Ted Tyne, founding member

Summary & Early Career

Over a 50-year career, Ted has been a prominent Australian champion of innovation and practice in exploration geophysics & geoscience technologies and a proactive leader and strong advocate for investment in state and national government exploration initiatives, mineral and energy resource development programs and the next generation of public geoscience mapping coverages.

Ted is a graduate of the University of New South Wales in Bachelor of Science (1971), Graduate Diploma in Applied Geophysics (1973) and PhD (1987 for his research in mineral exploration geophysics) and a graduate of the NSW Government Premier's Senior Executive Development Programme (2001).

Ted was appointed as a graduate Geophysicist in the Geological Survey of NSW in 1971 and worked over the following two decades in GSNSW mineral, petroleum & coal exploration geophysics & geoscience surveys and research. One of Ted's early roles was to evaluate and promote the exploration application of electrical geophysics through demonstration surveys for explorers on exploration projects across a range of mineral domains in NSW, developing new interpretation techniques and refining and optimising field survey techniques.

In the 1970s the quest was on across Australia to establish how mineral explorers could best apply the latest geophysical exploration technologies – electrical, electromagnetics, gravity, radiometrics and seismic to directly detect economic metal-rich orebodies. The discoveries at this time in NSW of the Elura Massive Sulphide Lead-Zinc-Copper Orebody, in the northern Cobar region and of the Woodlawn Massive Sulphide Lead-Zinc-Copper Orebody, near Goulburn, provided unique opportunities for Ted and other researchers and field practitioners to trial and further refine the latest geophysical methods and quantify the "geophysical signature" of these orebodies. Ted led a research program with Steve Webster, then Chief Geophysicist GSNSW, over the Elura and the Woodlawn orebodies and followed with a suite of case history survey & modelling/interpretation journal papers in the ASEG's first Geophysical Case History Journal – the Elura Volume ed. D W Emerson - and the independent Pergamon Press Book, the Woodlawn Geophysical Case History ed. R J Whiteley. The case history studies were presented at the 1st ASEG Biennial Conference & Exhibition, Adelaide 1979 – Ted was a Co-Convenor of this conference with D W Emerson and John Webb.

Career Highlights

Ted's career roles:

- Geophysicist (GSNSW 1971-1988);
- Lecturer in Geophysics (seconded to UNSW 1984-1986);
- Principal Geophysicist (GSNSW 1988-1993);
- Manager Airborne Survey Data Processing & Interpretation (CGG-Geoterrex 1993-1997);
- Manager Geophysics Business Development (Encom Technology 1997-1999);
- Assistant Director Regional Geology & Geophysics (GSNSW 1999-2002);
- Director Geological Survey & NSW State Government Geoscientist (GSNSW 2002-2005);
- Director SA Mineral Resources & SA State Government Geoscientist (PIRSA 2005-2011);
- Executive Director SA Mineral Resources (DMITRE/State Development/Premiers & Cabinet 2011-2017)

Wider Industry/Government roles:

- NSW & SA - National Chief Government Geoscientists Committee reporting to Ministerial Council on Mineral Resources/Council of Australian Governments (Resources) 2002-2011
- NSW & SA lead representative on Australia Minerals international trade delegations (2002-2017)
- Chair of the SA Premier's Community Excellence Awards for Mineral Energy & Resources (2011-2016)
- SA Government Chair & Government Case Manager for Eyre Peninsula (Cape Hardy) Deep Water Port Development – Central Eyre Iron Project (2008-2010)
- Independent Chair SA Magnetite Strategy-Government-Industry Partnership (2016-2019)

Ted has been a bright light in the minerals exploration geophysics community and in his leadership roles in government, industry and geoscience research & teaching. He is widely known as a successful multi-disciplinary collaborator for his achievements

across Australia and internationally in exploration geoscience mapping, airborne, ground and borehole exploration geophysics and in leading major government exploration geoscience and investment attraction initiative programs, geoscience education/training, and collaborative research and mining development programs. Over his career, Ted has been directly responsible for project generation, funding advocacy, project initiation and overall project management for government-funded airborne geophysical surveys (magnetic, radiometric, terrain, electromagnetic, hyperspectral) in NSW and South Australia, totalling more than 3.5 million line kilometres of surveying as well as ground-based and helicopter supported regional gravity and other exploration surveying programs totalling more than 300,000 survey stations – a substantial contribution to Australia's state and national public precompetitive exploration geoscience data and mapping coverages.

Ted has also been directly involved at operational and leadership level in major international airborne geophysical survey exploration projects and consultancies for government and industry, as Manager Data Processing & Interpretation, CGG Geoterrex and Manager Business Development, Encom Technology (1993-1999), including a leading role in the 1996 Canadian Government-funded airborne magnetic survey over the Okavango Delta, Botswana (300,000 line-kms survey).

Ted was appointed in 1988 to the position of Principal Geophysicist, GSNSW, with the task of managing the geophysical team through a period of change from service work and a variety of research-oriented projects, to a fresh focus on regional geophysics in support of geological mapping and mineral and petroleum exploration. Ted worked with his team to accelerate the application of high-resolution magnetics and radiometrics to geological mapping, particularly for the Lachlan Fold Belt geological mapping projects. Ted's geophysics team compiled large format State magnetic and gravity maps and high definition "sun-shaded" colour imagery, the first to be completed and published in Australia.

In 1989, Ted initiated and led an innovative co-funding partnership of State and Federal Government & industry to undertake the first government-led modern high-resolution, close line-spacing (250m) airborne geophysical survey in Australia, a next-generation regional geophysical mapping acquisition program. The aim was to underpin a new development of NSW-BMR integrated geological and geoscience mapping in the central Lachlan Fold Belt that would encourage a modern era of exploration activity.

This GSNSW-BMR-Geoterrex regional airborne geophysical survey program was one of the first to use Differential Global Satellite Positioning (GPS) in Australia. The survey, completed in 1990, delivered high-definition magnetic and radiometric imagery which fully illuminated the detailed structural elements of the Bathurst 1:250000 map sheet. It proved an outstanding framework for modern stratigraphic, structural, tectonic and metallogenic mapping of this mineral-rich region.

This new survey dataset was also valuable to Newcrest Mining during the early exploration stages of the giant Cadia Valley porphyry copper mineral discoveries.

The positive exploration and mapping outcomes from the Bathurst geophysics survey demonstrated a compelling economic value case to the State Government and NSW Treasury which led to a more positive policy position on future State government investment in major precompetitive geoscience programs, and a successful funding bid to support the follow-up GSNSW-BMR Dubbo airborne geophysical program.

The Bathurst airborne geophysical survey provided the foundation for a new era of State and Commonwealth collaborative geological and structural mapping under a new National Geoscience Mapping Accord. The Bathurst survey also set the technical surveying benchmark for future State and Australian government-led regional geophysical mapping. The success and proof of concept of the Bathurst airborne geophysics project was followed by the 1991 BMR-NSW government-co-funded collaborative magnetics and radiometrics regional survey over the Dubbo 1:250000 Sheet (200m & 400m line spacing), setting the technical direction and strategy for future BMR and NSW State Government precompetitive airborne geophysical mapping coverages.

Following the release of the data, Ted briefed South Australia's then Director General of Mines on the value of the Bathurst and Dubbo survey outcomes which further supported the technical justification for South Australia's 1994 Exploration Initiative (SAEI).

In 1992, Ted worked with his Geophysics team, led by Ross Spencer and David Daggar, to compile the State's magnetic and gravity datasets and high-resolution grids to produce the first modern magnetic field grids and colour sun-shaded image of the Magnetic Map of NSW – the first State Geological Survey to publish a state-wide colour magnetic and gravity image in Australia.

In 1993, Ted left the GSNSW to join the international CGG-Geoterrex airborne geophysics group. Ted worked around the globe in industry with CGG-Geoterrex (1993-1997) and Encom Technology (1997-1999) on major government and industry projects in Australasia, Africa, South America, Asia, Europe and North America.

Ted returned to the GSNSW in 1999 as Assistant Director Regional Geology & Geophysics successfully re-vitalising the geological mapping programs and creating a stronger integration of geology and geophysics teams. Following the retirement of John Cramsie Director GSNSW in 2002, Ted was appointed as the new Director of the Geological Survey – the first geophysicist to take on this prestigious State Government executive science position.

As Director GSNSW, Ted also led the Government's NSW exploration initiatives – Discovery 2000 and Exploration NSW, with a strong focus on regional geoscience mapping including a close partnership with the CRC Landscape Environments and Mineral Exploration (CRC LEME) on regolith mapping of the Broken Hill block. Ted also fostered a strong partnership with Geoscience Australia on jointly funded programs for regional geophysical and geological mapping and seismic crustal transects. Ted initiated the first major HYMAP regional hyperspectral airborne survey in Australia over the entire Broken Hill Block which significantly facilitated a second-generation re-map of the geology and stratigraphy at 1:25000 scale.

At the GSNSW, Ted contributed substantially to the Australian Chief Government Geologists working group (under the Ministerial Council for Minerals and Petroleum Resources – MCMPR) on national geoscience strategies and national and international investment attraction programs and forums, particularly in Canada, China and Japan.

Following a very successful three years as NSW Chief Government Geoscientist and Director GSNSW, Ted resigned in 2005 from the newly-amalgamated NSW Department of Primary Industries which involved a forced move of his Department to Maitland NSW.

Ted was appointed to the Government of South Australia in April 2005 and moved to Adelaide to take up the executive role of Director SA Mineral Resources, Primary Industries and Resources SA (PIRSA). In this position, Ted was responsible for leading and managing the full range of government minerals services across South Australia, including minerals policy and a number of Acts and related legislation; the Geological Survey of South Australia; minerals information systems and online services; mineral tenements & titles; regulation; mine rehabilitation; environmental services and a wide range of native title and land access matters.

Ted worked directly with Dr Paul Heithersay, then Executive Director of Minerals and Petroleum and Energy Services, the Minister for Mineral Resources Development, The Hon Paul Holloway, and the Manager of the Geological Survey Branch, Mark McGeough. Ted's broad experience in government, industry and academic/research sectors stood him in good stead in this new position.

Ted's knowledge and leadership in these government science areas has underpinned his passion to work collaboratively across government and with industry and regional communities to create and deliver public geoscience programs (Discovery 2000; Exploration NSW; SA Plan for Accelerating Exploration-PACE; PACE Exploration; PACE Mining; PACE Global; PACE Energy; PACE Copper; South Australian Drill Core Reference Library) that would attract new exploration investment and stimulate exploration activity, leading to economic mineral resource discoveries, mining developments and new jobs in regional communities.

Ted fostered strong initiatives on SA economic development, supporting major mining developments and mineral discovery through the State's unique economic development support service for major mining projects and through the Geological Survey of South Australia, Resource Information and the internationally-recognised Plan for Accelerating Exploration PACE. PIRSA and the PACE program received the South Australian Premier's Award in 2007 for contributions to SA *Economic Prosperity.*

The technical expertise, business acumen and determined advocacy of Ted, together with the minerals and energy teams and Ministers and Department support was successful in attracting a total of $100 million in SA Government funding for government-led minerals and energy investment and geoscience initiatives over the period of Ted's career in the SA government (2005-2017).

In 2013/14, Ted initiated an independent economic impact analysis on the value of the SA Government's PACE programs and the return on the Government's investment of $50 million over the period 2004-2013. The study identified economic benefits that PACE has delivered to South Australia: A much higher share of national mineral exploration expenditure; An increase in State mining revenue of $2400m for an expenditure of less than $50m; Exploration in excess of the State Strategic Plan Target of $200m a year for the past three years; A conservatively estimated $700m extra in private mineral exploration investment representing a leverage of at least 20:1 on PACE geoscience expenditure.

The PACE evaluation recommendations in 2013/14 emphasised the strategic value for the Government of continuing with a revitalised PACE program with a strong focus on funding support to collaborative drilling, innovative geoscience pre-competitive programs for further mapping under the extensive cover across the State, and commitment to a strong policy of stakeholder engagement, plus legislative and regulatory change to address exploration access and costs in relation to restricted land areas including reserves, farmland, aboriginal lands and defence lands.

In late 2015, with the strong support of the Department, the Geological Survey of SA, the PACE team and the Mineral Resources Division, Ted led the development of a new, major funding proposal to Government with the vision to establish the PACE Copper program (2016-17), a key part of the State's new Copper Strategy.

The cornerstone of Ted's vision for the new PACE Copper program incorporated the world's largest high-resolution airborne geophysical survey mapping program, targeted collaborative drilling and delivery of world-class data and value-added information using the State's new Drill Core Reference Library and Geoscience Centre as a flagship for South Australia's Copper Strategy.

In 2015/16 Ted's personal vision and strong advocacy within his Department and to the Minister for Mineral Resources & Energy and SA Treasury for a new and grand-scale Government-funded PACE Copper exploration program in South Australia led to successful government funding of Australia's largest ever high-resolution airborne geophysical survey mapping program involving

1.66 million line-kms (200m line spacing) of aerial magnetic-radiometric-terrain mapping, using the highest resolution airborne surveying technology available and covering the entire Gawler Craton which hosts the world-class Olympic Dam Mineral Domain.

Ted retired in 2017 after a very positive 12 years as Director/Executive Director of Mineral Resources in the Government of South Australia (2005-2017). Although retired from the SA Government, Ted continued until 2019 as the independent Chair of the SA Government-Industry Magnetite Strategy, a Government-Industry partnership to foster a substantial iron ore mining and processing industry sector.

Further career highlights and achievements

- Ted has been an active contributor/presenter to the technical publications, conferences and workshops of the Australian Society of Exploration Geophysicists from the foundation year 1970/71, also serving on ASEG Federal Executive, Co-Convenor of the 1st ASEG Conference (1979), Technical Co-Chair ASEG-GSA Sydney Convention 1991, Guest Editor Exploration Geophysics 1991, ASEG President-Elect 2018-2019, ASEG President 2019-20, ASEG Past President 2020-2021, ASEG Chair Publications 2018-22

- Between 1973-1993, Ted was the NSW Geological Survey Coordinator and Lecturer for the annual NSW Undergraduate Geophysical Field Camps, Ted coordinated one week field training programs for University of NSW, University of Sydney and Macquarie University 3rd year BSc & BAppScience students in field practice for potential field, electrical and electromagnetic and seismic refraction geophysical methods. Ted also delivered specialist undergraduate lectures in electrical geophysics at each of the three Sydney universities as part of final year undergraduate programs.

- In 1980 in the GSNSW and with the Department's support, Ted put forward a major collaborative geophysics research project proposal to the Australian Minerals Industry Research Association (AMIRA). Ted, working with his GSNSW partners, David Daggar and Mike Thorburn, initiated and led this highly successful collaborative research and development program through AMIRA (P130 Borehole Induced Polarization Logging – 1982-1986) supported by BHP, Carpentaria Ex, CRA Ex, CSR, Esso Aust, Renison-Goldfields, WMC. This was the first ever AMIRA industry applied exploration geophysics research collaboration to be led by State Government geoscientists. AMIRA considered this project to be one of the most successful of that era. Comprehensively documented in Tyne PhD Dissertation (UNSW 1987) "The Development of Computer Controlled System for Continuous Induced Polarization Logging and Spectral Induced Polarization Measurements in Exploration Boreholes" (UNSW Publ. Download from https://doi.org/10.26190/unsworks/10091).

- The mini-computer controlled continuous borehole IP logging and downhole spectral IP system recorded apparent resistivity and IP parameters apparent chargeability and phase angle in the same logging run. The equipment was mounted in a rugged 4WD truck and was extensively trialled and refined in mid-late 1980s for the company sponsors on remote exploration drilling project sites in South Australia (Olympic Dam area), Northern Territory (McArthur Basin), Queensland (Mt Isa), NSW (Broken Hill, Cobar, Lachlan Fold Belt), Victoria (Gold regions) and Tasmania (West Cost, Rosebery). The AMIRA IP Logging system was converted to PC-computer control and actively used by explorers in NSW through to the mid 1990s.

- The research and principles behind these borehole electrical logging inventions, new instrumentation and survey methods were taken up by Swedish company Boliden ABEM and a commercial borehole electrical logging tool was marketed for some years. Presentation of the results and outcomes of this AMIRA industry-supported research received Best Presentation at the 1985 4th ASEG Conference & Exhibition, Adelaide. Unfortunately, Australian efforts to commercialise this method and the technologies did not progress.

- Ted is well known for his high-level leadership of government geoscience mapping and exploration initiative programs, as NSW Principal Geophysicist (1988-1993), Director NSW Geological Survey and NSW Chief Government Geologist (2002-2005) and Executive Director SA Mineral Resources (2005-2017) & SA Chief Government Geoscientist (2005-2011). Ted has worked closely in partnership with Geoscience Australia and other States/NT through the National Geoscience Agreement and the National Mineral Exploration Strategy including:
    - Leading early NSW Government exploration initiatives including the NSW-Australian Government-Industry partnership to acquire the first high resolution (250m line spacing) airborne magnetic & radiometric regional survey over the Bathurst 1:250000 map sheet region of NSW (1989-1990)
    - High level leadership of State Government exploration initiatives: the NSW Government Exploration Under Cover and Exploration NSW and the internationally recognised South Australian Plan for Accelerating Exploration – PACE, including advocating, initiating and guiding programs to acquire more than 3.5 million line-kilometres of airborne geophysical surveying and other geoscience mapping coverages together with resource sector strategies and economic stimulus programs to promote growth and success in mineral and petroleum exploration, leading to discovery and further economic development in NSW and SA.
    - Led the concept, funding proposal and foundation planning in the South Australian Government as part of the newly committed PACE Copper initiative to develop the largest government exploration initiative airborne geophysical survey ever undertaken in Australia – the South Australian Gawler Craton Magnetic and Radiometric Airborne Survey 2016–2021 (1.6 million line-kms at 200m line spacing)

- Throughout his career in government and industry, Ted championed professional exchange and knowledge-sharing around regional mapping and exploration geoscience processes and technologies and also government regulatory and environmental best practices for mineral exploration (including uranium exploration and mining):

    - Australian Mineral Industries Research Association;
    - university geoscience schools and research institutes; CSIRO; AuScope;

- Cooperative Research Centres (CRC Deep Exploration Technologies, CRC LEME, CRC AMET, CRC DET);
- Commonwealth and State/NT and NZ geoscience and resource agencies
- Active contributor and partner to government's National Geoscience Accord and National Exploration Strategy
- US National Nuclear Regulator
- China Geological Survey and China National Nuclear Corporation;
- Chilean Geological Survey;
- Canadian Geological Survey
- Saskatchewan Geological Survey
- Ontario Geoscience and Mineral agencies

- Between 2005-2007, Ted proactively advocated with the SA Chamber of Mines and Energy and the SA Farmers Federation for the establishment of a practical and bi-lateral Code of Practice for Explorers in South Australia that would be supported by members of both industry associations and the South Australian Farmers Federation. Until this time, South Australia did not have a recognised Code of Practice for explorers seeking to enter on farming lands. Ted continued to advocate and work with each organisation to build collaboration and trust, leading to the delivery a government-endorsed SACOME-SAFF Code of Practice for Explorers that is respectful and outlines practical working relationships for explorers and farming businesses to follow.

- Ted's personal stewardship of the SA Mineral Resources team & high-level team across the SA Government delivered a successful $30 million State Budget Bid in 2013 for a new SA Drill Core Reference Library & Geoscience Centre.
  Ted, as Chair SA Drill Core Reference Library Steering Committee and his senior Minerals and Energy team:
  - Project-managed business-case consultants and architect to deliver a successful $32 million Budget Submission in 2013 to Minister, Treasury and Cabinet for the "next generation" State Drill Core Reference Library & Exploration Geoscience Centre (SDCRL) at the Adelaide precinct;
  - Led the vision and innovative concept design for this building as a flagship to build a new hub for the minerals and energy services and supply sector in the Adelaide Innovation Precinct;
  - Led the vision for the principles for industry access and long-term use of the drill core library and the innovative meeting and analytical spaces, that would deliver a strong message to the resource sector and investors that the Government is in the business of delivery and South Australia has world-class resources, coupled with world-class approaches to managing knowledge as an asset;
  - Ensured delivery of final construction and project acceptance (2016) within budget & committed timelines and transition of the State's 7.5 million metres of drill core inventory from former Glenside Library;
  - The SDCRL was recognised as a world-class architectural achievement, receiving State and National Awards in 2016 for Excellence in Building and Architecture.

- Ted and the SA Minerals team have been praised at the highest level for best practice leadership in regulation of South Australia's mineral exploration, mining & quarrying sectors including leading reform and modernisation of South Australia's mineral resource legislation and regulations together with policies and practical guidance for best practice community engagement and exploration access to agricultural and native title lands (2005-2017).

- Over the period 2005-2017, Ted as South Australia's principal mineral resources regulator and decision maker on the majority of mining applications in South Australia, together with the Mineral Resources regulatory teams were responsible for:
  - Mineral Leases (ML's) 821; Extractive Mineral Leases (EML's) 610; Private Mines (PM's) 233; Operating Mines 355; Opal Mining Claims 390; Former Mines 3500; Advanced Mineral Projects ~20; Exploration Licences 746; Exploration Licence coverage 297,685km2. (May 2016)
  - The leadership team of the Mineral Resources Division demonstrated the highest level of commitment and energy to leading change, innovation and continuous improvement to South Australia's best practice management of our mineral assets, including streamlined regulation of exploration and mining activities that delivers outcomes of sustainable benefit and prosperity. A priority was to progress improvements to legislative and regulatory processes that deliver predictable procedures for access to land, security of exploration and/or mining tenure and predictable regulatory processes that gives confidence to the resource industry to commit to higher risks for investment in mineral resource exploration, new mine development and life-of-mine operations.
  - Ted has been the strongest advocate and promoter to exploration and mining companies and industry representative bodies of the importance of achieving a social licence to operate from the community as part of establishing effective long-term working relationships with all stakeholders. In this case, community confidence in the industry's overall performance and a demonstrated commitment by companies to best practice environmental management is paramount.

- Ted's personal stewardship and leadership of the Minerals Resources regulatory teams and responsibilities under the State Mining Law established contemporary outcomes-based (or objective-based) principles, policies and transparent processes, considered as leading practice across Australian resources jurisdictions:

  - *Effectiveness and Efficiency* A streamlined, fit for purpose, regulatory approach, appropriate for the circumstances, to achieve clearly identifiable outcomes;
  - *Accountability* Ensuring responsibility and accountability are clearly assigned and understood by explorers, miners and the community;
  - *Enforcement* Ensuring explorers and miners achieve approved outcomes;
  - *Engagement* Valuing the informed involvement of communities and other stakeholders in processes leading to decision-making and achievement of a social licence to operate. A cornerstone of delivering on these principles has been a proactive program of transparency involving the public release of information on the regulatory processes and decisions in a timely and appropriate manner.

- Ted's stewardship of Mineral Resources delivered:
    - Progressive streamlining of regulation of Mineral Exploration and Release of New Data, Information & Publications.
    - Tracking of timelines and efficiency of assessment of exploration PEPRs; new online E-PEPR providing efficient template application for exploration work programs and further implementation of transparency process in consultation with industry.
    - Efficiencies around mining applications, assessment processes, approvals and conditioning and case management of major projects, including new processes for progressive and transparent release of major assessment reports.
    - Introduction of comprehensive internal monthly and published annual reporting for the Mining Regulation Directorate and Mineral Tenements & Exploration Regulation Directorate with progressive and timely release of non-confidential information on DSD website. South Australia has led the way as the only state that publishes an Annual Mineral Resources Regulation Report.
    - An innovative program in partnership with Crown Solicitors to deliver guidance and training material for decision makers: Relevant Considerations - Statutory Decision-Making under the Mining Act.

- In his role as Executive Director Mineral Resources, Ted was actively engaged throughout his tenure in the South Australian Government in a great many State-cross-agency and State-Commonwealth environmental, conservation and land access challenges, issues and collaborative projects. In the last three years in South Australia, Ted contributed substantially to the conservation protection of the Northern Flinders Ranges. He also initiated a major project with the support of the Minister for Minerals Resources and Energy, the SA resources industry, South Australian Museum and Premier and Cabinet to establish two new South Australian State Emblems in 2017:

    - *South Australia's Fossil Emblem* – The Spriggina Floundersi (an iconic Ediacara form, thought to be one of the earliest intelligent life forms on earth). Commended by Sir David Attenborough
    - *South Australia's Mineral Emblem* – Bornite (one of the most important economic State copper minerals)

- Ted was a senior member of annual high-level Australian Governments' international geoscience delegations to China, Japan, Korea, Canada, UK to promote mineral investment opportunities in Australia's resource sector (2000-2017)

- Ted was a high level representative of the Government of South Australia and the Government of New South Wales, contributing to the reputation of these States through invited presentations and keynote addresses at hundreds of national industry forums and international resource conventions (China, Japan, Korea, Canada, USA, UK, Chile, Brazil, New Zealand), promoting the unique mineral resource and exploration investment opportunities in SA and NSW as part of pro-business pre-competitive exploration geoscience and mineral resource programs (1999-2017);