

*Motivated by dealing with uncertainty and challenges leading to sound decision-making and value creation.*

- In depth understanding of commercialising hydrocarbon bearing rocks (conventional & unconventional)
- Experience in all Australian & some International hydrocarbon Basins
- Development Planning and managing risk and uncertainty
- Reserves & Resource estimation – independent review
- Investment, acquisition & divestiture review/due diligence
- Technical Assurance and through an integrated gating process
- Petroleum reserve-resource management system development

## PROFILE

A specialist 35 year, engineering and operations focused oil and gas consultant. Previously held a range of senior executive positions with Santos, including the position of Chief Reservoir Engineer and General Manager of Queensland Cooper Basin. Has an in-depth understanding of all major petroleum basins and producing fields in Australia (and many internationally), including reserve/resource estimation, production and cost drivers and a strong practical operational understanding of field infrastructure/facilities. For the last 20 years has assessed the value of a number of assets worldwide. Has access to technical specialists to meet the specific needs of a particular client engagement. Is able to provide, additional integrated technical, commercial and financial expertise to support decisions regarding oil, gas, LNG, electricity and energy infrastructure investment and corporate strategy.

## CAREER SUMMARY WITHIN **Santos**

Aug 2014 - Apr 2015	<b>General Manager</b>	Queensland Cooper Basin
Jan 2009 - Jan 2015	<b>Chief Reservoir Engineer</b>	Company-wide
Jan 2012 - June 2013	<b>Acting Chief Production Engineer</b>	Company-wide
Jan 2007 - Jan 2009	<b>Manager</b>	Santos Non Operated Assets
April 2004 - Jan 2007	<b>Manager</b>	Cooper Basin Oil
Jan 2002 - April 2004	<b>Reservoir Engineering Manager</b>	Northern Business Unit
Oct 1997 - Jan 2002	<b>Team Leader</b>	South West Queensland Gas Development
Jan 1996 - Oct 1997	<b>Principal Reservoir Engineer</b>	Company-wide
Jan 1991 - Jan 1996	<b>Team Leader</b>	South Australian Cooper Basin Gas
Oct 1987 - Jan 1991	<b>Team Leader</b>	Queensland Oil
April 1984 - Oct 1987	<b>Reservoir Engineer</b>	Cooper Basin Oil & Gas Fields

## PROFESSIONAL ACCOMPLISHMENTS

<b>First High Volume Artificial Lift and Water Shut Offs in Santos (1988)</b>	<ul style="list-style-type: none"> <li>■ Led the Queensland oil team located in Adelaide and influenced the production and completions teams located in Brisbane to install a number of high volume lifts to improve the profitability of the business</li> <li>■ Introduced the first water shut offs in Santos in the Queensland oil asset that resulted in increased oil rates and reduced water production</li> </ul>
<b>First Nodal Compression in the Cooper Basin (1993-95)</b>	<ul style="list-style-type: none"> <li>■ Worked with Facilities Engineering and justified through the Joint Venture the installation of the first eleven nodal compression units in the Cooper Basin to improve the gas recovery</li> </ul>
<b>Challum Horizontal Well Programme (1999)</b>	<ul style="list-style-type: none"> <li>■ Led a multi-disciplined team in Brisbane to complete the development of the Challum Field with Horizontal wells that produced at rates four times (48 MMscf/d) the best stimulated vertical well in the field</li> </ul>
<b>Competency Framework for Reservoir Engineering</b>	<ul style="list-style-type: none"> <li>■ Developed a best in class Competency Framework for the Reservoir Engineering Community underpinned by a fit for purpose training programme</li> </ul>
<b>Corporate Engineering Data Management System</b>	<ul style="list-style-type: none"> <li>■ With IT Group developed a Corporate Data Management system that is “User Friendly” and contains accurate data. This work is ongoing within the Company</li> </ul>

# EMPLOYMENT DETAILS

## Santos

Aug 2014 – April 2015

### General Manager - Upstream South West Queensland

■ **Key Responsibility to:**

- Lead an asset with a significant resource base to deliver value from the petroleum reservoirs to the sale point. Managed a typical Capital spend in excess of \$300 million and Operating expenditure of \$130 million. The team consisted of 230 people

■ **Key Achievements:**

- Increased focus on cost control and production such that both are ahead of expectations
- Seeded the idea of engaging a fit for purpose rig to de-risk the exploration for oil in the Cooper Basin, significantly reducing the cost of exploration drilling and deliver a store cupboard of development opportunities

Jan 2009 – Jan 2015

### Chief Reservoir Engineer - Company wide

■ **Key Responsibility to:**

- Provide technical approval of key projects Corporate-wide
- Establish and maintain the Reservoir Engineering standards
- Develop the Technical competencies for the Reservoir Engineering Community
- Facilitate the integration of Reservoir Engineering with the other disciplines
- Hire and manage the distribution of Reservoir Engineering staff
- Mentor staff and facilitate the development of mentors
- Develop training programmes
- Manage the Corporate Reserves and Resources

■ **Key Achievements:**

- Developed the Competency framework and training courses for the Reservoir Engineering Community
- Development of very competent Reservoir Engineering staff and achieve very high retention
- Assurance of significant major projects – GLNG, PNG LNG, Cooper Basin Expansion
- Succession planning – established four potential successors
- Prepared and delivered the PVT course in-house for 6 years
- Ensured Santos Reserve and Resource base consistent with the established Industry standards
- Elevated the importance of establishing an efficient Corporate Engineering Data Management system and cleaning up the disparate systems that existed

Jan 2012 – June 2013

### Acting Chief Production Engineer - Company-wide

■ **Key Responsibility to:**

- Establish and maintain the Production Engineering standards
- Develop the Technical competencies for the Production Engineering Community
- Facilitate the integration of Production Engineering with the other disciplines
- Hire and manage the distribution of Production Engineering staff
- Mentor staff and facilitating the development of mentors
- Develop training programmes

■ **Key Achievements:**

- Developed the Competency framework and training courses for the Production Engineering Community
- Increased the integration of the surface production groups with the subsurface disciplines, for example with Reservoir Engineering and Drilling & Completions
- Developed the framework for a fit for purpose nodal analysis training course that brought together the required disciplines to ensure a seamless delivery of gas from the reservoir to the sale point. A course facilitator was sourced from the US
- Established successors for the Chief Production Role and recruited the appropriate person

Jan 2007 – Jan 2009

### Manager - Non Operated Assets

■ **Key Responsibility to:**

- Manage Santos' Development and Producing interests in Western Australia, PNG, Vietnam and Bangladesh. Approximately 35% of Santos' production and about 50% of Corporate value

- Lead a small team attending Technical and Management Committee meetings and disseminating the appropriate information within Santos

- **Key Achievements:**

- Established with the majors more technical focussed meetings to ensure that the technical data was well understood by all parties
- Identified and resolved a number of issues where Santos interests were compromised
- Developed two strong Reservoir Engineers that have resulted in filling significant leadership roles in the Company

April 2004 – Jan 2007

**Manager - Cooper Oil**

- **Key Responsibility to:**

- Lead an Exploitation team to grow the oil potential of the Cooper Basin
- Develop a Business plan to drill in excess of 1000 wells and to increase the oil reserves in excess of 70 million barrels

- **Key Achievements:**

- Increased the oil production from 8000 bopd and within one year achieved 20,000 bopd. The Santos operated Cooper Basin has been consistently producing 15,000 bopd for the last 10 years
- Opportunities have arisen through a targeted seismic programme started in 2004 and continued for a number of years
- The 70 million barrels target will be exceeded. Met production and reserves targets every year

Jan 2002 – April 2004

**Reservoir Engineering Manager - Northern Business Unit**

- **Key Responsibility to:**

- Lead a technical team to develop the Development plans for the Santos Operated Offshore assets in the Bonaparte Basin
- Manage for the technical aspects of Santos' non operated assets in the Timor sea working with Woodside and Conoco Phillips

- **Key Achievements:**

- Developed the first Development plans for the Santos operated fields within the Bonaparte Basin
- Identified and subsequently assisted the Operator in managing the drilling risks associated with the drilling of Bayu Undan

Oct 1997 – Jan 2002

**Team Leader - South West Queensland Gas Development**

- **Key Responsibility to:**

- Lead Santos' first subsurface multi-disciplined team based in Brisbane charged with formulating the development plans for the SWQ gas fields to increase the production rate from 100 TJ/d to 350TJ/d in 2 ½ years

- **Key Achievements:**

- Led the team of 17 professionals and we managed to develop the fields to deliver 450 TJ/d within 2 ½ years
- Maintained and built on the team for 4 years without losing a single person
- Completed the development of the Challum Field with Horizontal wells that produced at rates four times (48 MMscf/d) the best stimulated vertical well in the field

Jan 1996 – Oct 1997

**Principal Reservoir Engineer**

- **Key Responsibility to:**

- Review and approve the technical work conducted on key projects throughout the Company
- Develop the Company subsurface skills database

Jan 1991 – Jan 1996

**Team Leader - SA Gas**

- **Key Responsibility to:**

- Lead a team of Reservoir Engineers in an area of the Cooper Basin that was beginning to experience significant issues with keeping producing gas wells on line

- **Key Achievements:**

- Added in excess of 400 PJ of liquids rich gas reserves by integrating the Engineering and Geological data and working closely with the other disciplines in particular the geoscientists
- Introduced into the Basin the first 11 "nodal compressors" which assisted in maintaining production from the struggling gas wells
- Introduced in wellbore technology such as plunger lifts in a cost effective manner to

deliquify the gas wells

Oct 1987 – Jan 1991

### **Team Leader - Queensland Oil**

- **Key Responsibility:**
  - Lead a team of Reservoir Engineers following the changing of Operatorship of the oil business from Delhi to Santos
- **Key Achievements:**
  - Added significant oil reserves and production by introducing high volume lift and the first water shut-offs in the Basin. Exploration and Development drilling also added significant reserves

April 1984 – Oct 1987

### **Reservoir Engineer**

- **Key Responsibility:**
  - Responsible for the technical reservoir engineering of a number of oil and gas fields in the Cooper Basin. The oil fields were non-operated and hence had to build a relationship with Delhi, the Operator to ensure that Santos' interests were being catered for
- **Key Achievements:**
  - As a result of my previous experience became the in-house expert for Reservoir fluid properties and Special Core Analysis.
  - Identified areas that were deficient in understanding reservoir fluid behaviour resulting in the better selection of fields for development thereby improving the value of the Basin Development Plan

### **Core Laboratories Adelaide**

Jan 1983 – April 1984

**Laboratory Analyst**

June 1981 – Jan 1993

**Mud Logger - Worked in the Cooper, Amadeus Basins and Bass Straits.**

### **Core Laboratories Singapore**

June 1981 – Jan 1981

**Laboratory Analyst**

## **EDUCATION**

**Tertiary Qualifications** B.Sc. Chemical Engineering - University of Nottingham, UK

**Secondary Schooling** 3 "A" Levels and 9 "O" Levels - Dulwich College – London

## **MEMBERSHIPS**

- Society of Petroleum Engineers
- Australian School of Petroleum Board member (January 2009 – January 2015)
- University of NSW Petroleum Engineering School Advisory Board member (2011 – 2012)
- Chairman of the Technical Committee for the SPE Asia Pacific Oil and Gas Conference and Exhibition October 2000
- Curtin University Petroleum Engineering School Advisory Board member (1998 – 2004)

## **PRESENTATIONS**

- Presented on a Distinguished Panel Session at SPE Asia Pacific Oil and Gas Conference and Exhibition on Mature Fields October 2013
- PESA Symposium presentation on Cooper Oil 2006

## **REFEREES**

Available upon request