

Curriculum Vitae

Jagathas Paran

<u>Position:</u>	Operations Geologist
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<u>Personal Information:</u>	Citizenship:	Australian
	Home Base:	Adelaide, Australia

Core Competencies as Operations Geologist:

- Full life-cycle Operations Geology service from project inception to well completion, contributing to the Basis of Well Design, tendering for services including wireline, LWD, Mudlogging, real-time services, PVT and fluids analysis, Core Analysis and Biostratigraphy
- Subsurface technical support for the drilling team during the planning, execution and reporting stages of the well
- Provide and update geological prognosis for the well including directional data for deviated and horizontal drilling
- Cost control and obtaining the best value for the geological services without compromising the technical requirements and also ensuring lost time is minimised through an effective QAQC process.
- Evaluate geological drilling hazards and provide pertinent information to drillers
- Coordinate sampling, evaluation and testing programmes
- Participate in formulating bid documents and evaluating tenders, and contracting services including mudlogging, wireline logging, testing services, core handling, conventional and special core analysis, biostratigraphy, palynology, geochemistry, fluids analysis, samples distribution and storage.
- Engage and manage an effective team of Wellsite Geologists with a thorough knowledge of wellsite geological operations, having good communications abilities and able to supervise and manage mud-logging, LWD and Wireline operations
- Joint Venture and governmental reporting and presentation of results
- Operations Geologist experience with several operating companies including Murphy Oil (Malaysia), Talisman (Malaysia), Petronas, Carigali-SHELL, Boral Energy (Origin Energy Australia) and BHP Billiton.

Other competencies as Petroleum Geologist:

- Evaluate petroleum systems, prospectivity analysis, risking and ranking prospects and leads

- Evaluation of reservoir data, risk factors and volumetrics for field development and provide support data for reservoir modelling
- Work with exploration, development and drilling teams to design and optimise drilling, well prognosis and geological operations plans
- Seismic interpretation and mapping including AVO analysis aimed at identifying potential hydrocarbon charged clastic reservoirs, identify potential plays
- Technically up-to-date with petroleum industry computer technology and software eg Landmark (Seisworks, Stratworks), Petrel (Geological Modules), GeoFrame, Z-Map, Petrosys, Kingdom and ROSE (Reserves/risk evaluation)
- Skilled in preparing and writing geological reports and presentations, planning, tendering and contracting of wellsite geological and post-well analytical services

CAREER SUMMARY

Over 30 years of experience working in positions including Operations Geologist, Exploration Geologist Exploration Team Leader and Exploration Manager. Worked on major geological basins including the Malay, Sarawak and Sabah Basins in Malaysia, the Cooper, Eromanga, Otway, Perth, Canning and Officer Basins in Australia and Congo and Kwanza Basins offshore Angola.

Major operating companies worked for include Petronas Malaysia, Boral Energy, Origin Energy, Murphy Oil Sarawak, Talisman Malaysia, Carigali-SHELL Malaysia, Sonangol P&P and BHP Billiton.

Have the ability to analyse and integrate a wide range of petroleum geological and geophysical data from regional evaluation of petroleum systems through to play and prospect evaluation and maturing to drilling status. Experiences include evaluation of exploration areas offshore deepwater North Cuba Basin and Northern Falklands Basin.

Workstation experiences include PETREL, GeoFrame Applications (Geology Office, Charisma), Landmark Seisworks, GeoProbe, Well Seismic Fusion and Stratworks. Other software experience, include Kingdom, Petrosys and Z-Map mapping systems, Terrastation (Terralog), REP (Reserve Evaluation), ROSE (Reserve Evaluation), RFT Plot, BasinMod maturity and basin modelling, WinLog and Pierre Log Drawing software.

Managed geological operations, which includes tendering and contracting of geological services and supervising wellsite geologists and reporting to joint ventures and government bodies. Have a thorough understanding of wellsite procedures and drilling operations and able to communicate with drilling personnel.

The 30+ years of experience as Petroleum Geologist commenced with PETRONAS Malaysia and several long-term positions with South Australian Oil and Gas Corporation (SAOGC), SAGASCO and Boral Energy Limited in Australia. This was followed by contracts with Lundin (now Talisman) in Malaysia as an Exploration Consultant, with Murphy Sarawak Oil Co as an E & P and Operations Consultant, with Talisman Malaysia Limited as an Operations Geologist and with Carigali Shell Mutiara Petroleum Sdn Bhd as Operations / Senior Development Geologist. Following a consultancy assignment with ISIS Petroleum Pty Ltd, I was employed as Exploration Manager for SAPEX/Linc



Energy Ltd and as Exploration Team Leader with Sonangol P&P, Angola, responsible for operated Block 3-05A exploration.

Currently I am employed as Senior Operations Geologist for BHP Billiton, involved in the ultra-deepwater drilling program in Sabah, Malaysia.

Professional affiliations were membership of PESA and AAPG and recognized by AAPG as a Certified Petroleum Geologist. Professional positions held include Past-President of PESA-SA Branch.

Major Geological Basins worked:

Malay Basin, Malaysia
Sarawak and Sabah Basins, Malaysia
Cooper and Eromanga Basins, Australia
Otway Basin, Australia
Perth Basin, Australia
N Carnarvon, Beagle sub- Basin
Canning Basin, Australia
Officer Basin, Australia
Congo Basin, Angola
North Cuba Basin
North Falklands Basin

Technical and Software Skills:

Geoquest Geoframe (Geology Office, Charisma)
Geoquest IESX Seismic interpretation including 3D
Kingdom
Petrosys
Z-Map
Terrastation
BasinMod Maturity and Basin Modelling
Landmark Seisworks, Geoprobe, Well Seismic
Fusion, Stratworks
Petrel Geological Modules
ROSE - Reserves Evaluation
WinLog - Log Drawing Software

Specific Skills:

Basin analysis and prospectivity evaluation
Reserve and risk analysis
Operations geology
Wellsite geology

ACADEMIC QUALIFICATIONS:

1974 Bachelor of Science (Geology)
University of Malaya, Malaysia

1975 Bachelor of Science, Honours (Geology)
University of Malaya, Malaysia
Thesis: Geology and Stratigraphy of the Batu Niah Area, Sarawak

1977 Master of Science (Geology)
Free University of Brussels, Belgium
Thesis: Pollenanalytic Studies of the Holsteinian in the
Izenberge Area, Belgium

INDEPENDENT CONSULTING HISTORY:

Dec 1999 - Present: Independent Consulting Petroleum Geologist

Clients:

**BHP Billiton, Kuala Lumpur, Malaysia - Senior Operations Geologist
(July 2010 - June 2012)**

Contracted as Senior Operations Geologist responsible for managing and coordinating the Geological Operations program for BHPB's ultra-deepwater drilling program offshore Sabah, East Malaysia. Responsibilities include:

- Evaluation of tenders for LWD, Wireline, Mudlogging, Core Analysis, sample evaluation, fluids handling and petro-technical analysis, wellsite geologists and biostratigraphers.
- Liaise with BHP Team based in Houston and effectively implement the evaluation program.
- Work with the Drilling Team to implement the basis of well design (BOWD).
- Maintain dialogue with all contractors including LWD and Wireline service contractors to ensure the evaluation program is carried out in a cost effective manner.
- Main contact point between the drilling and evaluation activity in Kuala Lumpur and the G&G Team based in Houston.
- Dissemination of all data and daily reports from the wellsite to the Joint Venture (Petronas and Petronas Carigali) and to the Houston office, including data management and real time operations service.

**Sonangol P&P, Luanda, Angola - Principal Geoscientist / Team Leader
(May 2009 - June 2010)**

Contracted as Principal Geoscientist with geological responsibility as Team Leader for:

- Block 3-05A operated block: completed prospectivity assessment of block based on new interpretation from 3D seismic data. Documented prospects and leads, reserves and risk analysis, proposed drilling candidates to Joint Venture.
- New venture assessments carried out include: deepwater blocks located in North Cuba Basin and the North Falklands Basin.

**SAPEX/Linc Energy Limited, Adelaide, Australia - Exploration Manager
(June 2008 - February 2009)**

Contracted as Exploration Manager

- Responsible for developing and drilling exploration plays in the Arckaringa Basin



- Responsible for Coal Seam Gas and Underground Coal Gasification exploration projects in South Australia

**ISIS Petroleum Consultants Pty Ltd, Perth, Australia - Petroleum Geologist
(November 2007 - May 2008)**

Contracted as Consulting Petroleum Geologist

- Worked as Exploration Geologist for Eagle Bay Resources, developing and drilling exploration plays
- Evaluation of Gazettal Blocks in Beagle Sub-Basin
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**Carigali Shell Mutiara Petroleum Sdn Bhd (Malaysia) - Senior Development Geologist
(September 2006 - October 2007)**

Contracted as Senior Development Geologist with responsibilities including:

- Preparation and submission of Gas Holding Area submissions to Petronas
- Team Geologist for preparation of the PM301 Area Development Plan (of gas fields) including supporting Reservoir Modeller using Petrel for data input and mapping.
- Team Geologist for the preparation of the Field Development Plans for the Bunga Zetung and Bunga Anggerik Gas Fields.
- Interpretation of newly acquired 'Q-Marine' 3D Seismic Data, mapping of key horizons, amplitude extractions and AVO analysis, reservoir characterisation using Landmark Well Seismic Fusion and GeoProbe.
- Document new prospects such as the Bumi Deep gas play including risked reserves estimation using ROSE.
- Presentation of results at Peer Reviews and TCM.

**Carigali Shell Mutiara Petroleum Sdn Bhd (Malaysia)- Operations Geologist
(September 2005 - September 2006)**

Commenced as Operations Geologist with CSMP from September 2005, with focus on PM301 and PM302 appraisal drilling programme. Responsibilities include:

- Preparation of well proposals, liaising with drilling team, preparation of AFE's and follow-through to approval process.
- General geological operations: monitoring drilling and wellsite geological operations, liase with wireline, mudlogging and MWD/LWD contractors in town on day-to-day operations, prepare daily geological report for submission to Petronas and Joint Venture Partners.
- Supervision of the Wellsite Geologist and the completion of end of well reports and well completion logs.
- Support Geologist for Field Development, Gas Holding and Unitization projects.



Talisman Malaysia Limited - Operations Geologist (March 2003 - June 2005)

Commenced as Operations Geologist for Talisman Malaysia Limited in March 2003, with focus on development and exploration drilling activities in Malaysia.

These included the development of the Bunga Raya, Bunga Kekwa, Bunga Seroja and South Angsi Fields. Exploration wells were drilled in the PM-3CAA PM305 and Block 46-02 (Vietnam).

Key responsibilities include:

- Operations Geologist responsible for monitoring drilling and wellsite geological operations, liaise with wireline, mudlogging and MWD/LWD contractors in town on day-to-day operations, prepare daily geological report for submission to Petronas and Joint Venture Partners.
- Review the geological and well status for the day to Prospect/Field geologist, Drilling Engineers and Management at daily morning meeting.
- Supervision of the Wellsite Geologist and the completion of all end of well reports and well completion logs.
- Prepared well proposals for development and exploration wells (46 well proposals in total) and assist with preparation of AFE and NOOP for submission to Petronas and Partners. Follow through and keep track of approvals from Petronas and Partners.

Murphy Sarawak Oil Co Ltd. - E & P Consultant Geologist and Operations Geologist for the development of West Patricia Field. (June 2002 - February 2003)

Murphy Sarawak Oil Co Ltd is the Operator of Blocks SK-309 and SK-311, Offshore Sarawak. These areas are the prime focus for Murphy's current exploration and development activities in Malaysia. My current assignment is to assist with short term Exploration and Development projects and to supervise the Geological Operations of two exploration and six development wells in their office in Kuala Lumpur.

Key responsibilities were:

- Assisting with Field Development Plans for the West Patricia Field
- Planning of two exploration wells- Congkak-1 and Gasing-1 (drilled in October 2002)
- Planning of six development wells - West Patricia Field - drilled and completed successfully
- Reserves evaluation for the exploration and development projects
- Supervision of reservoir characterization studies
- Operations geologist

Murphy Sarawak Oil Co Ltd. Operations Geologist for Sarawak drilling programme (October 2001 - March 2002).

Murphy's drilling programme consisted of the drilling of development appraisal and exploration wells in Blocks SK309 and SK 311 offshore Sarawak. The main focus was to



appraise the West Patricia Field for oil development and explore for additional reserves in adjacent structures.

Primary responsibilities were monitoring drilling and wellsite geological operations, liaise with wireline, mudlogging and MWD contractors in town on day-to-day operations, prepare daily geological report for submission to Petronas, Petronas Carigali and Murphy's head office in Houston, review the geological and well status for the day to Prospect/Field geologist, Drilling Engineers and Management, and to give ideas on how to solve and rectify problems, if any.

In addition I was required to carry out stratigraphic correlations, preliminary petrophysical analysis, pressure interpretation of available MDT pressure data and preliminary field reserves evaluation.

I was also responsible for supervision of the Wellsite Geologist and the completion of all end of well reports and well completion logs.

Lundin Malaysia Limited - April/May 2001 (now Talisman):

Primary duties were to perform a preliminary regional geological evaluation of Block PM-305 including stratigraphy, reservoir description, petroleum system, dry hole analysis, prospect/lead evaluation and assistance with geophysical structural interpretation. Products included Structural and stratigraphic X sections, facies and reservoir distribution maps, dry hole summary panels, lead evaluation summaries, hydrocarbon charge and migration maps.

Inland Oil, Australia - September to November 2000:

Responsibilities include establishing digital well, map and seismic database. Digitising of seismic data and mapping of the Inland Oil Field for development drilling using Petrosys Mapping System.

PRIOR EMPLOYMENT

Mar 93 - Nov 99: **Staff Geologist**
Boral Energy Resources, Australia
Sagasco Resources, Australia

Regional Geologist for onshore and offshore Perth Basin (WA220P, EP320, EP100, EP389) Carnarvon Basin (EP110) and Canning Basin in Western Australia, and Otway Basin (PEL32, PEL72, PEP132, PEP133, PEP101 and PEP111) in South Australia and Victoria. Responsibilities included seismic interpretation and mapping, stratigraphic reviews, prospectivity evaluation and generation of prospects and leads and well proposals leading up to drilling of wells. Also acted as operations geologist during drilling phases with responsibility for tendering and supervision of wellsite, mudlogging

and wireline logging services. 22 wells were drilled during this period. Please review (below) the section on significant reports written.

Jan 89 - Mar 93: **Team Leader/Senior Geologist**
Sagasco Resources, Australia

Jan 83 - Jan 89: **Senior Geologist**
Sagasco Resources, Australia
South Australian Oil & Gas Corp

Sept 81 - Jan 83: **Geologist**
South Australian Oil & Gas Corp

Responsibilities during the above period included technical assessment of the Cooper and Eromanga Basins in South Australia and SW Queensland, including seismic interpretation and evaluation of source, reservoir and trap potentials to develop new play concepts. Following economic and risk evaluations, potential prospects were subsequently recommended to the operator (Santos) for drilling. Other areas worked include Eastern Officer Basin, Murray Basin, Amadeus Basin, Permit VIC/P19 (Kipper/Basker/Manta), Papuan Basin and Browse/Bonaparte Basins. Other responsibilities included evaluation of farmin opportunities.

Feb 78 - Sept 81: **Geologist**
PETRONAS Malaysia

Main responsibilities were to evaluate well proposals submitted by Shell and Esso and make technical recommendations to the Exploration Manager, monitor daily drilling operations and provide summary of activities, basic log evaluation and reserve estimation. Area responsibility (Offshore Sarawak) for geological studies and generating play concepts. Experience includes wellsite geology between Feb 1978 to Feb 1979 with monitoring assignments to offshore wells drilled by Esso in the Malay Basin and by Shell in the Sarawak Basin, including the Baram, Balingian and Central Luconia Provinces. Between March 1979 and September 1981 I was assigned to assist in the development of Petronas' geological laboratory for geochemical, palynological and core analyses.

PROFESSIONAL ASSOCIATIONS:

PESA - Petroleum Exploration Society of Australia
Member since 1981
Committee Member since 1991
Secretary South Australian Branch 1994-95
Vice-President South Australia 1997-98



President South Australian Branch 1998-99
Member of Board of Directors, Federal Committee 1998-99

REFEREES:

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