Introduction to the mineral deposit database (MinDep)

A key to unlocking information of the state's prospectivity

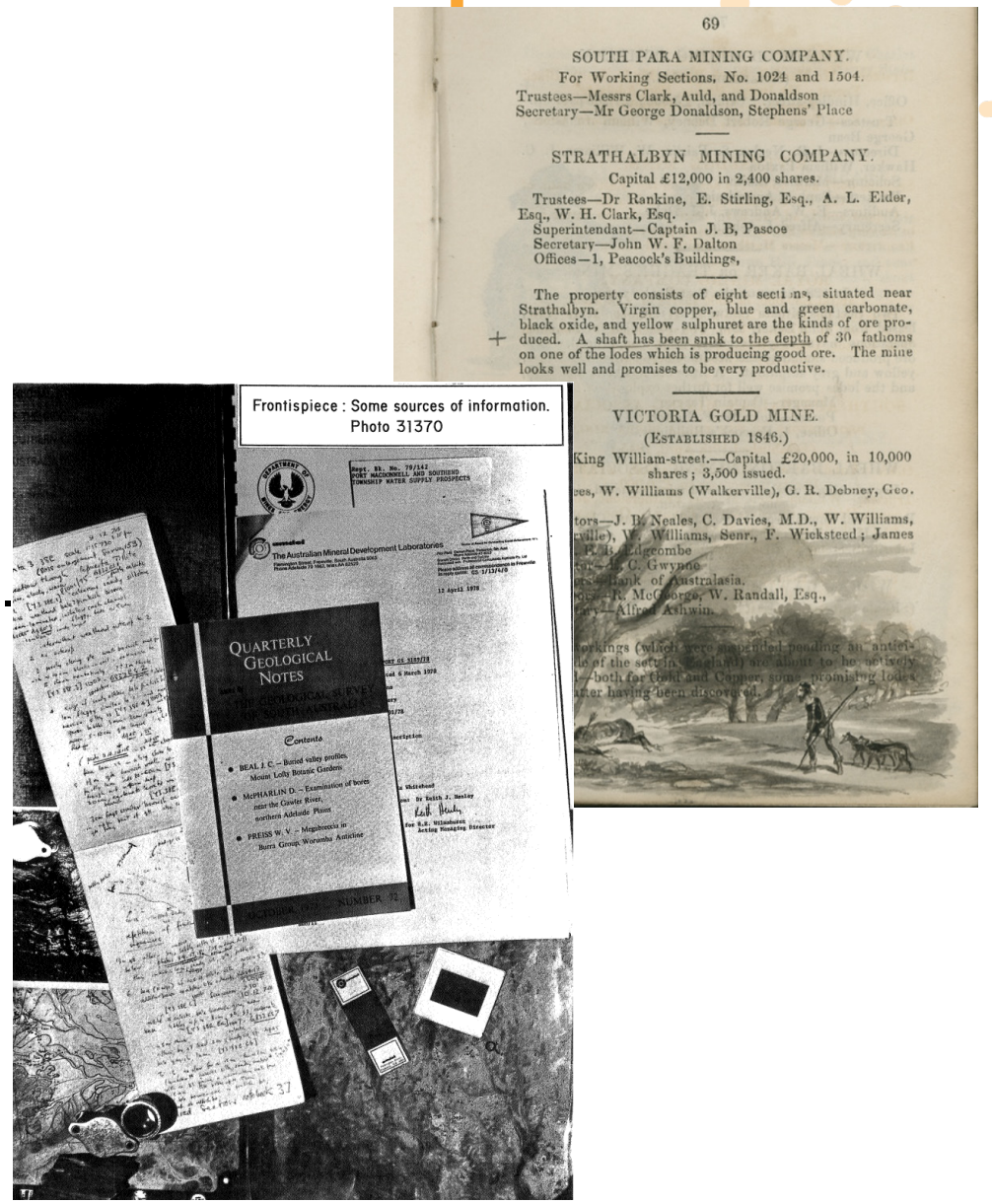
Rhiannon Lord

GEOLOGICAL SURVEY OF South Australia

DISCOVERY DAY

Capturing the geology of SA's mines and deposits

- In **1848** the **South Australian Almanac** was the first instant format used to capture and publish the geology of the mines around South Australia.
- In the **1970's till ~1990 Mineral Exploration Information Sheets** (**MEIS**) and card indexes of the mines and occurrences were compiled and organised around the map sheets.
- In the early **2000's the publication** of the geology of the mines database **went digital**, and the Mineral Deposit database began.
- As a **publicly accessible** database, through the **SARIG platform**.
- MinDep an important pre-competitive data source containing the geological information of the occurrences, prospects, mines and quarries around South Australia.



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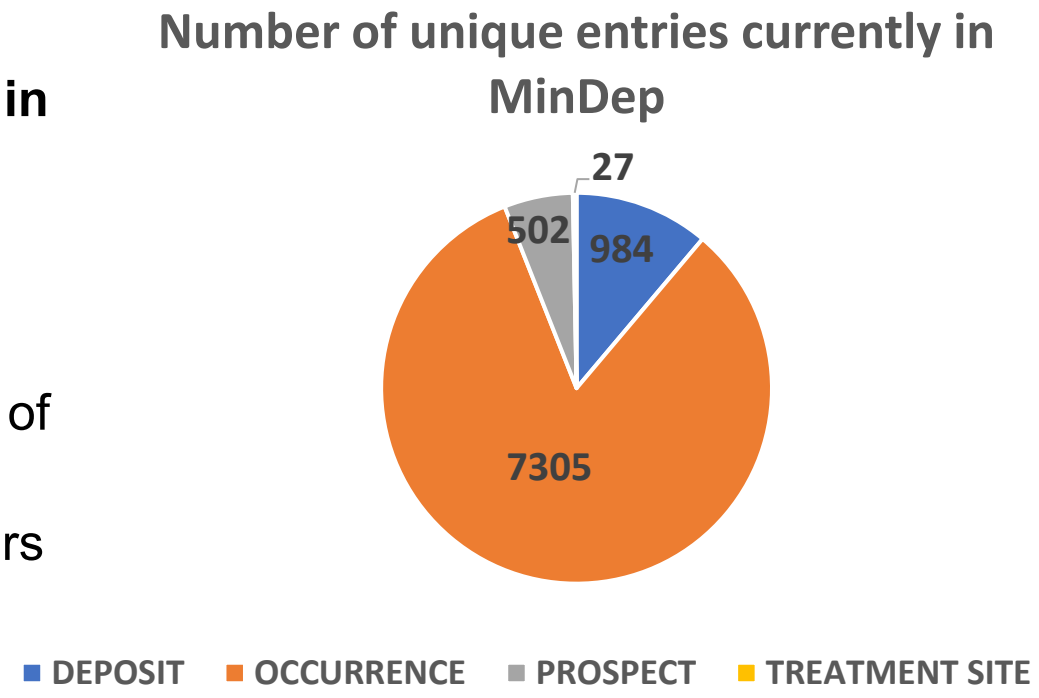
A rich source of information

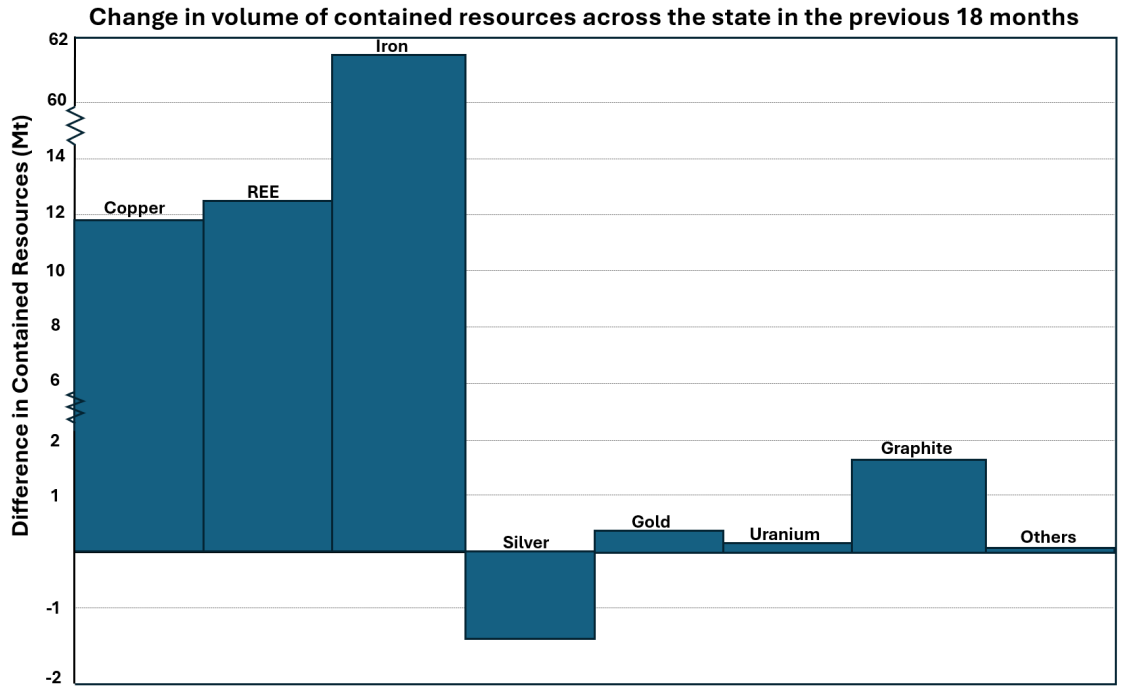
- The **MinDep database** is a powerful precompetitive tool that contains the descriptions of the geology for the known **occurrences, prospects, quarries, mines and deposits in SA**.
- As of November 2025, MinDep holds around **8820 unique entries,** the majority classed as occurrences.
- The information for each entry can be found from a variety of sources including company reports and websites, ASX releases, open file envelopes, and university thesis (masters and PhD).



MinDep an evergreen database

During 2025:

- **14 new occurrence/prospects** added to MinDep database.
- **122 updates to exploration prospects** incl. information following on from ASX releases containing new exploration information. These are for a **variety of commodities** located across the state.
- Updates to **31 deposit scale mineral resources and reserves** values entries:
    - Adding **87 Mt of contained commodity resources** to the states known total in the last 18 months.



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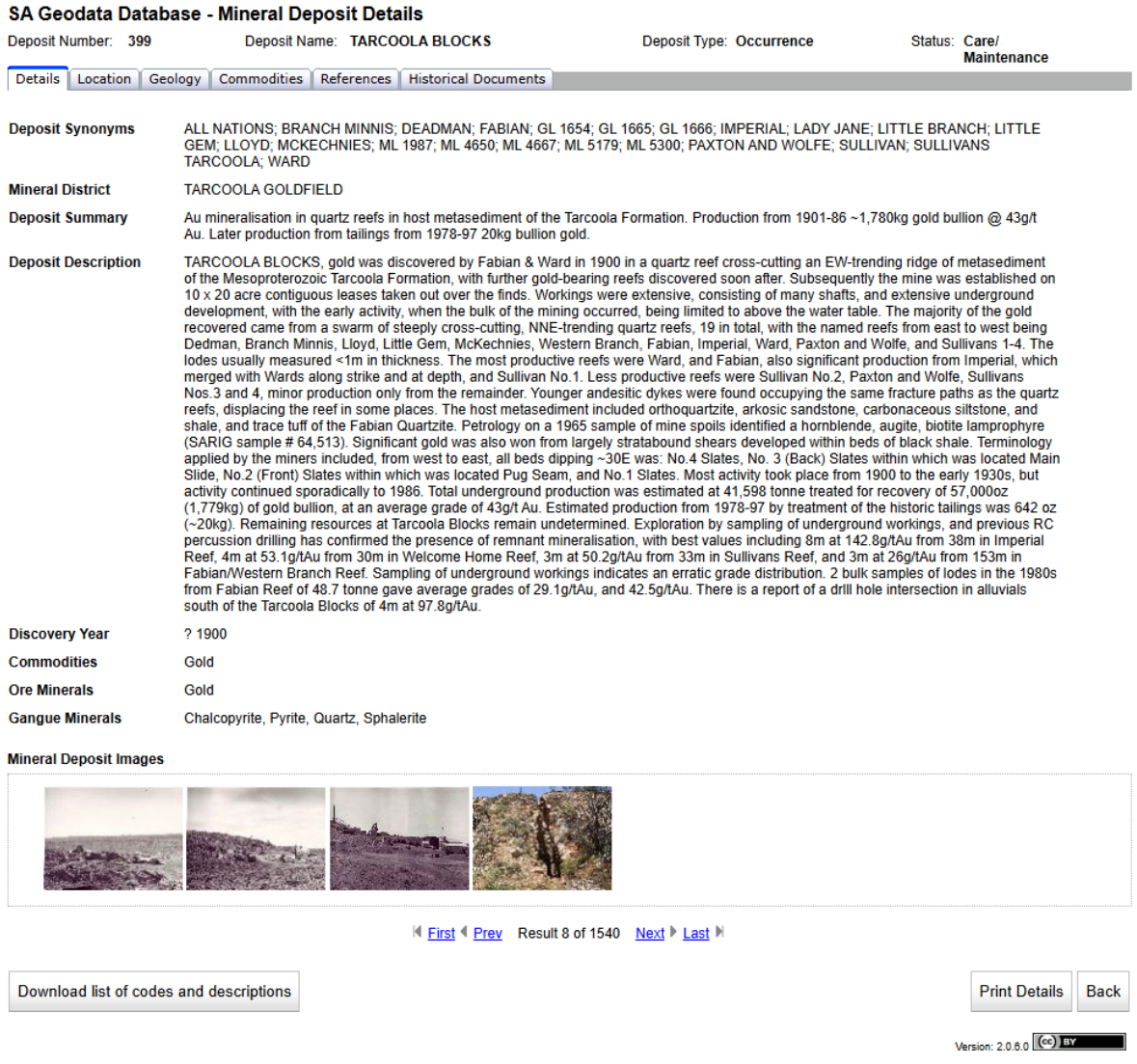
Capturing the geology of the deposits

Details tab

- Contains information of the deposits type and status
- Discovery details, and a deposit summary.
- Mineral district and discovery year
- Contained commodities
- Main ore minerals and gangue minerals

Location tab

- Gives the location of the deposit



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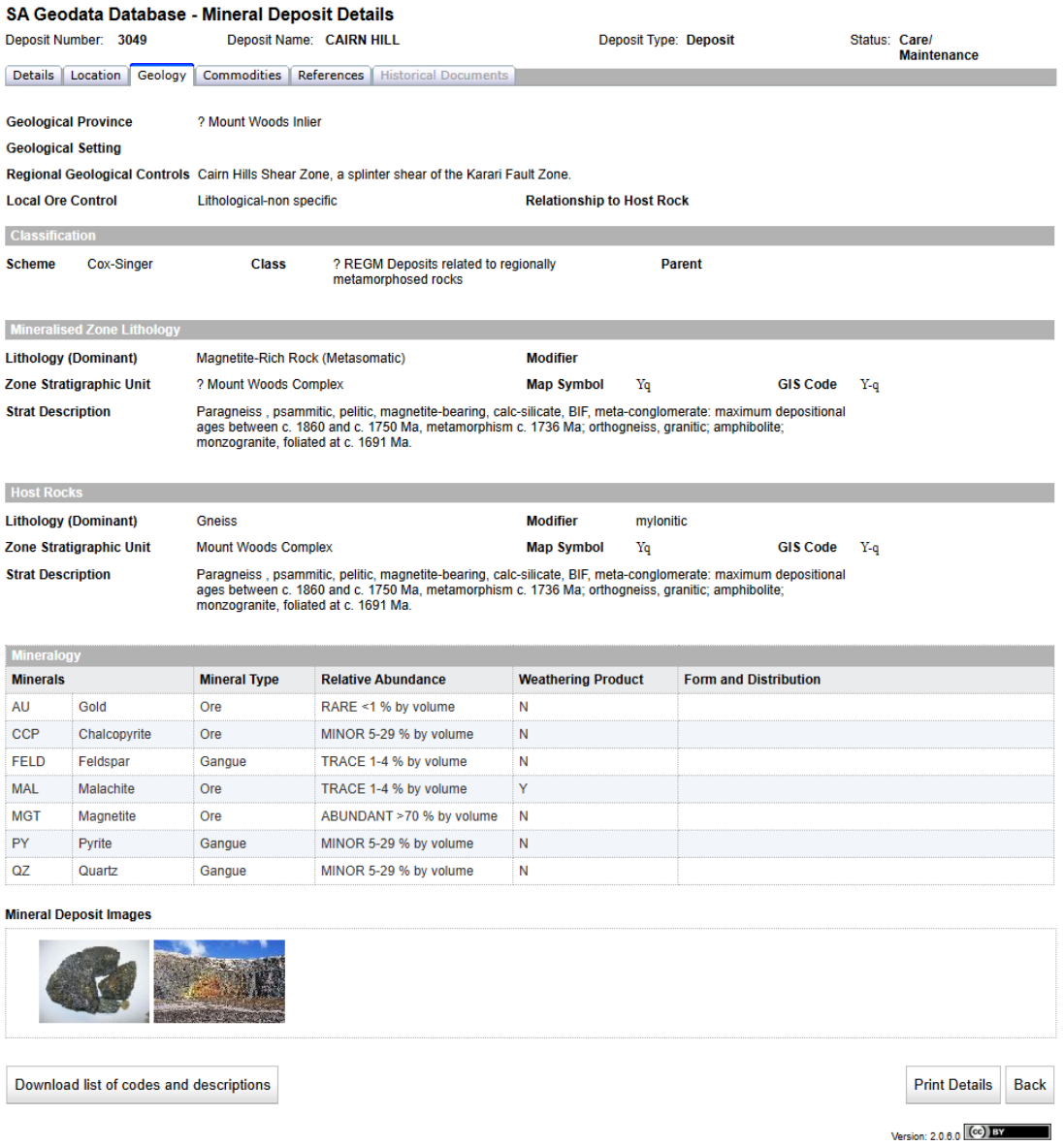
Capturing the geology of the deposits

Geology tab

- Information of the geological province, structures and settings.
- Relationship with the host rock and local controls.
- Information about the mineralisation and unit
- Host rock information, the zone, it's lithology and age
- The minerals associated with the deposit



SA Geodata Database - Mineral Deposit Details

Deposit Number: **3049** Deposit Name: **CAIRN HILL** Deposit Type: **Deposit** Status: **Care/ Maintenance**

Details | Location | Geology | Commodities | References | Historical Documents

Geological Province ? Mount Woods Inlier

Geological Setting

Regional Geological Controls Cairn Hills Shear Zone, a splinter shear of the Karari Fault Zone.

Local Ore Control Lithological-non specific **Relationship to Host Rock**

Classification

Scheme Cox-Singer **Class** ? REGM Deposits related to regionally metamorphosed rocks **Parent**

Mineralised Zone Lithology

Lithology (Dominant) Magnetite-Rich Rock (Metasomatic) **Modifier**

Zone Stratigraphic Unit ? Mount Woods Complex **Map Symbol** Yq **GIS Code** Y-q

Strat Description Paragneiss , psammitic, pelitic, magnetite-bearing, calc-silicate, BIF, meta-conglomerate: maximum depositional ages between c. 1860 and c. 1750 Ma, metamorphism c. 1736 Ma; orthogneiss, granitic; amphibolite; monzogranite, foliated at c. 1691 Ma.

Host Rocks

Lithology (Dominant) Gneiss **Modifier** mylonitic

Zone Stratigraphic Unit Mount Woods Complex **Map Symbol** Yq **GIS Code** Y-q

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Mineralogy

Minerals		Mineral Type	Relative Abundance	Weathering Product	Form and Distribution
AU	Gold	Ore	RARE <1 % by volume	N	
CCP	Chalcopyrite	Ore	MINOR 5-29 % by volume	N	
FELD	Feldspar	Gangue	TRACE 1-4 % by volume	N	
MAL	Malachite	Ore	TRACE 1-4 % by volume	Y	
MGT	Magnetite	Ore	ABUNDANT >70 % by volume	N	
PY	Pyrite	Gangue	MINOR 5-29 % by volume	N	
QZ	Quartz	Gangue	MINOR 5-29 % by volume	N	

Mineral Deposit Images

Download list of codes and descriptions Print Details Back

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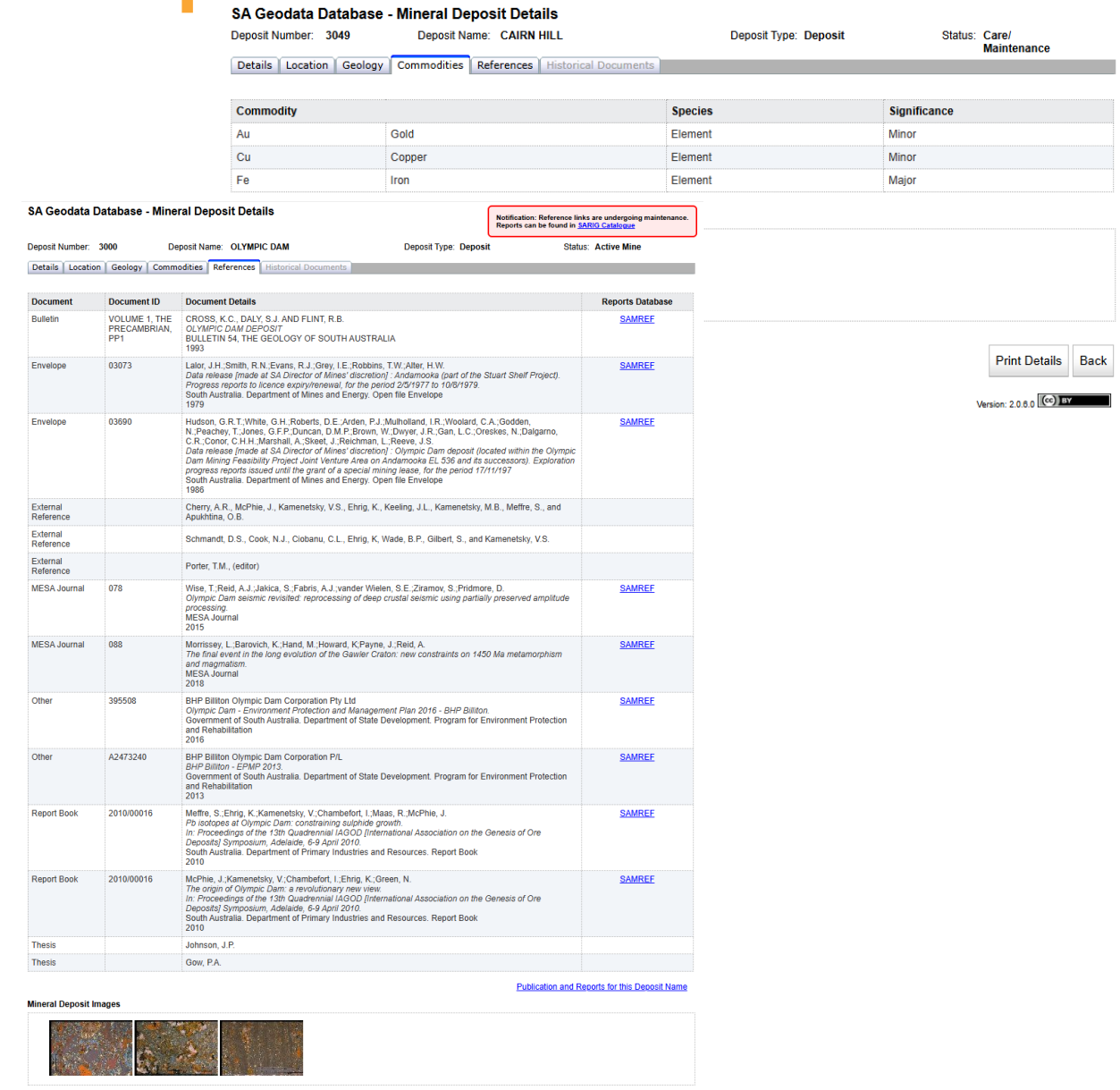
Capturing the geology of the deposits

Commodities Tab

- Information on the mineral commodities present in the deposit

References Tab

- Sources of the information used in the entry and their links where available



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Details | Location | Geology | Commodities | References | Historical Documents

Commodity		Species	Significance
Au	Gold	Element	Minor
Cu	Copper	Element	Minor
Fe	Iron	Element	Major

SA Geodata Database - Mineral Deposit Details

Notification: Reference links are undergoing maintenance. Reports can be found in SARIG Catalogue

Deposit Number: **3000** Deposit Name: **OLYMPIC DAM** Deposit Type: **Deposit** Status: **Active Mine**

Details | Location | Geology | Commodities | References | Historical Documents

Document	Document ID	Document Details	Reports Database
Bulletin	VOLUME 1, THE PRECAMBRIAN, PP1	CROSS, K.C., DALY, S.J. AND FLINT, R.B. *OLYMPIC DAM DEPOSIT* BULLETIN 54, THE GEOLOGY OF SOUTH AUSTRALIA 1993	SAMREF
Envelope	03073	Lalor, J.H.;Smith, R.N.;Evans, R.J.;Grey, I.E.;Robbins, T.W.;Alter, H.W. *Data release [made at SA Director of Mines' discretion] : Andamooka (part of the Stuart Shelf Project). Progress reports to licence expiry/renewal, for the period 2/5/1977 to 10/8/1979.* South Australia. Department of Mines and Energy. Open file Envelope 1979	SAMREF
Envelope	03690	Hudson, G.R.T.;White, G.H.;Roberts, D.E.;Arden, P.J.;Mulholland, I.R.;Woolard, C.A.;Godden, N.;Peachey, T.;Jones, G.F.P.;Duncan, D.M.P.;Brown, W.;Dwyer, J.R.;Gan, L.C.;Oreskes, N.;Dalgarno, C.R.;Conor, C.H.H.;Marshall, A.;Skeet, J.;Reichman, L.;Reeve, J.S. *Data release [made at SA Director of Mines' discretion] : Olympic Dam deposit (located within the Olympic Dam Mining Feasibility Project Joint Venture Area on Andamooka EL 536 and its successors). Exploration progress reports issued until the grant of a special mining lease, for the period 17/11/197* South Australia. Department of Mines and Energy. Open file Envelope 1986	SAMREF
External Reference		Cherry, A.R., McPhie, J., Kamenetsky, V.S., Ehrig, K., Keeling, J.L., Kamenetsky, M.B., Meffre, S., and Apukhtina, O.B.	
External Reference		Schmandt, D.S., Cook, N.J., Ciobanu, C.L., Ehrig, K, Wade, B.P., Gilbert, S., and Kamenetsky, V.S.	
External Reference		Porter, T.M., (editor)	
MESA Journal	078	Wise, T.;Reid, A.J.;Jakica, S.;Fabris, A.J.;vander Wielen, S.E.;Ziramov, S.;Pridmore, D. *Olympic Dam seismic revisited: reprocessing of deep crustal seismic using partially preserved amplitude processing.* MESA Journal 2015	SAMREF
MESA Journal	088	Morrissey, L.;Barovich, K.;Hand, M.;Howard, K;Payne, J.;Reid, A. *The final event in the long evolution of the Gawler Craton: new constraints on 1450 Ma metamorphism and magmatism.* MESA Journal 2018	SAMREF
Other	395508	BHP Billiton Olympic Dam Corporation Pty Ltd *Olympic Dam - Environment Protection and Management Plan 2016 - BHP Billiton.* Government of South Australia. Department of State Development. Program for Environment Protection and Rehabilitation 2016	SAMREF
Other	A2473240	BHP Billiton Olympic Dam Corporation P/L *BHP Billiton - EPMP 2013.* Government of South Australia. Department of State Development. Program for Environment Protection and Rehabilitation 2013	SAMREF
Report Book	2010/00016	Meffre, S.;Ehrig, K.;Kamenetsky, V.;Chambefort, I.;Maas, R.;McPhie, J. *Pb isotopes at Olympic Dam: constraining sulphide growth.* *In: Proceedings of the 13th Quadrennial IAGOD [International Association on the Genesis of Ore Deposits] Symposium, Adelaide, 6-9 April 2010.* South Australia. Department of Primary Industries and Resources. Report Book 2010	SAMREF
Report Book	2010/00016	McPhie, J.;Kamenetsky, V.;Chambefort, I.;Ehrig, K.;Green, N. *The origin of Olympic Dam: a revolutionary new view.* *In: Proceedings of the 13th Quadrennial IAGOD [International Association on the Genesis of Ore Deposits] Symposium, Adelaide, 6-9 April 2010.* South Australia. Department of Primary Industries and Resources. Report Book 2010	SAMREF
Thesis		Johnson, J.P.	
Thesis		Gow, P.A.	

Publication and Reports for this Deposit Name

Mineral Deposit Images

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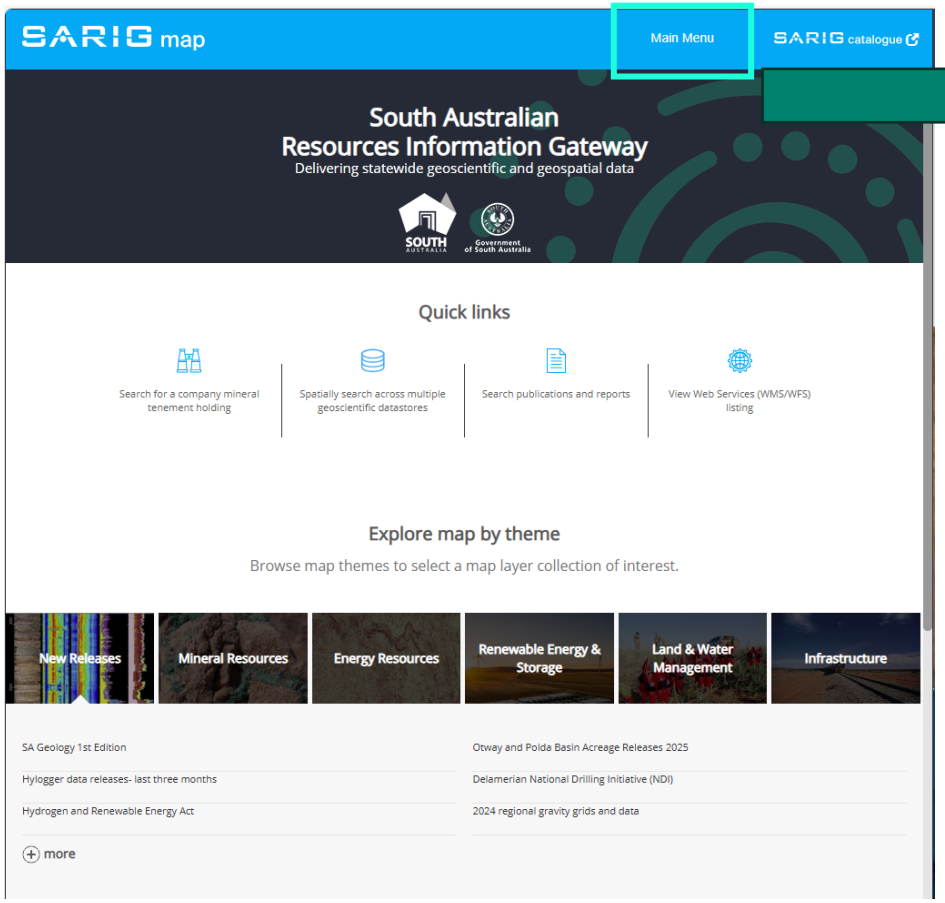
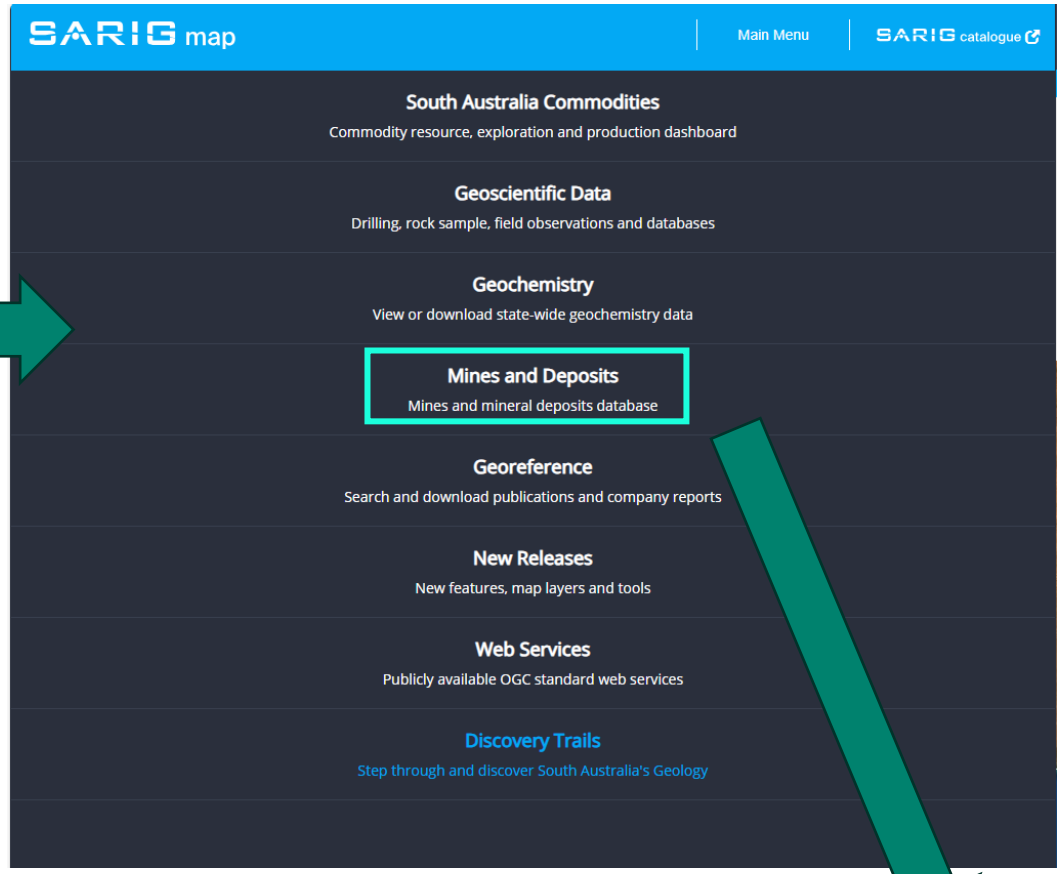
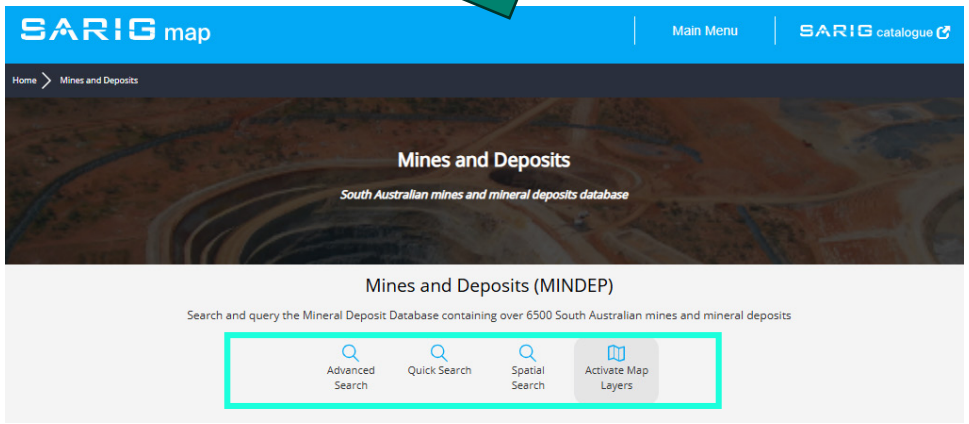
Locating MinDep







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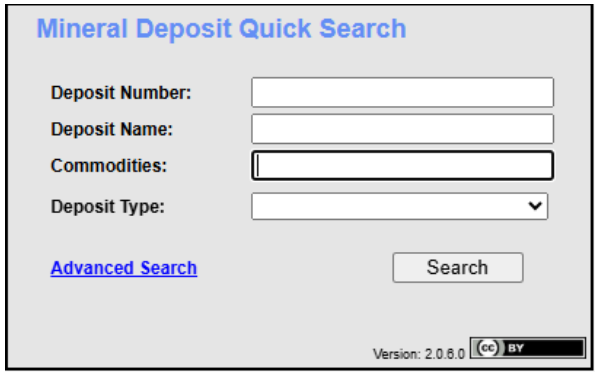
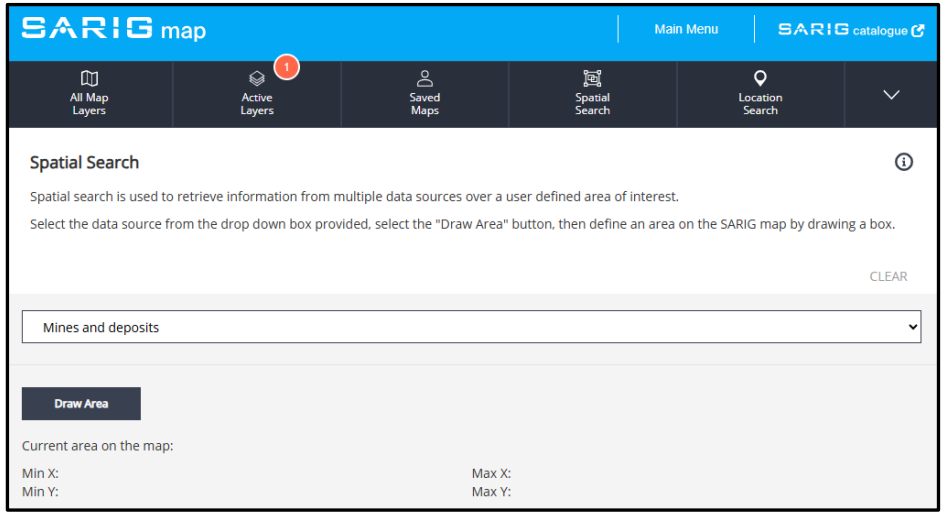
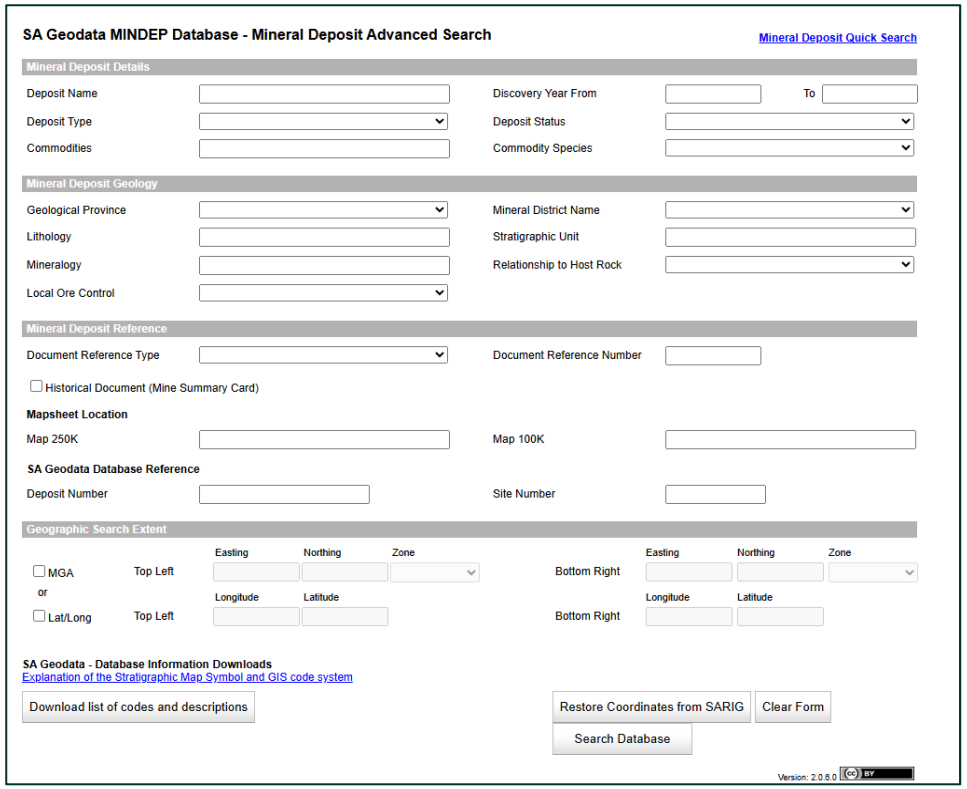
MinDep's search capability

- MinDep is available through the SARIG platform.
- The database can be searched using anything between a **broad, regional search** down to a narrow **specific search** and all the way down to a **named individual deposit**.







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Regional Exploration Tool

- The results from the database search are displayed as in a **tabular form**, containing a link to the MinDep page for each unique entry.
- Alternatively, this can be **visualised on the SARIG platforms map page**, highlighting the entries that match the search criteria.
- The MinDep entries and information can be **visualised** with any of the layers available within the SARIG mapping tool. Allowing for the interpretation of the **known occurrences** along side the **regional geology and structure, geophysics and geochemistry**.

SA Geodata MINDEP Database - Mineral Deposit Search Results (45 Records Returned)

Mineral Deposit Summary

Deposit Number	Deposit Name	Deposit Other Names	Discovery Year	Commodities	Deposit Type	References	Historic Mine Card
285	LOMAX		1954	Uranium, Uranium Oxide	Deposit	✓	
286	HOSPITAL	GIBSON 1	1954	Uranium, Uranium Oxide	Prospect	✓	
383	WARRIOR		1978	Uranium, Uranium Oxide	Deposit	✓	
962	RADIUM HILL		1906	Uranium, Radium, Rare Earths, Uranium Oxide, Mica	Deposit	✓	✓
987	SPRING HILL	ML 4166; ML 4167; RL 1; RL 2	1953	Uranium, Uranium Oxide, Gold	Deposit	✓	✓
989	JAGGED ROCKS		1958	Uranium, Uranium Oxide	Deposit	✓	
990	MOUNT VICTORIA	CROCKER - MOUNT VICTORIA; MT VICTORIA	1954	Uranium, Uranium Oxide, Rare Earths	Deposit	✓	✓
991	CROCKER ORIGINAL	CROCKER CAMP SOUTH; CROCKER WELL; RL 126	1953	Uranium, Uranium Oxide, Thorium	Deposit	✓	
992	CROCKER EASTERN	CROCKER MAIN EASTERN; CROCKER WELL; CROCKERS CENTRAL	1978	Uranium, Uranium Oxide	Deposit	✓	
993	CROCKER CENTRAL	CROCKER SOUTHWESTERN; CROCKER WELL	1978	Uranium, Uranium Oxide	Deposit	✓	

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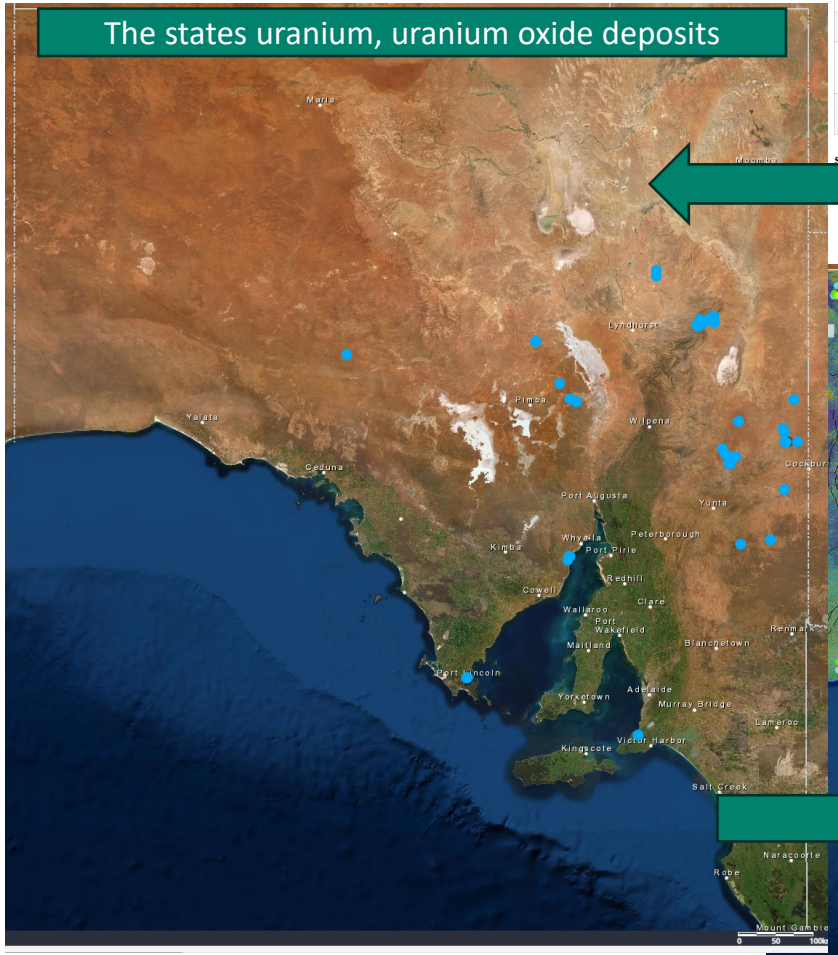
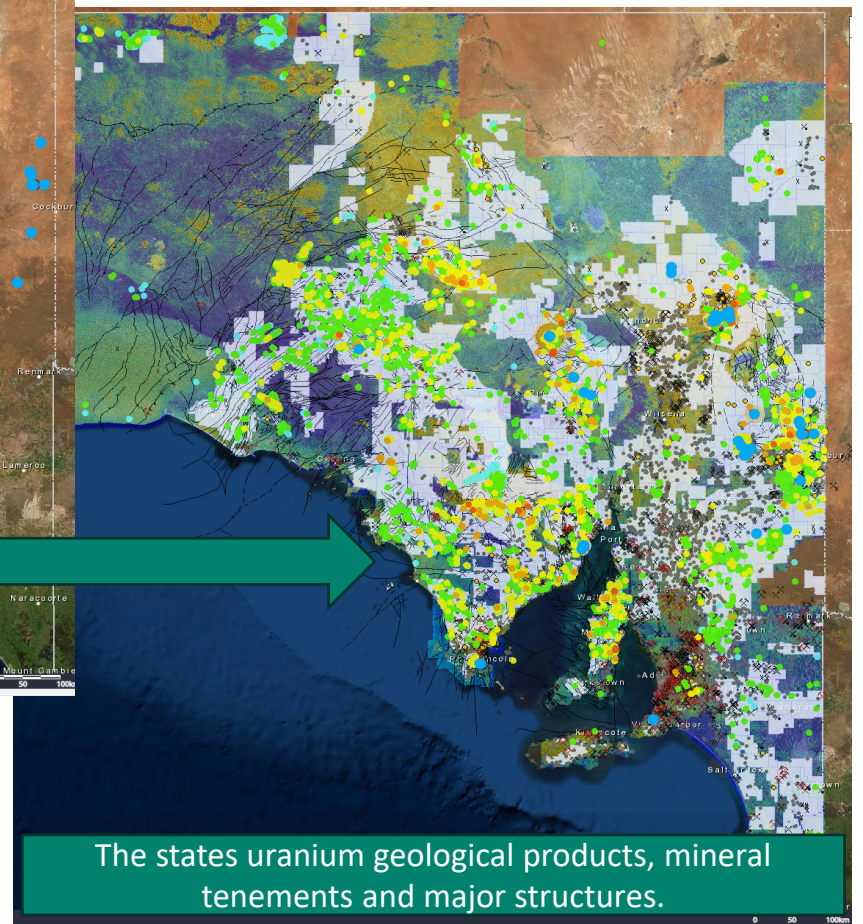
SA Geodata - Data Downloads

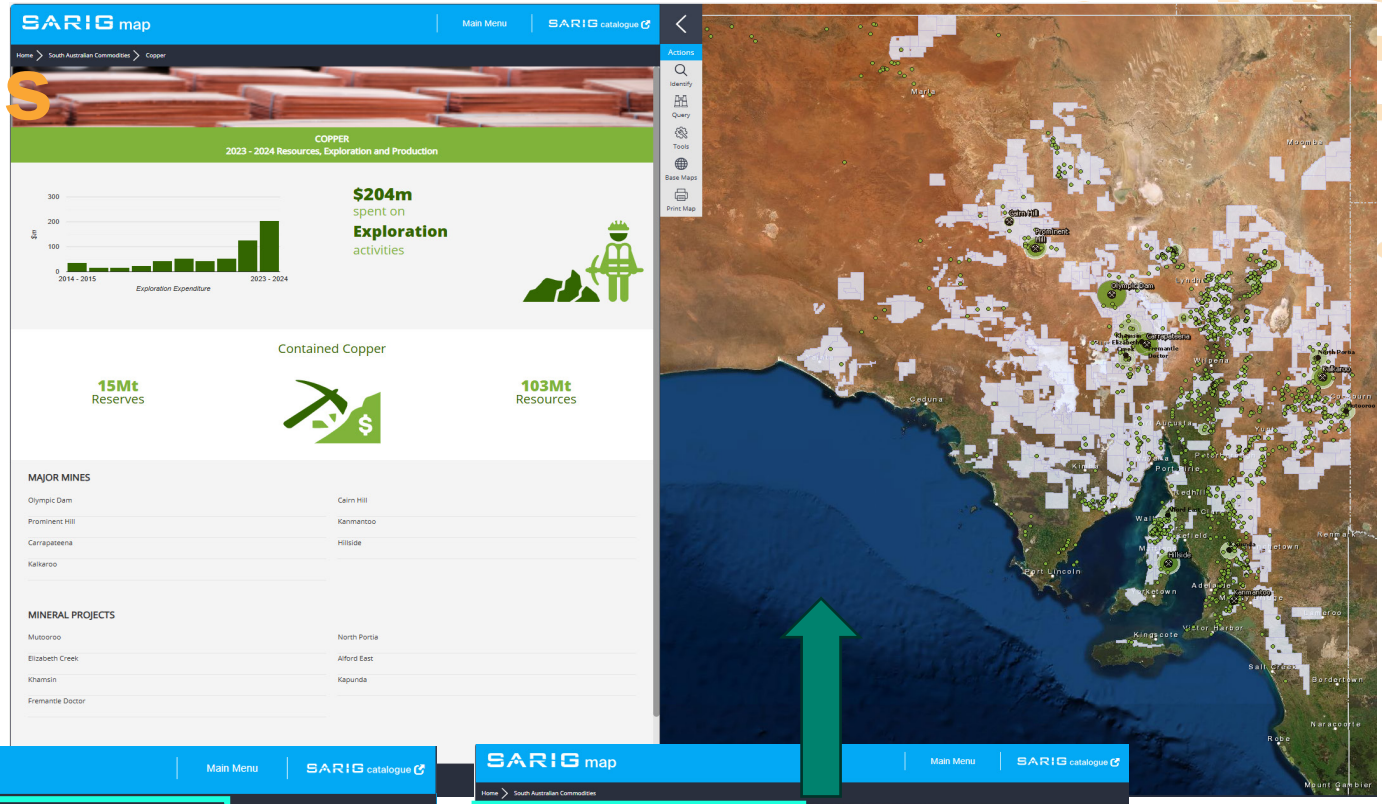
View results in map window | Print | Back

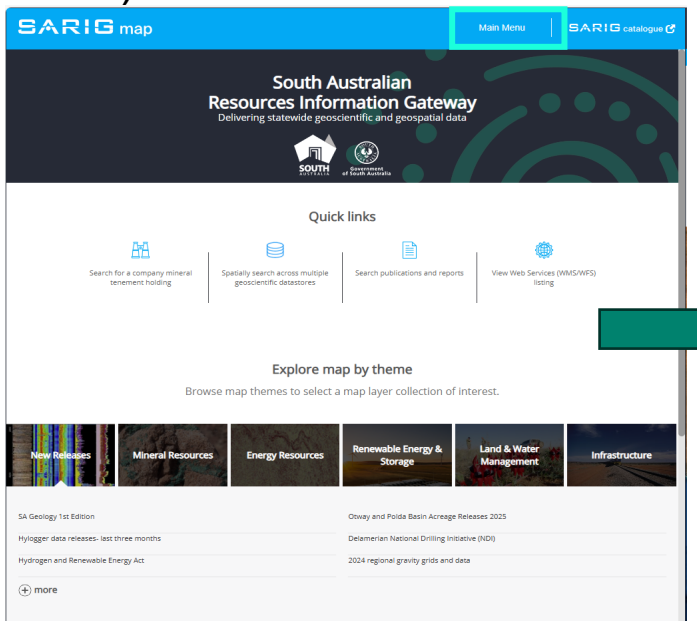


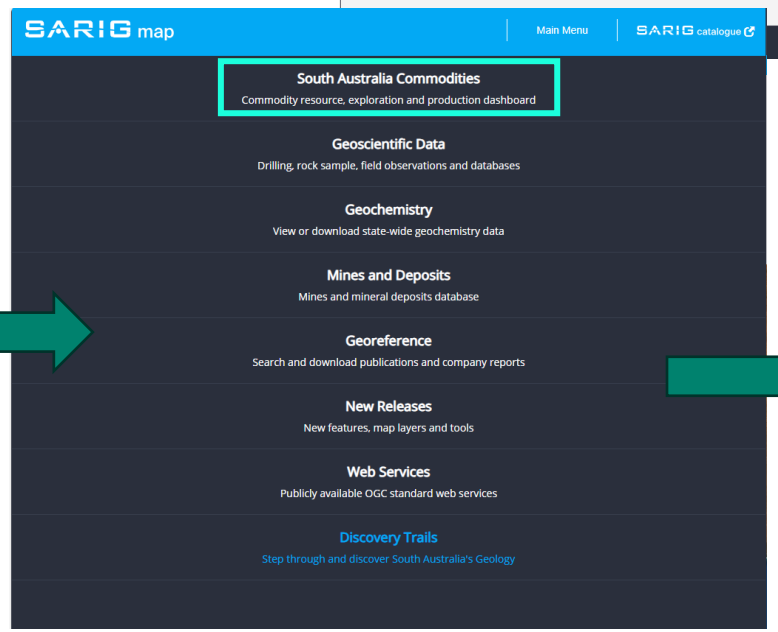


Searching SA's dashboards

- Quick links to the **main mineral commodity pages**. Other commodities can be searched within the map layers
- **Contains current contained tonnages and exploration trends**, exploration expenditure along with the major mines and projects listed.
- Includes the associated map of the occurrences and major mines and projects (and resource bubbles).

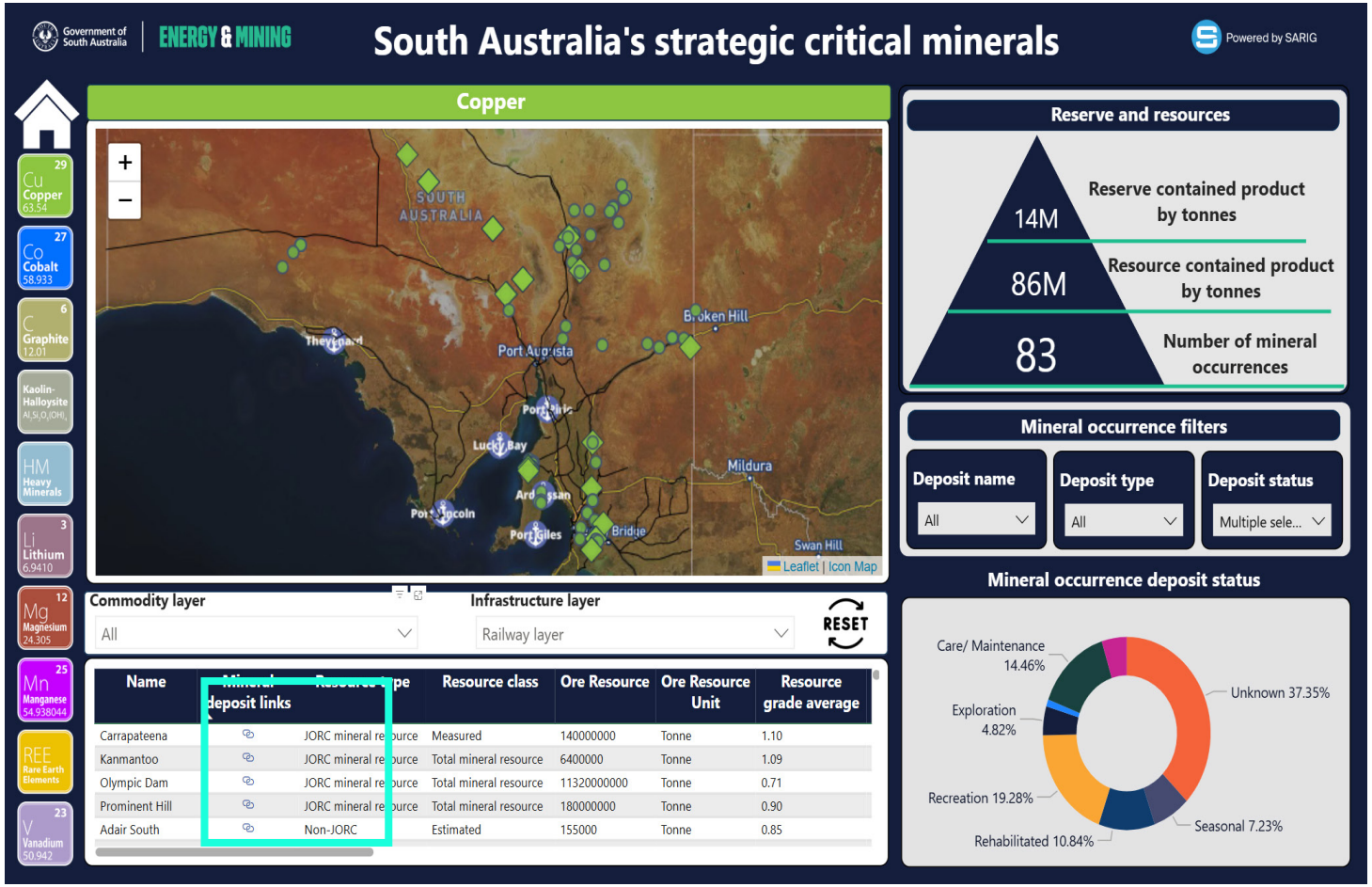






SA's own critical minerals dashboard

- Two dashboards are accessible through the SARIG platform to find information on South Australia's mineral deposits:
- The **critical minerals dashboards** contains the states **geological data** and **resources/ reserves information** on various **metallurgic minerals**, filterable to the deposit type, status and deposit name.
- The MinDep database is one of the **sources of information linked** to these products allowing the database to be **searched** through this platform.



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The future of the database

- MinDep is an **evergreen database** being continuously updated with new information as it becomes available.
- **Major updates to entries** following **DEM focused projects** (e.g. Eyre Peninsula)
- **Key component** for **assessing areas and indicating potential** within the GSSA regional and focused exploration workflows.
- Within the SA Geodata site, **additional information** is **captured** in the databases backend but **currently not available** through the SARIG platform. **Future developments** possibly to contain more information released through MinDep.
- **Resources and reserves numbers** captured and **published through** other databases produced by the GSSA.

Final words

- South Australia has been at the **forefront of developing and publishing tools** and **databases** to **make exploration easier and reducing risk** in the state **with readily available data and geological information** of the states known occurrences, prospects and mines.
- The mineral deposit database is easily accessible database containing a robust description of the **known occurrences, prospects, quarries, mines** (at various stages of operation) **and projects**.
- Data compiled and reported using variety of **sources** from **company reports** and **ASX releases, open file data, published journal articles** and **university projects**
- **Key tool** for a **regional exploration** and **prospect evaluation**.
- **Known occurrences searched and visualised** alongside the other mapping products within SARIG platform or downloaded to be visualised in company mapping tools.
- Provides the **information** regarding the state's known **resources and reserves**.

Acknowledgement of Country

As guests here on Kaurna land, the Department for Energy and Mining (DEM) acknowledges everything this department does impacts on Aboriginal country, the sea, the sky, its people, and the spiritual and cultural connections which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future. We are ready to walk, learn and work together.

Disclaimer

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