injected into the reservoir**
- **To date Nexus has spent A\$311mln progressing the Crux liquids project**  
Principally on drilling costs but also long lead items, engineering costs, seismic & FEED

## Development strategy

### FPSO and associated infield infrastructure



NB: Illustrative schematic

	2 Train ; 2 Compressor Case
Wells	4 production + 4 gas re-injection
Maximum Gas production	1,100 MMcf/d
Peak condensate production	39,400 BPD
Total production	62 MMbbl (7 years) 70 MMbbl (10 years)



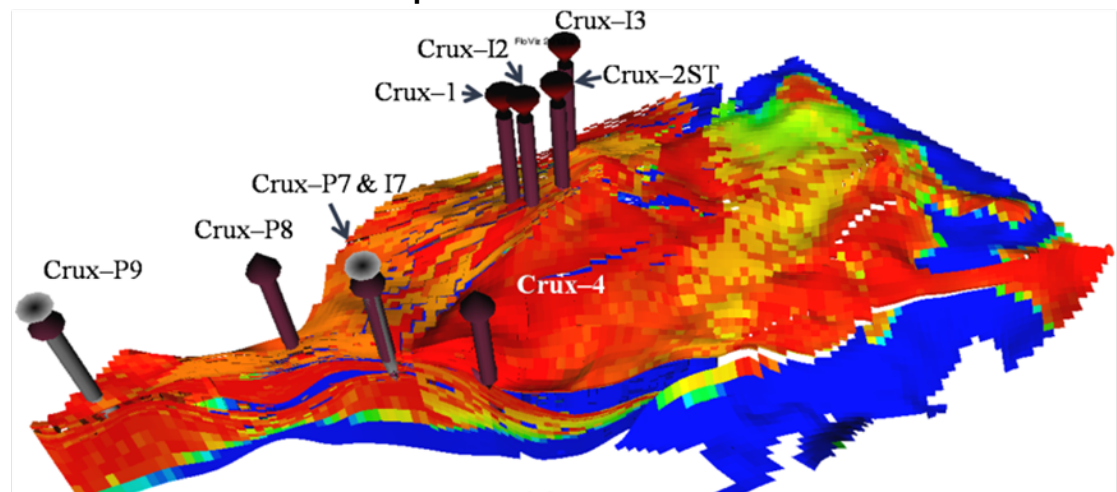
## Reservoir simulation modelling for the Crux field supports viability of planned high gas production & re-injection rates

### The main input parameters are:

- Field gas production constraint of 936 MMscf/d
- Field gas injection constraint of 876 MMscf/d
- Wells are completed with 9-5/8" tubing (big-bore)
- Maximum gas injection rate per well of 400 MMscf/d.

### Key results of the simulations are:

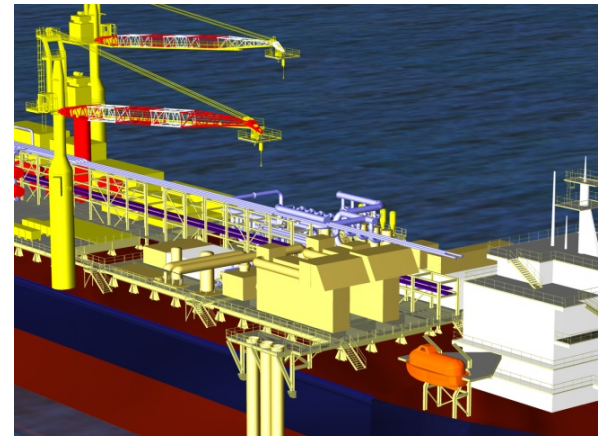
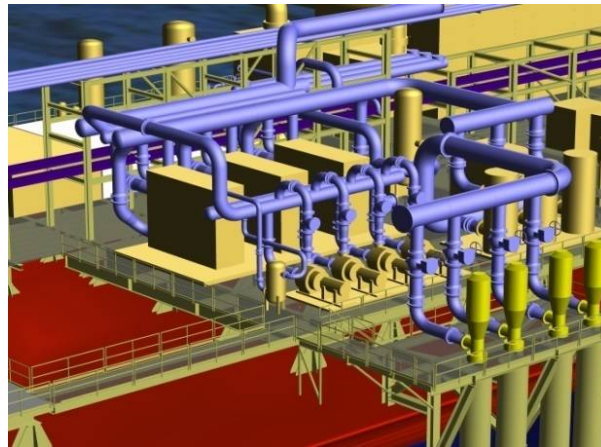
- 8 well development concept recovers about 70 MMbbl of condensate after ten years
- 33,600 b/d for about 2.5 years and thereafter declining to about 3,000 b/d after 10 years
- Reservoir pressure remains above dew point



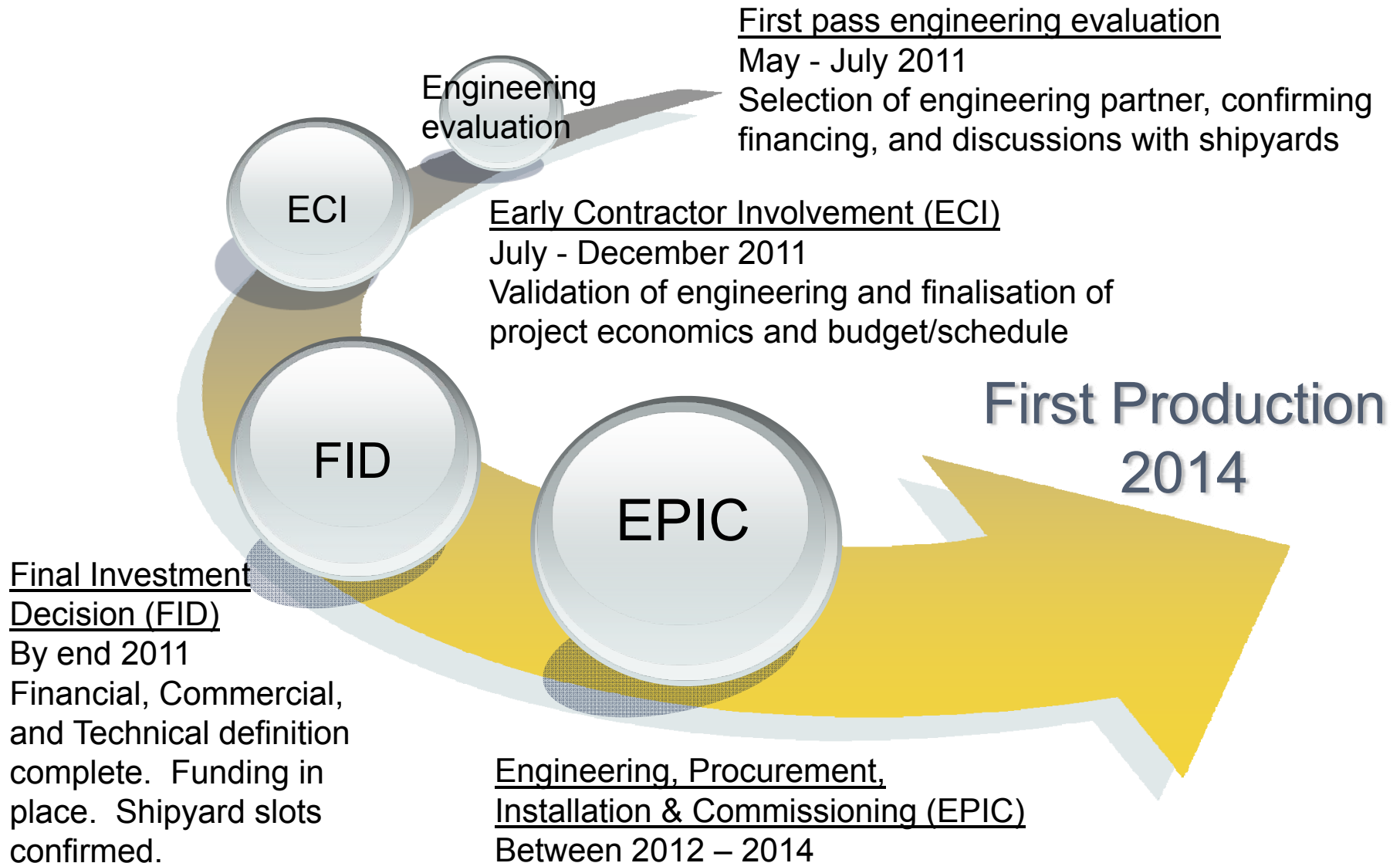


## Design aims include:

- Production of saleable condensate and re-injection of gas into reservoir
- Maximize condensate recovery to 95%+ by use of low temperature extraction
- Treat waste streams to meet environmental obligations and aspirations
- Avoid hydrates in process
- Maximize production within constraint of injection compressor and gas turbine



# Pathway to commercialisation of Crux



- Wood Group appointed - project management services
- McDermott appointed - project development engineering services, carry out required engineering works to achieve FID
- Nexus Project Management Team is assembled with over 250 man-years FPSO experience
- Project costs and schedules ready by November 2011. Funding and Engineering will be completed January 2012.
- Project commissioning and commercial recovery operations in 2H 2014
- Total Project costs estimated to be US\$1.4 billion
- Finance negotiations are at US\$1 billion with different consortiums
- Farm-down negotiations with parties continuing
- Project underpinned by strong Asian condensate demand growth

## As part of FID process

- Nexus commissioned an independent report using publicly available data to verify 5 different development options
- 2 of the cases are within existing licence conditions (liquids only) and 3 integrated (gas blowdown) project options with varying start dates but dependent on amended tenure conditions (government and stakeholder approvals)
- All cases confirm the robust economic viability of Crux (example shown below)

Crux liquids project, mid 2014 production start up,  
NPV Nexus share US\$ million (RISC\*)

Low	High	Preferred
\$625	\$1201	\$913

\* RISC data presented in more detail in the Nexus ASX release on 23/9/2011

1

## **Subsurface well defined - high quality reservoir**

- High porosity and permeability reservoir
- Moderate drill depths (3,800 m) and water depths (up to 170 m)

2

## **Material reserves position**

- 2P reserves estimated at 62 MMbbl (100% basis ; 7 yrs production) & 70 MMbbl (100%, 10 yrs production)

3

## **High quality condensate should trade equivalent to Brent**

- Low CO2 levels and other inerts

4

## **Commercially robust project progressing towards FID**

- Based on independent NPV evaluation

5

## **Politically stable jurisdiction and attractive fiscal regime**

- Fiscal terms (PRRT regime) are well defined and have a long track record in Australia





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