KURNALPI

AUSTRALIA 1:250 000 GEOLOGICAL SERIES — **GEOLOGICAL SURVEY OF WESTERN AUSTRALIA** — **SHEET SH 51-10**

SYMBOLS

Geological boundary
- exposed
- concealed
- concealed, partly interpreted from aeromagnetic data

Fault
- exposed
- concealed
- concealed, position uncertain
- concealed, partly interpreted from aeromagnetic data

Shear zone
- concealed, partly interpreted from aeromagnetic data

Fold
- anticline, concealed
- syncline, concealed
- minor, showing plunge direction

Bedding, showing strike and dip
- inclined
- vertical
- overturned

Igneous layering, showing strike and dip
- inclined
- vertical

Way-up indicator
- igneous layering
- pillow structure
- igneous or sedimentary structure
- graded bedding

Metamorphic foliation, showing strike and dip
- inclined, showing plunge of lineation
- vertical, showing plunge of lineation

Strongly foliated rock

Mineral lineation, showing trend and plunge direction
- inclined
- horizontal

Intersecting lineation, showing trend and plunge direction
- inclined

Fracture, joint, or extension vein, showing strike and dip
- inclined

Archaean lineament
- foliation or bedding trend
- fracture pattern in granitoid rock

Isotopic age determination site with GSWA identification number — 13668

Highway with national route marker — 94
Formed road
Track — Chitley
Railway with siding
Railway, abandoned
Airfield
Landing ground
Townsite, population more than 10 000 — KALGOORLIE—BOULDER
Homestead — Gindalbie
Yard — Cl Hy
Locality — Ansonia
National park boundary
Horizontal control: major, minor
Transmitter or repeater station
Breakaway
Sand dune

Watercourse, ephemeral
Spring, soak
Gnammo hole, rockhole, waterhole — Gnh, Rkh, Wkh
Swamp
Pipeline
Well, bore — stock, IPS
Windpump
Dam, tank — stock, IPS
Abandoned
Position doubtful

Mineral field boundary
Mineral field district boundary
Mining centre — GINDALBIE
Mining locality — BINTI BINTI
Major mine (gold, unless otherwise indicated) — Trump
Mine
Major opencut
Opencut or pit
Quarry
Alluvial workings
Prospect
Battery or treatment plant, operating, abandoned

Mining area
- opencut
- tailings/dump
- area covered with tailings slime

Mineral exploration drillhole, showing subsurface data — Au
Mineral occurrence
- Alunite — Al
- Asbestos, amphibole — As
- Bismuth — Bi
- Chromium — Cr
- Chrysoprase — Cs
- Cobalt — Co
- Copper — Cu
- Gemstone — Gs
- Gold — Au
- Kyanite — Ky
- Magnesite — Ms
- Manganese — Mn
- Nickel — Ni
- Sand — Sd
- Silver — Ag
- Tungsten — W
- Vermiculite — Ve
- Zinc — Zn

REFERENCE

QUATERNARY

Qc — Alluvium—clay, silt, sand, and gravel in channels and floodplains

Qcs / Qcd

Qcs — Evaporite interbedded with clay, silt, and sand in playas
Qcd — Sand, silt, and gypsum in stabilized dunes adjacent to playas

Qcc | Qcg | Qcs | Qcl | Qcu | Qcz

Qcc — Colluvium—gravel, sand, and silt on sheetwash or talus
Qcg — Quartzofeldspathic sand over granitoid rock
Qcs — Sandplain—yellow sand with limonitic pisoliths near base
Qcl — Laterite and reworked products; includes strongly weathered rock
Qcu — Silcrete caprock over serpentinized peridotite
Qcz — Silcrete

CAINOZOIC

PHANEROZOIC

PROTEROZOIC

Pdy / Pdy

Mafic and ultramafic dykes; locally overlain by deep red, residual soil; interpreted from aeromagnetic data where dashed
Pdyl—Ballona Dyke, Pdyc—Celebration Dyke, Pdyg—Gidgi Dyke, Pdyk—Kalpini Dyke, Pdyp—Porkelton Dyke, Pdyr—Pinjin Dyke, Pdyr—Rondola Dyke

q / q

Veins and dykes; q—quartz, g—granitoid

Ag

Granitoid rock, undivided; includes strongly weathered rock

Agm | Agqo | Aggo | Agmo | Agyr | Agmh | Agbo | Agwe | Agp | Agsg

Agm — Monzogranite, with biotite; common K-feldspar phenocrysts; locally well foliated
Agqo — **COMARNA MONZOGRANITE:** with biotite
Aggo — **GALLALLEY MONZOGRANITE:** K-feldspar megacrysts, with biotite
Agmo — **GOAT DAM MONZOGRANITE:** epizonal sheet zones and greenstone inclusions; with minor biotite
Agyr — **YINDI MONZOGRANITE:** even-grained, with biotite
Agmh — Monzogranite, with hornblende, with or without biotite; local K-feldspar phenocrysts
Agbu — **BULYARDIE MONZOGRANITE:** K-feldspar megacrysts, with hornblende
Agwy — **ERAYINIA GRANITOID COMPLEX:** granite to syenite, with hornblende and/or biotite; K-feldspar phenocrysts and megacrysts; local abundant small mafic xenoliths
Agp — Syenite, quartz syenite, and minor quartz monzonite; with hornblende, clinopyroxene, and/or biotite
Agsg — **GILGARNA SYENITE:** with sagvine, rhythmic igneous layering

Post-regional folding

Agyf | Agmf | Amg

Agyf — Syenogranite, strongly foliated; with minor biotite
Agf — Strongly foliated to gneissic granitoid rock
Amg — Banded granitoid gneiss; migmatite; with magnetite-bearing leucosome

Pre- to syn-regional folding

Ap / Apg / Aspo

Ap — Felsic porphyry, undivided; mainly quartz and/or feldspar porphyry; includes hornblende-bearing varieties and lamprophyre
Apg — Granitoid porphyry

Penny Dam conglomerate:
Aspg — Polymictic conglomerate, with subordinate sandstone; faceted pebbles and boulders
Aspa — Sandstone, with minor conglomerate and siltstone

Aws — **Mount Belches greywacke:** greywacke with minor interbedded siltstone; cross-bedded and grooved; commonly biotite bearing; carbonate cementation

ARCHAEAN

As / Ash / Asp / Asf / Asc / Ac / Acs

As — Sedimentary rock, undivided
Ash — Grey to black shale and siltstone; strongly foliated; with biotite and local andalusite, garnet, staurolite, and/or cordierite porphyroblasts
Asp — Polymictic conglomerate; subordinate sandstone
Asf — Quartzofeldspathic volcaniclastic rock, undivided
Asc — Sedimentary and volcaniclastic rocks of intermediate composition; includes amphibole-biotite-quartz-feldspar schist; locally conglomeratic
Ac — Chert, silicified shale
Acs — Bonded iron formation; oxide and silicate facies layers; interpreted from aeromagnetic data where dashed

Afv / Afp / Afs / Afcs

Afv — Felsic volcanic and volcaniclastic rocks, undivided; includes tuffaceous, flow-bonded, fragmental, and conglomeratic layers
Afp — Porphyritic felsic rock; volcanic, subvolcanic, or volcaniclastic derivation
Afs — Quartzofeldspathic schist; felsic volcanic and volcaniclastic derivation; layered felsic rock interpreted from seismic and gravity data (section only)
Afcs — Quartz-diumo-kalsilite rock, with andalusite and/or kyanite; includes diumo-kalsilite-bearing felsic schist

Afv / Afs

Afv — Intermediate volcanic and volcaniclastic rocks, undivided
Afs — Intermediate schist; hornblende-quartz-feldspar schist, locally garnetiferous

Amg / Amg

Amg — Mafic intrusive rock; dolerite, gabbro; includes pyroxene-phyric and plagioclase-phyric zones
Amg — Gabbro, with local foliated pyroxenite, norite, quartz gabbro, and leucogabbro

Ab | Abm | Abf | Amo

Ab — Basalt; includes dolerite and feldspar-phyric layers and lenses, and mafic schist
Abm — Komatiitic basalt or high-Mg basalt; includes varioltic and pyroxene spinifex-textured layers; local pillow structures
Abf — Basaltic schist and amphibolite, interlayered with intermediate schist (Afs), feldspar-phyric felsic schist (Afp), and shale (Ash)
Amo — Amphibolite, with local gamet or clinopyroxene

Au | Auk | Aup | Aus | Aur

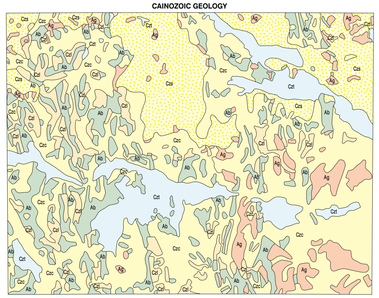
Au — Ultramafic rock, undivided; includes talc-chlorite-carbonate and tremolite-chlorite schist
Auk — Komatiite; includes komatiitic basalt and (keuro-)gabbro layers
Aup — Peridotite, serpentinized; mainly olivine cumulate
Aus — Pyroxenite
Aur — Tremolite-chlorite schist

Metamorphosed at lower greenschist to upper amphibolite facies

Mafic and ultramafic rock, includes layered intrusions and interbedded felsic rock
Fault or shear
Early low-angle fault; thrust fault
Sheared rock
Unconformity
Mount Belches greywacke
Penny Dam conglomerate
Banded iron-formation and chert
Felsic volcanic and volcaniclastic rock; includes sedimentary rock

SCALE 1:1 000 000
0 10 20 30 40 50 Kilometres

CAINOZOIC GEOLOGY



Qd — Playa deposit
Qcc — Colluvium; sheetwash
Qcs — Sandplain
Qcl — Laterite
Ag — Granitoid eluvium and subcrop
Ab — Greenstone eluvium and subcrop

SCALE 1:1 000 000
0 10 20 30 40 50
Kilometres

Compiled by C.P. Swager 1994

Geology after 1:100 000 Geological Series maps
AHMAT, A. L., 1995, Koroneng
AHMAT, A. L., 1995, Gindalbie
MORRIS, P. A., 1994, Mugglebie
SMITHIES, R. H., 1994, Rea
SWAGER, C. P., 1993, Kurnalpi
SWAGER, C. P., 1994, Pinjin

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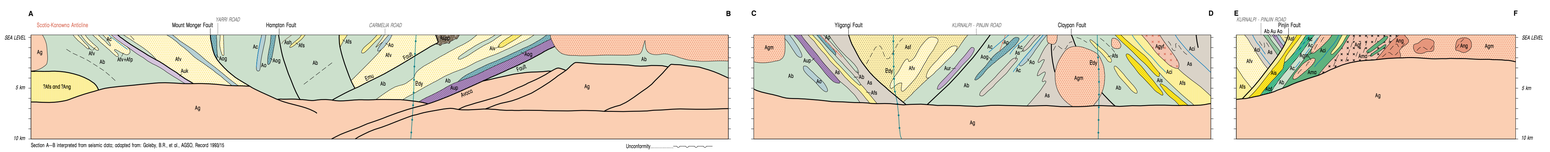
DIAGRAMMATIC SECTIONS

NATURAL SCALE



Section A–B interpreted from seismic data; adopted from: Goleby, B.R., et al., AGSO, Record 1992/16

DEPARTMENT OF MINERALS AND ENERGY
K.R. PERRY, DIRECTOR GENERAL

GOVERNMENT OF WESTERN AUSTRALIA
HON. KEVIN MINSON, M.L.A.
MINISTER FOR MINES

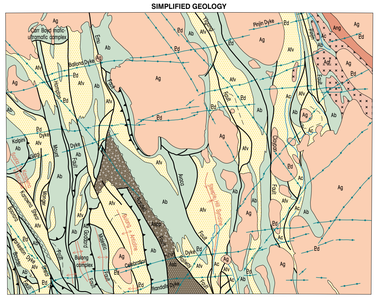
PETRO GLU
DIRECTOR, GEOLOGICAL SURVEY OF WESTERN AUSTRALIA

SCALE 1:250 000
5000 0 5 10 15 20 25
Metres Kilometres

TRANSVERSE MERCATOR PROJECTION
Grid lines indicate 20 000 metre interval of the Australian Map Grid Zone 51

SHEET INDEX

SIMPLIFIED GEOLOGY


Penny Dam
Gum Bollard Hills dynamic intrusion
Kalpini Dyke
Kalpini Dyke
Kurnalpi Dyke
Kurnalpi Dyke
Pinjin Dyke
Pinjin Dyke
Rondola Dyke
Rondola Dyke
Ballona Dyke
Ballona Dyke
Celebration Dyke
Celebration Dyke
Gidgi Dyke
Gidgi Dyke
Porkelton Dyke
Porkelton Dyke