



Dr MJ (Thinus) Jordaan
Sedimentary & Mineral Exploration Geological Expert

Dr Jordaan is a multi-commodity geological consultant in mining and exploration with a focus on sedimentary, basin and terrane analysis for gold, uranium, diamonds, base metals and several bulk mineable commodities including diamonds, coal and phosphates. Dr Jordaan has forty years' experience in Project Management, technical and statutory report-writing, due diligence investigations and feasibility studies. Dr Jordaan has experience working across many African countries, Asia, Middle East & Soviet countries and Madagascar.

Summary of Experience

- **2012 - Present – Consultant Mineral Exploration Geologist, African countries, Saudi Arabia and Pakistan**
 - Placer (alluvial) mineral expert assisting companies with mineral exploration, resource definition and due diligence assessments.
 - Technical reviews of mining and exploration programs and project tender documentation in central Africa, Middle East and Asia.
 - Assessments of stratiform and bulk-mineable resources for manganese and iron ore in various African countries. Projects ranged from green fields to advanced mine level study (DFS/BFS).
 - In Zambia, managed major coal exploration program surrounding Maamba thermal coal power station.
 - In Pakistan in north-west Himalayas, managed a field program including exploration and mining entities, field work, technical requirements, laboratory processing and results, contractors, remote sensing and geophysical service providers.
- **2005-2011 - Various Exploration Manager roles for a diverse range of projects, African countries, Soviet Republics, South Africa.**
 - *Africa Middle East Resources;*
 - Responsible for geological investigations and exploration in Africa, Middle East and some Soviet republics.
 - Established new exploration unit reporting to CEO.
 - Cominco Resources;
 - Technical Director responsible for evaluation of Hinda phosphate deposit in Republic of Congo (Congo-Brazzaville).
 - *Areva Resources Southern Africa;*
 - Exploration manager responsible for exploration of nuclear fuels across Areva's portfolio.
 - *Songai Mining Corporation (Areva Bum);*
 - Exploration Manager responsible for uranium target generation for nuclear fuels throughout Africa.
 - Established Johannesburg office.
 - Travelled extensively and assessed projects in South Africa, Namibia, Zambia, Mozambique, DRC, Namibia and Mauritania.
 - Processing and evaluation of regional magnetic and radiometric surveys. Set-up databases on ESRI platform.



- *Independent Geologist;*
 - Freelance consulting to industrial mining companies on placer and palaeo-placer mineral resources for diamond, gold, uranium, heavy minerals and uranium in Niger Cameroon, Namibia and South Africa.
- *SXR Uranium One Resources Ltd;*
 - Exploration Manager for PFS for Archean uranium-bearing palaeo-placer in South Africa, cost USD\$100M over 5 years.
 - Managed all technical components of the study including multiple study teams, core drilling (14x core drill rigs), resource estimation, bulk sample, staffing and budget control.
- **2002-2005 – De Beers – Exploration Manager, South Africa**
 - Exploration Manager for Namaqualand Mines Division with annual production 900,000cts per year, exploration budgets USD\$5M pa.
 - Functions included generating new business, sourcing new technology including airborne geophysics (SpectrEM AEM, magnetic, radiometric, Bell GeoSystems gravity-gradiometry) and budget control.
 - Interaction with JV partners, technical consultants, academics to ensure De Beers maintained global position in the diamond and diamond marketing sector.
 - Managed digital modelling capability (Vulcan, ESRI Arc GIS) for evaluation and production programs, integrated 3rd party databases.
- **2001-2002 – Independent Consultant, South African Mining Companies, South Africa**
 - Consultant to various mining houses in sedimentology, basin & terrane analysis in exploration programs searching for sediment-hosted base metal deposits and heavy-mineral placer deposits in South Africa.
 - Member of organising committee for 16th International Congress of the International Association of Sedimentologists, Johannesburg, South Africa, 2002.
 - Acted as Mineral Resources Manager for Alexkor Ltd which was South African's state-owned diamond mining company on behalf of MINTEK (South Africa). The project was under restructure. Duties included resource drilling program, database management and management of off-shore marine and alluvial diamond mining operations.
- **1992-2001 – Various Senior Roles – Anglo American, Business Division – Southern Africa, Colombia, Ghana, Turkey**
 - Divisional Geology and Country Manager;
 - Managed target generation in southern Africa as well as specialist assignments involving sediment-hosted mineral resources. Custodian of group database mineral rights.
 - Sedimentology advisor for Carbones del Cerrijon Coal Project for AngloCoal in Colombia, South America.
 - Zambian Copper Belt, Konkola copper mine study and surrounding areas.
 - DRC, West Kasai diamond mines, investigations into base and precious metals potential of West Kasai.
 - Divisional Geologist Ghana;



- supervision of exploration shear-hosted, vein-type, intrusive and palaeo-placer gold resources of Early-Proterozoic Birimian sequence of western and north-western Ghana.
- Divisional Geologist Mali (Anmercosa);
 - Sadiola Hill gold-skarn deposit in Kenieba region.
 - Resource evaluation supervision of 37K meter core drilling and geological mapping team that successfully lead to a mine discovery and economic mine study (DFS).
 - Managed program technical requirements including geological database, some modelling in Datamine, geological compilation and technical report writing. The usual logistical and camp management including light aircraft.
 - Field visits to south-western Mali Loulo and south-western Senegal Sabodala to evaluate gold prospects which were quartz stock-work system in Proterozoic Birimian Supergroup.
- Divisional Geologist Anglo-TurMinorco Turkey;
 - Mid-Tertiary volcanic terrane in search of volcanogenic gold and poly-metallic resources in Trabzon (Pontides) and Ankara (Central Anatolia).
 - Remote sensing and airborne reconnaissance surveying, alteration mapping of surface mineralisation for Cu-Au porphyry, epithermal gold and volcanogenic massive sulphide deposits.
 - Technical due diligence assessments of Çayeli copper mine (VMS style), Mürgül copper mine (VMS), Küre copper-(gold) mine (VMS), Gümüşhane gold-(copper) porphyry prospect, numerous small base metal mines and prospects.
 - Surface evaluation of mineral concessions surrounding Şebiri-Karahisar and Sivas (Pontides) including drainage geochemistry, litho-geochemistry, and remote sensing.
 - Technical report writing and liaison with local government and mining officials.
- Senior and Divisional Geologist South Africa;
 - Sedimentology geologists responsible for West and Central Rand group basins, sedimentological modelling of Archean gold-uranium palaeo-placers in Witwatersrand basin.
 - Deep drill hole exploration of Potchefstroom Gap (80k meters) with hole depths down to 5,000m. Tectono-stratigraphic modelling of sub-economic Central Rand Group of Archean Witwatersrand palaeo-placers.
 - Evaluation of Kimberley palaeo-placers throughout Witwatersrand Basin ('A' Reef Project).
 - Sub-surface geological model of Venterspost Palaeo-placer prior to construction of Vaal Reefs No 10 Shaft (USD\$900M).
 - Exploration and target generation throughout Witwatersrand successor basins.
- **1983-1984 – General Mining Union Corporation of SA (GENCOR) – South Africa**
 - TransNatal Coal Corporation (Inc. Billiton to BHP Billiton to South32);



- Senior Geologist in Mpumalanga, exploration of Permian coal deposits in Karoo basin, eastern Transvaal.
- Supervised exploration drilling and evaluation of Karoo coal deposits including petrographic coal logging and detailed sampling of coal seams.
- Base Metals Division;
 - Senior Geologist in Springs, exploration of base and precious metals in Early Proterozoic Roobierg Group, volcanic in acid phase of 2Ga Bushveld Complex and Early-Proterozoic Transvaal Supergroup.
- **1980-1983 – Geologist, Diamond Division, Newmont of South Africa Ltd, South Africa**
 - Exploration Geologist and Project Geologist;
 - Supervised kimberlite and alluvial diamond exploration in Western Transvaal and Northern Cape, South Africa.
 - Extensive use of geophysical techniques and follow-up geophysical targets, mostly gravity, VLF-EM and ground magnetic.
 - Kimberlite target generation via drainage sampling, loaming, HM separation, geochemistry and geophysics and follow-up kimberlite indicator minerals, percussion drilling, bulk sampling and diamondiferous alluvium testing in North West Province and Northern Cape, South Africa.
- **1980 – Geologist, Beaufort West, Anglo American Corporation, South Africa**
 - Uranium-in-sandstone and base metal exploration in Mesozoic Karoo Basin, South Africa.
 - Supervised drainage geochemistry, ground geophysical and hydro-geochemical exploration programs.
 - Conceptual target generation, airborne geophysics, field evaluation with percussion and core drilling testing targets, geological mapping, program management. Field project extended to a Ph D thesis completed in 1990.

Qualifications

- 1993-1975 Bachelor of Geology and Chemistry (Honours), University of Orange Free State, South Africa (1st Class).
- 1990 Ph D by thesis entitled “Basin Analysis of the Beaufort Group in the Western Part of Karoo Basin”. University of Free State, Bloemfontein, South Africa. Tectonic setting of the Karoo Basin as well as stratigraphic and sedimentological controls on uranium-in-sandstone mineralisation.

Publications

- Author and co-author of several papers on sedimentology and stratigraphy of the Karoo (Gondwana) and Witwatersrand (Archean) sedimentary basins.
- 1989 Paper delivered on the sedimentology of Archean Witwatersrand gold and uranium palaeo-placers and tectonic setting of the Witwatersrand Basin, presented 4th International Conference on Fluvial Sedimentology in Sitges, Spain.

Professional Membership

- Geological Society of South Africa (GSSA)
- South Africa Council for Natural Scientific Professions (SACNASP)



- Society of Economic Geologists (SEG)
- Geological Society of Namibia (GSN life member)
- International Association of Sedimentologists (IAS)

Languages

- English (written and spoken)
- Afrikaans (written and spoken)
- Xhosa (reads and spoken)
- French (conversational, reads and understands)
- German (reads, technical and conversational)
- Turkish (basic)