

Professional Work Experience

NAME : BK Lim	Email Contact: bklimGeohazards@gmail.com
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Some project highlights – key differences made.

Period	Employer (Client)	Description
2008 Aug - Oct	RPS Energy (Aus). (Otto Energy -Norasian Energy Philippines)	Offshore Palawan & Cebu, Philippines (water depth: 80 – 700 m). <u>Project Brief: Survey vessel: M/V Baruna Jaya 1.</u> Site survey employing 2D multichannel seismic survey (2 seconds data), deep tow DT1 and conventional surface tow systems (SBES, MBES, SSS, 4x4 pinger and minigun profiler).
	Geohazards Survey Contractor: Fugro Survey	QA/QC Client Rep onboard survey vessel operated by Fugro. The geohazards site survey was aborted due to multiple failures, culminating in a total vessel breakdown on 20 Sept 2008 initiated by a Halon Gas discharge from a power surge. The vessel was ordered back to port. Subsequent HSE investigation at port revealed HSE and technical improprieties and frauds by Fugro since the maiden NIDO survey 2 months earlier. NIDO suffered >1million USD cost overruns due to "Fugro-favoured" QC while my independent QC saved Norasian >2 million USD of 40 days downtime charges. Fugro hemorrhaged >3 million USD in lost revenue and time-port repair costs in the extended 2 months survey period.
2008 April	RPS Energy (Aus). (ENI Krueng Mane Ltd.)	Offshore Sumatra, Indonesia (water depth: 900 – 1200 m). <u>Project Brief: Survey vessel: M/V GeoSurveyor.</u> Site survey employing 2D multichannel seismic survey (4 seconds data), deep tow systems DT1 (SBES, MBES, SSS, 4x4 pinger and minigun profiler).
	Geohazards Survey Contractor: Fugro Survey	A potential drilling disaster was averted by my unexpected QC review of Fugro's report on the first priority site, Emerald-1. Fugro had completed the survey at the first site and was 50% complete on the 2 remaining sites when I boarded the vessel as an urgent replacement for another RPS's QC Rep. The report which had been vetted and approved for submission by senior experts in KL, had cleared the Emerald-1 location of any significant gas hazards risk. Fugro's geohazards assessment completely missed out the massive shallow gas occurrence covering the entire 2x2 km site.
	Critical QC review exposed negligence since 2000	My critical review of the report and survey standards brought to question Fugro's professional negligence and responsibility in the event of a blowout disaster at this and other sites previously surveyed by Fugro. The flawed interpretation and geohazards assessment had been blindly copied from a survey report in 2000 authored by Fugro's current senior geohazards experts.
	Fugro failed to recognize active mud volcanoes spewing gas columns as high as 80m asb.	The routine geohazards survey completely misinterpreted the active mud-volcanoes spewing out columns of gas as dormant seabed mounds. The spurious diffractions at the density boundary between the gas-saturated and normal seawater were erroneously digitized as the sea floor instead of the faulted gas-venting seabed (>30m below).
	Regional fault misinterpreted as channel. >10 serious flaws.	A regional strike slip fault with a typical "rift valley seafloor expression" was misinterpreted as an "erosion channel"; an unsound geological interpretation given the deep water depth (1000m) and the lack of supporting geological and morphological evidence. There were many other serious fundamental errors in the geophysical interpretation; raising concerns on Fugro's professional standards and competence as the industry's leading geohazards contractor.
	No red flags on survey inadequacies. Gas anomalous area > survey lines.	Most important of all, Fugro's geohazards experts failed to realise the massive shallow gas risk area (at least 5 x 4 km) was 5 times larger than the 2 x 2 km digital 2D seismic coverage. With the faulted geological structure spanning more than 5 km, there was no way the 2km long seismic lines could have been adequate to assess the geohazards of the well at this location.
	Fugro's omissions confirmed	ENI had no choice but to agree to my QC analyses and recommendations of redeploying the digital seismic spread and running extended seismic lines 6 to 7 km long across the faulted geological structure. The extended survey confirmed not only one of the largest shallow gas occurrences but also exposed the vulnerability of deepwater exploration due to such willful ignorance.
	Fictitious BSR used to erroneously infer vaporising hydrates	One of the sites (BSN) had been surveyed before in 2000 by Fugro using a surface towed system as opposed to the present deep-towed system. Among the most serious error had been the misinterpretation of the diffractions (data artifacts or noise) due to the older surface-tow instrument limitation as Bottom Simulating Reflectors (BSR).

Plastic deformation not due to gas pressure	Fugro's top experts had also wrongfully interpreted the observed plastic stiff clay deformation as "bulging hummocky seafloor" caused by localised gas seepage from vaporising methane hydrates (inferred from the fictitious BSR).
Exposed flaws helped to avert potential disasters	Fugro's experts failed to realise the fatal inconsistencies in their interpretation; that very soft Silty Clay do not bulge under pressure. They simply failed. Gas expulsion in soft clay produces pockmarks not bulging hummocky seafloor features. The localised undulation in the seafloor could only mean hard to stiff plastic clay which do not undulate under uniform gas pressure. The increasing deformities down slope were consistent with downward stress and creep under gravitational forces. Gas migrate upslope and therefore inconsistent with the observed facts. These hugely embarrassing mistakes made by Fugro's top senior experts were unfortunately blindly "cut and pasted" into all of Fugro's deepwater reports since the 2000 survey at BSN. The exposed deep-rooted expertise problems alerted ENI and other oil companies to be more cautious with Fugro's imprudent geohazards assessment and reports and possibly helped to avert other potential drilling disasters. It was no coincidence Fugro lost their long term survey contracts with Sarawak Shell and Brunei Shell the following year (2009); after more than 18 years.
2005 TL Offshore Sdn Bhd. (Baram Operation Sarawak Shell / Petronas Carigali) Survey contractor: Fugro survey(1992-2009) Offshore Malaysia (1988-1991)	MCOT – Miri Crude Oil terminal, Sarawak, Malaysia. <u>Project Brief:</u> 8 live pipelines had been charted from previous surveys in the last 25 years. The safe clearance survey was a critical requirement to ensure no accidental damage or disruption to the oil flow during the soil boring or sub-horizontal drilling operation. When the initial reconnaissance survey revealed significant discrepancies in the charted position of the existing pipelines, I initiated a detailed mapping exercise to resolve the complicated mess of live and abandoned pipelines. Altogether 24 pipelines (instead of only 8) were identified, confirmed and mapped. The safe clearance survey successfully averted any costly disruption or messy environmental disaster as several of the soil boring locations were proposed within the danger limit of the live pipelines. 8 barrels of oil were also recovered from the orderly removal of the abandoned pipes; avoiding unnecessary oil spillage.
2005 TL Offshore Sdn Bhd. (Sabah Shell / Petronas Carigali)	LCOT – Labuan Crude Oil terminal, Sabah, Malaysia <u>Project Brief:</u> The proposed sub-horizontal pipeline route lies in between 2 existing live lines, just 15 to 25 m apart. With a combined flow of more than 40,000 barrels of oil per day, any accidental damage to the existing live pipelines or disruption to the oil flow during the soil boring investigation and directional drilling operation, was unacceptable. The safe clearance survey (a pioneer innovative solution) successfully averted any costly oil flow disruption and messy environmental disaster as the charted position of both live pipelines varies from 5 to 10m; exceeding the safety tolerance limit of the soil boring location.
1999 TL Offshore Sdn Bhd. (Petronas Carigali)	RESAK-OGT 28" pipeline installation, Offshore Gas Terminal, Paka, Trengganu. <u>Project Brief:</u> A previous sub-horizontal pipeline drilling operation in Sabah suffered several months delay costing more than 6 million USD due to an unexpected rock condition along its trajectory. Using an innovative, pioneering seabed refraction technique, the predrilling survey detected shallow occurrence of doleritic dykes at two locations, not detected by soil boring (as in the previous project). To avoid costly delays, the preferred option of sub-horizontal drilling was dropped in favour of the cheaper open trenching option.

1995-1996	Strata Geophysical Pte Ltd (S'pore) in ass. with Soil & Foundation Pte Ltd (PSA - Port of Singapore Authority)	PSA New Container Port Terminal Project, Pasir Panjang, Singapore. <u>Project Brief:</u> In 1995, reputed geotechnical consultants from Japan and France, concluded that the reclaimed port terminal site was underlain by karstic limestone with extensive unpredictable occurrence of large cavities that needed to be grouted with cement to prevent potential cave-ins, uneven settlement and disastrous bore pile failures. Convinced of the severity of the cavity problem, PSA budgeted >40million SGD to drill 4 test holes at each of the 200 bore pile locations; to conduct cross-hole seismic integrity testing to determine the magnitude of the cavity problem at each pile location. This cost did not include the cement grouting works once the cavities were found. In the building frenzy of the economic boom of the eighties, many high-rise buildings in KL suffered costly delays and remedial works from unanticipated karstic limestone problems. This was good enough reason for PSA to award a record 40 million SGD rock integrity testing contract. The fact that the geological framework of Singapore did not support karstic limestone condition escaped consideration by the geotechnical experts who had vested interests. I was invited by Soil & Foundation (SF) in their last minute attempt to get a piece of the lucrative pie, to present an alternative proposal to PSA. Our work on karstic limestone in Malaysia had attracted wide attention. Though our presentation (Dr Yeap and I) to PSA's project management thoroughly rebutted any occurrence of karstic limestone let alone karstic cavities in Singapore, PSA was skeptical that we could prove our case for less than 0.25% of what they had budgeted for. To allay PSA's skepticism, a "satisfaction guaranteed or no payment clause" (a first in any geohazards investigation contract) was written into our contract. The reported "20 m karstic limestone cavity" in one of the earlier investigative boreholes proved to be nothing more than weathered shale sandwiched between two siliceous limestone beds adjacent to an undetected fault zone. After it was proven beyond doubt that the extensive karstic cavities problem was a myth designed to capitalize on the Client's ignorance and fears, PSA had no choice but to award all the 6 packages to Strata Geophysical at a total cost of <1.5% of the 40 million SGD PSA had budgeted to spend. After saving the Singapore government from spending an enormous amount of money, time and effort on a fictitious geotechnical problem, one would have thought that SF and PSA would be grateful to work with us on future contracts. There was a sad twist to the story. We were given a choice of working under a new "China geohazards contractor" who was keen to penetrate the South-East Asian market or bowed out. Although I was offered a highly rewarding remuneration as their geohazards advisor, I declined as I would be endorsing their scheme of manipulating and monopolizing the forth-coming geohazards investigations for the Ministry of Defence Underground Ammunition storage, Mass Transit system and numerous reclamation projects. Contrary to public perception, many clients' project managers prefer higher contract values if they can justify them on special geohazards reasons where there was no cost comparison. Because we would not profit unscrupulously from the misfortunes of others, unscrupulous business managers find it difficult and non-profitable to work with us. PSA was more than willing to pay out 20 million SGD for our services. Our honest costing of less than 1 million SGD was viewed as a lost windfall opportunity. Geohazards contractors do not make huge profit by averting disasters. Profit margins can only be boosted by fears of potential disasters after the occasional disasters had happened.
1991-1994	Fugro Survey (formerly Geodetic) (1992-1993) Offshore Malaysia (1988 -1991) (Sarawak Shell / Petronas Carigali)	Baram BAP-AA, BAJT F & BA-G development complex, Baram Delta, offshore Sarawak, Malaysia – Shallow Gas Blow Out. <u>Project Brief:</u> The soil investigation vessel, MV Teknik Samudra encountered 2 shallow gas blow-outs in February 1994 while carrying out pilot hole drilling at the proposed BAJT-F location. The blowouts had been predicted in my 1991 site evaluation report but my warnings and recommendation to relocate the BAJT F location to a less risky zone were ignored. A new Geodetic team appointed in 1993 to re-evaluate the gas-risk, cleared the installation location of any shallow gas hazard. It was a costly mistake by the management to accept the revised safe assessment.

I was recalled to save the situation and recommend a new safe location for BAJT-F/4 after the blow-outs had occurred. More than **30 million USD** was lost. The installed pipeline network and fabricated jacket could not be used in addition to the loss of equipment, vessel downtime, costly revision of the development plans and offshore installations.

The inexperienced geohazards experts who had subserviently revised my 1991 risk assessment and caused the unnecessary blowouts were all promoted. The errant geohazards contractor was never punished but rewarded with renewed contracts for a record 6 consecutive terms until 2009. The independent geohazards specialist who refused to compromise on his work, was edged out instead.

1992	Fugro Survey (formerly Geodetic)	Proposed BAP-AA platform – A Near Disaster . <u>Project Brief:</u>
	(Sarawak Shell)	One of the early pipelines to the BAP-A platform was erroneously charted due to Hyperfix mis-positioning in the seventies. The error remained undetected for more than 20 years until a new platform (BAP-AA) was proposed to adjoin the BAP-A platform. As a precautionary measure, I recommended a magnetometer survey to confirm the absence of any pipeline beneath the new proposed platform location. The new BAP-AA platform had to be relocated when the mis-positioned pipeline was unexpectedly found beneath the new platform location. A very costly operation disruption and a messy environmental disaster were averted just in time.
1990	Fugro Survey (formerly Geodetic)	Barton- Gas Blowout Incident – Platform stability. <u>Project Brief:</u>
	(Sabah Shell)	A gas blow-out occurred while drilling an inclined sidetrack from Barton-A platform. Although the blow-out was successfully capped, there were deep concerns of platform instability and imminent collapse as gas columns continued to spew out from the “fractured” seabed all around the platform. I was requested to write a report to confirm the deteriorating seabed condition as part of the shut down procedure. After 2 weeks of analysis and interpreting the available well and seismic data, I concluded on the contrary that the sub-seabed and platform foundation were stable and not in danger of collapsing as strongly believed. I discovered that the platform was located on the apex of a faulted anticlinal structure and not within a “deep palaeo-basin” as previously reported. The inclined BT-5 sidetrack had intersected a shallow fault at 800m bsb, which resulted in active leakage of hydrocarbon from a deeper gas reservoir. A series of interpretation and human errors over the years had contributed to the eventual blow-out at BT5. The well-bore at BT5 was largely uncemented, resulting in continuing gas seeps through the highly faulted structure. Before the gas blow-out, the shallow gas occurrences in the prospect area were erroneously interpreted as biogenic in nature. Shutting down Barton-A platform would have been an unnecessary costly mistake as it handled more than 60,000 barrels of oil flow per day. After more than 15 years, the Barton-A platform is still in operation.

PROFESSIONAL EXPERIENCE SUMMARY

Period	Designation	Region	Brief Description of work experience.
Present - 2003	Consultant Geophysicist	Worldwide	Worked exclusively for Geophysical Consultants Sdn Bhd as Client's representative for Petronas Carigali operation worldwide (Russia, Africa, Turkmenistan, and Asia). Continued to work for RPS Energy (Australia) when RPS group bought over Geophysical Consultants Sdn Bhd in 2007. Other energy companies represented include Shell, British Gas, Thang Long JOC, TGS-Norpac, CNOOC, PNOC, PVEP, ENI, and NorAsian. Expertise: Land and marine geophysical techniques (georadar, magnetics, resistivity, seismic refraction and reflection), land, coastal to deep water (>1km WD) operations, 2D seismic surveys, marine site investigations and engineering construction projects. (see - List of recent assignment as offshore Client Representative).
1987 - 2005	Project Geophysicist	World-wide	Worked on project basis with geophysical contractors: Fugro, Geodetic, Hunting surveys, Oceanics, PT Pacific Geohydro, PT Komaritm, Racal, TL Offshore & TL Geohydrographics on marine site investigation, cable route surveys and major engineering projects. Some major offshore projects:
July 2004	Client: Conoco Phillips Aust Pty Ltd	Australia	Bayu-Darwin Pipeline Project - Prelay magnetic sweep survey to detect UXO. The magnetic data revealed an unexpected magnetic dyke across the pipeline route which was confirmed later.
July- Sept 2004	Saipem	Malaysia – Thailand	Trans Thailand Malaysia (TTM) Gas Pipeline Project: Pre-engineering survey for 34" pipeline from Cakerawala platform to landfall Chana, Thailand.
July-Aug 2003			Post-lay Trenching Monitoring and QC – survey vessel M/V China Venture operating from onboard Castoro-10 pipe-laying barge.
Nov 2001- Aug 2002	Tycom Ltd (USA).	Spore to Guam thru' Indonesia, Philippines	SEACN Seg2 – SEAsian Cable Network cable route survey from Tuas Spore to Piti Bay Guam. The 5830 km cable route crosses 3 tectonic plates and passed over some of the ocean's most remarkable and deepest (>6000m) bathymetric terrain.
1997- 1998	Geophysical Advisor	Malaysia	Invited to sit in the Technical Review Committee advising the Ministry of Science and Technology of Malaysia, on the approval of research grants for geophysical researches for government agencies in the ministry including academic research grants for all the universities in Malaysia.
1985- 2003	Principal Geophysicist & Director.	South-East Asia	Set up Strata Recon Sdn Bhd (1985-1989) and Strata Geophysical Sdn Bhd (1989-2003) which were involved in the development of geophysical software and techniques, survey & services, sales & promotion of geophysical and geotechnical equipment, software and training courses. Represented major international geophysical companies like OYO corporation (Japan), Hunttec (Canada), Geonics (US), Abem (Sweden) and Nitro-Consult (Sweden). Strata Geophysical was the exclusive distributor for ABEM (Sweden) in the Malaysia, Singapore and Brunei region from 1990 till 1998.
	Marketing	Achievement	4th position in top ten distributor for Abem world wide in 1994.
1980- 1984	Geophysicist	Asia & Middle East	Land and marine site investigations for exploration drilling & engineering projects.
	Seismologist		2D processing of land seismic data (vibroseis and explosives), based at the Aramco Exploration Centre at Dhahran, Saudi Arabia.
	Geophysical Manager		Promoted to Geophysical Manager in 1983 with Geomex Surveys in KL, seismic advisor within the Geosite group worldwide.

Recent assignment as offshore QC Client Representative.

Period	Employer	Client	Contractor	Job Title - Description
Aug – Oct 2008	RPS Energy (Aus).	Otto Energy (Aus) Norasian Energy Philippines	Fugro Survey Pte Ltd	Hazards Site Survey – SC50 offshore Palawan, SC51 Cebu Strait, Philippines Water depth: 80 – 700 m. Survey Vessel: M/V Baruna Jaya 1
March-April 2008	RPS Energy (Aus).	ENI Krueng Mane Ltd.	Fugro Survey Pte Ltd	Deep water site investigation surveys at Krueng Mane PSC, offshore north Sumatra Indonesia Water depth: 900-1200m. Survey Vessel: M/V Geosurveyor & Voyager.
July 2008	RPS Energy (Aus).	Thang Long Joint Operating Co. Vietnam	PTSC Marine (Vietnam) Romona Int Ltd	Bathymetry Survey - Scouting for shallow coral sites within a 15 x 3.5 km area Block 15/02-1, offshore Vietnam for 3D Seismic survey planning. Survey Vessel: M/V CGS 96
Nov 2007 - Feb 2008	RPS Energy (Aus).	JMSU 2007 CNOOC, PNOC & PVEP	China Offshore Services Ltd. (COSL)	2D Marine Seismic Survey In JMSU 2007 Area, South China Sea Water Depth: 800 – 2500 m. Survey Vessel: M/V Nan Hai 502.
Feb - March 2007	Geophysical Consultants (SE Asia) Sdn Bhd.	Petronas Carigali Mozambique (PCMEP)	TDI Brooks International	Seabed Coring & Geochemical Exploration – Zambesi Delta Block, offshore Mozambique. 150 coring locations at water depths from 40 -2300m. Vessel: R/V GeoExplorer
August 2006			Fugro Ocean-Sismica Spa	Marine Site Survey – Str-E-1 Well location. Vessel: M/V Western Shore

Previous Employment History

1989 – 2003 **STRATA GEOPHYSICAL SDN BHD – FOUNDER, MANAGING DIRECTOR & GEOHAZARDS SPECIALIST**

1985 – 1989 **STRATA RECON SDN BHD : FOUNDER, MANAGING DIRECTOR & GEOHAZARDS SPECIALIST**

1983 – 1984 **GEOMEX SURVEYS SDN BHD : POSITION – GEOPHYSICAL MANAGER (GEOHAZARDS)**

1982 – 1983 **WESTERN GEOPHYSICAL CO. : POSITION - SEISMOLOGIST**

1981 – 1982 **E G & G INTERNATIONAL INC. : POSITION – GEOHAZARDS GEOPHYSICIST**

1980 – 1981 **GEOMEX SURVEYS SDN BHD : POSITION – GEOHAZARDS GEOPHYSICIST**

REFERENCES – (quoted on project highlights)

- BK Lim and Wong S C, 1990 BTJT-A Platform Location, BT-105 Post-drill Analogue And Digital Site Survey, Report no. XTS/1 – PSS.SB.14. Topographical Department, Sarawak Shell Bhd.
- BK Lim and Wong S C, 1994 BAJT-F 1991 Digital Seismic Site Survey (Proposed BAJT-F/4 location) and Correlative Study of Digital Seismic Data And Boreholes, Report no. XTS/1 – PSS.SW.35. Topographical Department, Sarawak Shell Bhd.
- JP Velasco and Wong S. C, 2000 Survey report on the Offshore rig location site survey At the Bungong Seulanga 1 location, Offshore North Sumatra, Indonesia. Report No. S0956/02. LASMO KRUENG MANE LIMITED
- SF Yap, YT Tan, BK Lim & Jack Fitzsimons, 2003, Trans Thailand Malaysia (TTM) Project Gas Pipeline, Pre-Engineering Survey Report, Offshore Section (from KP 0 to KP 262). Report no: ED.A-0303.08-010-001. SAIPEM.
- Mohamad Kodri Aziz and HJ Ang, 2006 Final Geophysical Report for the Proposed Aster-4a, Aster-4b and Aster-4 (modified) Well locations In Bukat Block, Offshore East Kalimantan, Indonesia. Report no. S1797/02. ENI KRUENG MANE LTD.
- BK Lim and John Worthington, 2008 Report On Contractor's Performance, Deep water site investigation surveys at Krueng Mane PSC, offshore north Sumatra and Maura Bakau PSC, Offshore East Kalimantan, Indonesia by Fugro (M/v GeoSurveyor & M/v Voyager) for Eni Krueng Mane Ltd.
- Graham Macdonald Bell, HJ Ang and Agus Norman Bin Abdul Rahman, 2008 Onboard Preliminary Report on the Provision Of Deep Water Sea Bed Survey Services, BSN-1, Offshore North Sumatra, (M/v GeoSurveyor & M/v Voyager). KRUENG MANE PSC
- BK Lim and David Waugh, 2008 Report On Contractor's Performance, Site Investigation Surveys at Calauit 2, Block SC50, offshore Palawan, Argao 1 & Bahay 1, Block SC51, offshore Cebu by Fugro (M/v Baruna Jaya 1) For NORASIAN Energy Ltd, Philippines (operated by OTTO Energy Ltd).

PUBLICATIONS / AWARDS / PRESENTATIONS

2010 June	The need for Independent Post Survey QC to check the high failure rate of geohazards prediction – presented at National Geoscience Conference 2010, Shah Alam, Malaysia. (accepted for publication – Geological Society of Malaysia Bulletin).
2010 March	The Need for QC on Geophysical Interpretation for Geohazards and Engineering Site Surveys – (presented by Dr Fiona Fitzpatrick of RPS) at Geophysics and Geohazards Seminar, 25th March 2010, Perth, Western Australia.
2003 Oct	An Integrated Approach To Resolving Shallow Marine Structures And Seabed Sediments. Seminar on Geophysics 2003 Effective Utilisation of Geophysical Techniques in Site Investigation, Universiti Malaya, Kuala Lumpur.
1999 Sept	Effective Use Of Seismic Methods For Site Investigations Over Karstic Limestone And Other Rock Types. Joint Paper by BK Lim & Prof. Dr. Yeap Ee Beng. 2nd Asian Symposium on Engineering Geology and the environment
1998	MSEG Training Series – Engineering Geophysics presented in Universiti Sains Malaysia, Penang, Universiti Malaya, Kuala Lumpur, Universiti Kebangsaan, Bangi.
1996	Site Investigation In Karstic Limestone Area - Effective Methods Of Cavity Detection. Presented to PSA engineers, consultants and contractors at Port Singapore Authority (PSA), Singapore.
1994	Achieved 4 th place in the Abem World-Wide Sales Contest (sole distributor for Malaysia, Brunei & Spore)
1986	Some Preliminary Results Of A Pioneer Seismic Survey Over Karstic Limestone Bedrock. Economic Geology, Tectonics, Sedimentary Processes and Environment of the quaternary in Southeast Asia. Haadyai Thailand Feb 1986. Sponsored by AGID
1982	Some Applications And Problems Of The Seismic Refraction Technique In Civil Engineering Projects In Malaysia. - joint paper by B.K. LIM and S.J. JONES. (presented in GSM Petroleum Seminar 1981).
1980	Inaugural Young Geoscientist Award by the Geological Society of Malaysia for the publication of the paper highlighting the geophysical findings on the controversial nature of quartz porphyry occurrence at Gunung Jerai.
1979	Some Qualitative Analyses Of The Ground Magnetic Survey In Kedah Peak Rest House Area, Kedah. (Geol.Soc.Mal., Bulletin 13, p43-55).
1979	The Nature Of The Contact Between The 'Quartz Porphyry' And The Jerai Formation In The Rest House Area, Kedah Peak, Kedah - GEOL.SOC.MAL., Newsletter.

PROFESSIONAL AFFILIATIONS

Geological Society of Malaysia. (GSM) – Life Member

Institute Geology Malaysia (IGM) – professional corporate member no. 123

Society of Exploration Geophysicists (SEG) –Associate membership lapsed since 1990

European Association of Exploration Geophysicists (EAEG) – Membership lapsed since 1990