Critical Minerals in Ores
Web Map Service (WMS)

DATA DICTIONARY

March 2022

Version 1.1

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Metadata Statement
(ISO 19115-1:2014 – Geoscience Australia Community Metadata Profile)

Service TITLE
Critical Minerals in Ores WMS

Service ABSTRACT
This web service delivers datasets produced by the Critical Minerals Mapping Initiative (CMMI), a collaboration between Geoscience Australia (GA), the Geological Survey of Canada (GSC) and the United States Geological Survey (USGS). Data in this service includes geochemical analyses of over 7000 samples collected from or near mineral deposits from 60 countries, and mineral prospectivity models for clastic-dominated (Zn, Pb) and Mississippi Valley-type (Zn-Pb) deposits across Canada, the United States, and Australia.

Service KEYWORDS
Critical Minerals
Geochemistry
Mineral Deposit
Ores
Web Service
WMS

Service CUSTODIAN
Michael Sexton

Service Data GEOGRAPHIC BOUNDING BOX
N_LAT: 90.00
S_LAT: -90.00
E_LONG: 180.00
W_LONG: -180.00

Service Endpoint LINKAGE
https://services.ga.gov.au/gis/critical-minerals/wms?&request=GetCapabilities&service=WMS

Service TYPE
Open Geospatial Consortium's Web Map Service (WMS)

Service VERSION
1.1.1, 1.3.0

Service OPERATES ON
Critical Minerals in Ores - geochemistry database
http://pid.geoscience.gov.au/dataset/ga/145496

Service LINEAGE
This web service has been created as part of a collaboration between Geoscience Australia (GA), United States Geological Survey (USGS), the Geological Survey of Canada (GSC) and the Geological Survey of Queensland (GSQ), reviewed regularly while in development. The web service was initially released in June 2021 to deliver the geochemical analyses of samples from or near mineral deposits from 60 countries. This web service was updated in February 2022 to include Mississippi Valley-type (Zn-Pb) and clastic-dominated (Zn-Pb) prospectivity potential models.

Service PUBLICATION DATE

2021-06-30

Service REVISION DATE
2021-06-28

Service MAINTENANCE AND UPDATE FREQUENCY
As needed

Service ACCESS CONSTRAINT
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Metadata LINKAGE
http://pid.geoscience.gov.au/dataset/ga/145525

Metadata REVISION DATE
2016-05-04

Metadata CREATION DATE
2016-02-10

WMS Layer Definitions

Critical Minerals - Deposits and Geochemistry

LAYER NAME:	**cmmi:CriticalMineralDepositsGeochemistry**
LAYER TITLE:	**Critical Minerals - Deposits and Geochemistry**
ABSTRACT:	This layer delivers geochemical analyses of over 7000 samples collected from or near mineral deposits from 60 countries, compiled by the Critical Minerals Mapping Initiative (CMMI), a collaboration between Geoscience Australia (GA), the Geological Survey of Canada (GSC) and the United States Geological Survey (USGS). Data was compiled from a number of publicly-available sources, including federal and provincial government mineral deposit and geochemistry databases, and the ore samples normalised to average crustal abundance (OSNACA) database compiled by the Centre for Exploration Targeting at the University of Western Australia. Geochemical data cover the majority of the periodic table, with metadata on analytical methods and detection limits. Where available, sample descriptions include lithology, mineralogy, and host stratigraphic units. Mineral deposits are classified according to the CMMI mineral deposit classification scheme (Hofstra et al., 2021). Location information includes deposit or prospect name, and sampling location (i.e., mine, field site, or borehole collar). This dataset will be updated periodically as more data become available. Geoscience Australia: D Champion, O Raymond, D Huston, M Sexton, E Bastrakov, S van der Wielen, G Butcher, S Hawkins, J Lane, K Czarnota, I Schroder, S McAlpine, A Britt Geological Survey of Canada: K Lauzière, C Lawley, M Gadd, J-L Pilote, A Haji Egeh, F Létourneau United States Geological Survey: M Granitto, A Hofstra, D Kreiner, P Emsbo, K Kelley, B Wang, G Case, G Graham Geological Survey of Queensland: V Lisitsin
KEYWORDS:	Australia Canada United States of America critical minerals deposits geochemistry minerals
DATA NATIVE CRS:	EPSG: 4326
GEOGRAPHIC BOUNDING BOX:	N_LAT: 90.00 S_LAT: -90.00 E_LONG: 180.00 W_LONG: -180.00

FEATURE ATTRIBUTE NAME	DATA TYPE *	Allow NULL *	DESCRIPTION	Vocabulary †

AG_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
AG_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
AG_PPM	NUMBER(10,3)	Yes	Silver (ppm).	
AL2O3_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
AL2O3_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
AL2O3_WT_PERCENT	NUMBER(10,3)	Yes	Aluminium expressed as oxide (wt %).	
ALL_COMMODITIES	VARCHAR2(200 CHAR)	No	An aggregated list of all reported commodity codes for the deposit.	
ALTERATION	VARCHAR2(500 CHAR)	Yes	An aggregated list of alteration types in the sample (eg, argillic, silicified).	
AL_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
AL_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, AAS-GA.	Analysis Method
AL_PPM	NUMBER(10,3)	Yes	Aluminium (ppm).	
ANALYSIS_DATETIME	VARCHAR2(10 CHAR)	Yes	Date of geochemistry analysis.	
AS_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
AS_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
AS_PPM	NUMBER(10,3)	Yes	Arsenic (ppm).	
AU_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
AU_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
AU_PPB	NUMBER(10,3)	Yes	Gold (ppb).	
BASE_DEPTH_M	NUMBER(8,2)	Yes	Lowermost depth (in m) for borehole interval for drill hole samples.	
BA_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
BA_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
BA_PPM	NUMBER(10,3)	Yes	Barium (ppm).	
BE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
BE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
BE_PPM	NUMBER(10,3)	Yes	Beryllium (ppm).	
BI_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
BI_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
BI_PPM	NUMBER(10,3)	Yes	Bismuth (ppm).	
BR_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
BR_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
BR_PPM	NUMBER(10,3)	Yes	Bromine (ppm).	

B_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
B_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
B_PPM	NUMBER(10,3)	Yes	Boron (ppm).	
CAO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CAO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
CAO_WT_PERCENT	NUMBER(10,3)	Yes	Calcium expressed as oxide (wt %).	
CA_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CA_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CA_PPM	NUMBER(10,3)	Yes	Calcium (ppm).	
CD_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CD_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CD_PPM	NUMBER(10,3)	Yes	Cadmium (ppm).	
CE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CE_PPM	NUMBER(10,3)	Yes	Cerium (ppm).	
CL_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CL_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CL_PPM	NUMBER(10,3)	Yes	Chlorine (ppm).	
CO2_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CO2_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
CO2_WT_PERCENT	NUMBER(10,3)	Yes	CO2 (wt%).	
COMMENTS	VARCHAR2(2000 CHAR)	Yes	Other miscellaneous comments about the deposit, sample, or geochemical analysis.	
COUNTRY	VARCHAR2(3 CHAR)	No	Three letter country code in which the sample is located (eg, AUS, CAN, USA).	Country
CO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CO_PPM	NUMBER(10,3)	Yes	Cobalt (ppm).	
CR_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CR_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CR_PPM	NUMBER(10,3)	Yes	Chromium (ppm).	
CS_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	

CS_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CS_PPM	NUMBER(10,3)	Yes	Caesium (ppm).	
CU_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
CU_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
CU_PPM	NUMBER(10,3)	Yes	Copper (ppm).	
C_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
C_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
C_WT_PERCENT	NUMBER(10,3)	Yes	Carbon (wt%).	
DEPOSIT_ANALYSIS_ID	VARCHAR2(100 CHAR)	No (PK)	GA unique internal identifier for the Deposit Analysis Data.	
DEPOSIT_ENVIRONMENT	VARCHAR2(100 CHAR)	No	Physical, chemical, geologic, and/or hydrologic environment in which the deposit formed.	
DEPOSIT_GROUP	VARCHAR2(100 CHAR)	No	Restricted grouping of deposits with similar characteristics and/or that form under similar conditions.	
DEPOSIT_LATITUDE_WGS84	NUMBER(12,7)	No	Deposit location latitude in WGS84 lat-long decimal degrees.	
DEPOSIT_LOCAL_ID	VARCHAR2(100 CHAR)	No	Identifier for the deposit in local/national database.	
DEPOSIT_LONGITUDE_WGS84	NUMBER(12,7)	No	Deposit location longitude in WGS84 lat-long decimal degrees.	
DEPOSIT_NAME	VARCHAR2(100 CHAR)	No	Name of mineral deposit to which the sample is associated.	
DEPOSIT_SOURCE	VARCHAR2(500 CHAR)	No	Name or description of the organisation or database from which the deposit information was sourced.	
DEPOSIT_TYPE	VARCHAR2(100 CHAR)	No	Detailed classification of the deposit. General format corresponds to subgroup + group + principal commodity(s). .	
DEPOSIT_UID	VARCHAR2(100 CHAR)	No	Unique deposit identifier for this tri-survey project.	
DY_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
DY_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
DY_PPM	NUMBER(10,3)	Yes	Dysprosium (ppm).	
EARTH_MATERIAL	VARCHAR2(100 CHAR)	No	An aggregated list of lithological names where more than one lithology is present (e.g., sandstone, siltstone, granite).	
EARTH_MATERIAL_GROUP	VARCHAR2(100 CHAR)	No	Dominant lithological grouping (eg, acid intrusive, sedimentary siliciclastic, sedimentary carbonate, mineralisation, unknown).	
EARTH_MATERIAL_QUALIFIER	VARCHAR2(500 CHAR)	Yes	An aggregated list of qualifying term(s), if any, before the lithology name field (e.g., graphitic, fine grained, foliated).	
ER_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
ER_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
ER_PPM	NUMBER(10,3)	Yes	Erbium (ppm).	
EU_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	

EU_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
EU_PPM	NUMBER(10,3)	Yes	Europium (ppm).	
FE2O3TOT_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
FE2O3TOT_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
FE2O3TOT_WT_PERCENT	NUMBER(10,3)	Yes	Total iron converted to tri-valent ion and expressed as oxide (wt %).	
FE2O3_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
FE2O3_METHOD	VARCHAR2(100 CHAR)	Yes	Database calculation (Method = CALC-fe2o3).	Analysis Method
FE2O3_WT_PERCENT	NUMBER(10,3)	Yes	Iron 3+ expressed as oxide (wt %).	
FEATURE_NAME	VARCHAR2(100 CHAR)	No	Name or ID for the sampling feature (eg: DDH 879).	
FEATURE_TYPE	VARCHAR2(100 CHAR)	No	Sampling feature type (e.g. borehole, field site (underground or surface), measured section, or unknown).	Entity Type or Feature
FEATURE_UID	VARCHAR2(100 CHAR)	Yes	Unique identifier (eg, URL) for the sampling feature (eg, http://pid.geoscience.gov.au/borehole/12345).	
FEO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
FEO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
FEO_WT_PERCENT	NUMBER(10,3)	Yes	Iron 2+ expressed as oxide (wt %).	
FE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
FE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
FE_PPM	NUMBER(10,3)	Yes	Iron (ppm).	
F_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
F_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
F_PPM	NUMBER(10,3)	Yes	Fluorine (ppm).	
GA_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
GA_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
GA_PPM	NUMBER(10,3)	Yes	Gallium (ppm).	
GD_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
GD_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
GD_PPM	NUMBER(10,3)	Yes	Gadolinium (ppm).	
GE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
GE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
GE_PPM	NUMBER(10,3)	Yes	Germanium (ppm).	
H2OMINUS_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	

H2OMINUS_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
H2OMINUS_WT_PERCENT	NUMBER(10,3)	Yes	Water minus, i.e., H2O- (wt %).	
H2OPLUS_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
H2OPLUS_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
H2OPLUS_WT_PERCENT	NUMBER(10,3)	Yes	Water plus, i.e., H2O+ (wt %).	
H2OTOTAL_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the total water result.	
H2OTOTAL_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for the analysis, e.g., XRF-NORHUTT, XRF-major, calculation.	Analysis Method
H2OTOTAL_WT_PERCENT	NUMBER(10,3)	Yes	Total water (wt %).	
HF_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
HF_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
HF_PPM	NUMBER(10,3)	Yes	Hafnium (ppm).	
HG_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
HG_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
HG_PPB	NUMBER(10,3)	Yes	Mercury (ppm).	
HO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
HO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
HO_PPM	NUMBER(10,3)	Yes	Holmium (ppm).	
HREE_PPM	NUMBER(10,3)	Yes	Sum of the heavy rare earth elements (ppm).	
IN_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
IN_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
IN_PPM	NUMBER(10,3)	Yes	Indium (ppm).	
IR_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
IR_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
IR_PPM	NUMBER(10,3)	Yes	Iridium (ppm).	
K2O_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
K2O_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
K2O_WT_PERCENT	NUMBER(10,3)	Yes	Potassium expressed as oxide (wt %).	
K_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
K_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
K_PPM	NUMBER(10,3)	Yes	Potassium (ppm).	

LAST_UPDATE	VARCHAR2(10 CHAR)	Yes	The date that this deposit-sample-geochemistry record was generated or last updated.	
LA_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
LA_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
LA_PPM	NUMBER(10,3)	Yes	Lanthanum (ppm).	
LI_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
LI_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
LI_PPM	NUMBER(10,3)	Yes	Lithium (ppm).	
LOCATION_ACCURACY	NUMBER(6)	Yes	Estimate of absolute accuracy of the given coordinates in metres on the ground.	
LOITOT_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
LOITOT_METHOD	VARCHAR2(100 CHAR)	Yes	The laboratory method used for the preferred analysis of LOITOT in the sample.	Analysis Method
LOITOT_WT_PERCENT	NUMBER(10,3)	Yes	Loss on ignition Total is calculation combining MLOI and H2Oplus, H2Omin and CO2.	
LREE_PPM	NUMBER(10,3)	Yes	Sum of the light rare earth elements (ppm).	
LU_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
LU_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
LU_PPM	NUMBER(10,3)	Yes	Lutetium (ppm).	
MATERIAL_CLASS	VARCHAR2(100 CHAR)	No	Broad categorisation of the sample material type (eg., rock, regolith, sediment).	Material Class
MGO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
MGO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
MGO_WT_PERCENT	NUMBER(10,3)	Yes	Magnesium expressed as oxide (wt %).	
MG_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
MG_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
MG_PPM	NUMBER(10,3)	Yes	Magnesium (ppm).	
MINERALS	VARCHAR2(500 CHAR)	Yes	An aggregated list of significant minerals that comprise the sample (eg, quartz, kaolinite, pyrite).	
MLOI_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
MLOI_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., GRAV-MLOI.	Analysis Method
MLOI_WT_PERCENT	NUMBER(10,3)	Yes	Measured loss on ignition - total volatiles in the rock (wt %).	
MNO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
MNO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
MNO_WT_PERCENT	NUMBER(10,3)	Yes	Manganese expressed as oxide (wt %).	
MN_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
MN_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method

MN_PPM	NUMBER(10,3)	Yes	Manganese (ppm).	
MODE_OCCURRENCE	VARCHAR2(100 CHAR)	Yes	Mode of occurrence of the sample (eg, xenolith, dyke, sill, pipe).	Mode of Occurrence
MO_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
MO_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
MO_PPM	NUMBER(10,3)	Yes	Molybdenum (ppm).	
NA2O_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
NA2O_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
NA2O_WT_PERCENT	NUMBER(10,3)	Yes	Sodium expressed as oxide (wt %).	
NA_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
NA_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
NA_PPM	NUMBER(10,3)	Yes	Sodium (ppm).	
NB_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
NB_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
NB_PPM	NUMBER(10,3)	Yes	Niobium (ppm).	
ND_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
ND_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
ND_PPM	NUMBER(10,3)	Yes	Neodymium (ppm).	
NI_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
NI_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, AAS-GA.	Analysis Method
NI_PPM	NUMBER(10,3)	Yes	Nickel (ppm).	
OS_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
OS_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
OS_PPB	NUMBER(10,3)	Yes	Osmium (ppm).	
P2O5_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
P2O5_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
P2O5_WT_PERCENT	NUMBER(10,3)	Yes	Phosphorus expressed as oxide (wt %).	
PB_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
PB_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
PB_PPM	NUMBER(10,3)	Yes	Lead (ppm).	
PD_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	

PD_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
PD_PPB	NUMBER(10,3)	Yes	Palladium (ppm).	
PRIMARY_COMMODITIES	VARCHAR2(100 CHAR)	Yes	An aggregated list of reported primary commodity codes for the deposit.	
PROVINCE	VARCHAR2(100 CHAR)	Yes	An extensive region characterized throughout by similar geological history or by similar structural, petrographic, or physiographic features.	
PR_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
PR_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
PR_PPM	NUMBER(10,3)	Yes	Praseodymium (ppm).	
PT_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
PT_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
PT_PPB	NUMBER(10,3)	Yes	Platinum (ppm).	
P_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
P_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
P_PPM	NUMBER(10,3)	Yes	Phosphorous (ppm).	
RB_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
RB_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
RB_PPM	NUMBER(10,3)	Yes	Rubidium (ppm).	
REE_PPM	NUMBER(10,3)	Yes	Sum of all rare earth elements (ppm).	
REE_Y_PPM	NUMBER(10,3)	Yes	Sum of the rare earth elements and yttrium (ppm).	
REST_METHOD	VARCHAR2(100 CHAR)	Yes	Database calculation (Method = CALC-rest).	
REST_WT_PERCENT	NUMBER(10,3)	Yes	Total value of all trace elements converted to oxides (wt %).	
RE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
RE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
RE_PPB	NUMBER(10,3)	Yes	Rhenium (ppm).	
RH_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
RH_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
RH_PPB	NUMBER(10,3)	Yes	Rhodium (ppm).	
RU_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
RU_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
RU_PPB	NUMBER(10,3)	Yes	Ruthenium (ppm).	
SAMPLE_DEPOSIT_RELATION	VARCHAR2(100 CHAR)	No	Description of the sample's relation to the mineral deposit. (eg, high grade ore, low grade ore, gangue, alteration halo, host rock, unknown).	

SAMPLE_DESCRIPTION	VARCHAR2(2000 CHAR)	Yes	Free text description of the sample's lithology or other geological information.	
SAMPLE_EASTING	NUMBER(8)	Yes	Sample location UTM map grid easting.	
SAMPLE_LATITUDE_WGS84	NUMBER(12,7)	No	Sample location latitude in WGS84 lat-long decimal degrees.	
SAMPLE_LOCAL_ID	VARCHAR2(100 CHAR)	No	Unique sample identifier from local database.	
SAMPLE_LOCATION_DESCRIPTION	VARCHAR2(500 CHAR)	Yes	Additional information relating to the sampling location. (eg, 17 Level, XYZ Orebody).	
SAMPLE_LONGITUDE_WGS84	NUMBER(12,7)	No	Sample location longitude in WGS84 lat-long decimal degrees.	
SAMPLE_NAME	VARCHAR2(100 CHAR)	No	Sample label or name, as used by the sample submitter.	
SAMPLE_NORTHING	NUMBER(8)	Yes	Sample location UTM map grid northing.	
SAMPLE_PREPARATION	VARCHAR2(100 CHAR)	No	Description of sample preparation (eg, crushing - TC, milling).	
SAMPLE_SOURCE	VARCHAR2(500 CHAR)	Yes	Citation of published or unpublished article or report for the sample analysis.	
SAMPLE_TYPE	VARCHAR2(100 CHAR)	No	Type or form of the sample (e.g., half core, outcrop specimen, drill chips, float specimen, unknown).	Sample Type
SAMPLE_UID	VARCHAR2(100 CHAR)	No	Unique IGSN sample identifier. (eg, http://igsn.org/AU1273640).	
SAMPLE_UTM_ZONE	VARCHAR2(4 CHAR)	Yes	Sample location UTM Zone (number and hemisphere letter. eg, 54S).	
SAMPLING_METHOD	VARCHAR2(100 CHAR)	No	The method used to collect the sample (eg, core drilling, RC drilling, outcrop sampling, channel sampling, unknown).	Sampling Method
SB_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SB_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SB_PPM	NUMBER(10,3)	Yes	Antimony (ppm).	
SC_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SC_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SC_PPM	NUMBER(10,3)	Yes	Scandium (ppm).	
SECONDARY_COMMODITIES	VARCHAR2(100 CHAR)	Yes	An aggregated list of reported secondary commodity codes for the deposit.	
SE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SE_PPM	NUMBER(10,3)	Yes	Selenium (ppm).	
SIO2_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SIO2_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
SIO2_WT_PERCENT	NUMBER(10,3)	Yes	Silica expressed as oxide (wt %).	
SI_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SI_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SI_PPM	NUMBER(10,3)	Yes	Silicon (ppm).	
SM_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	

SM_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SM_PPM	NUMBER(10,3)	Yes	Samarium (ppm).	
SN_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SN_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SN_PPM	NUMBER(10,3)	Yes	Tin (ppm).	
SO3_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SO3_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
SO3_WT_PERCENT	NUMBER(10,3)	Yes	S expressed as an oxide (wt%).	
SR_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
SR_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
SR_PPM	NUMBER(10,3)	Yes	Strontium (ppm).	
STATE	VARCHAR2(6 CHAR)	Yes	Letter code for the state/province in the country in which the sample is located (eg, New South Wales = NSW; Alberta = AB).	State
STRAT_GROUPING	VARCHAR2(100 CHAR)	Yes	An informal classification used to classify suites of rocks from particular regions into classes other than those suggested by other attributes listed.	
STRAT_UNIT_NAME	VARCHAR2(100 CHAR)	Yes	Stratigraphic unit name (either a formal lexicon name or informal name).	
STRAT_UNIT_UID	VARCHAR2(100 CHAR)	Yes	Unique ID (eg, URL link) for the stratigraphic unit (eg, https://asud.ga.gov.au/search-stratigraphic-units/results/4080).	
SUBMITTER	VARCHAR2(100 CHAR)	No	The person or organisation that originally collected or compiled the analysis; if unknown, use 'unknown', or Survey agency name.	
S_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
S_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
S_PPM	NUMBER(10,3)	Yes	Sulphur (ppm).	
TA_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TA_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
TA_PPM	NUMBER(10,3)	Yes	Tantalum (ppm).	
TB_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TB_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
TB_PPM	NUMBER(10,3)	Yes	Terbium (ppm).	
TEXTURE	VARCHAR2(500 CHAR)	Yes	An aggregated list of mineral textures to describe the sample (eg, foliated, vugghy).	
TE_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TE_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method

TE_PPM	NUMBER(10,3)	Yes	Tellurium (ppm).	
TH_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TH_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
TH_PPM	NUMBER(10,3)	Yes	Thorium (ppm).	
TIO2_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TIO2_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., XRF-NORHUTT, XRF-major.	Analysis Method
TIO2_WT_PERCENT	NUMBER(10,3)	Yes	Titanium expressed as oxide (wt %).	
TI_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TI_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
TI_PPM	NUMBER(10,3)	Yes	Titanium (ppm).	
TL_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TL_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
TL_PPM	NUMBER(10,3)	Yes	Thallium (ppm).	
TM_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
TM_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
TM_PPM	NUMBER(10,3)	Yes	Thulium (ppm).	
TOP_DEPTH_M	NUMBER(8,2)	Yes	Uppermost depth (in m) for borehole interval for drill hole samples.	
TOTAL_METHOD	VARCHAR2(100 CHAR)	Yes	Database calculation (Method = CALC-total).	
TOTAL_WT_PERCENT	NUMBER(10,3)	Yes	Total sum of all oxides including rest (wt %).	
U_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
U_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
U_PPM	NUMBER(10,3)	Yes	Uranium (ppm).	
V_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
V_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
V_PPM	NUMBER(10,3)	Yes	Vanadium (ppm).	
W_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
W_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
W_PPM	NUMBER(10,3)	Yes	Tungsten (ppm).	
YB_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
YB_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
YB_PPM	NUMBER(10,3)	Yes	Ytterbium (ppm).	

Y_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
Y_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
Y_PPM	NUMBER(10,3)	Yes	Yttrium (ppm).	
ZN_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
ZN_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
ZN_PPM	NUMBER(10,3)	Yes	Zinc (ppm).	
ZR_DETECTION_LIMIT	NUMBER(10,3)	Yes	Detection limit for the analysis.	
ZR_METHOD	VARCHAR2(100 CHAR)	Yes	General method and detailed techniques used for analysis, e.g., LA-ICPMS, XRF-Traces, AAS-GA.	Analysis Method
ZR_PPM	NUMBER(10,3)	Yes	Zirconium (ppm).	

* **DATA TYPE** and **Allow NULL** values are based on column properties in the source Oracle database table.
PK = primary key

† This column contains the name of the lookup table in GA's internal database that provides the vocabulary of terms for the attribute. A full listing of the lookup table terms is provided in document "Vocabularies for Geoscience Australia Geological Databases, 2022" available at http://pid.geoscience.gov.au/dataset/ga/145746.

STYLE NAME	STYLE TITLE	ABSTRACT	LEGEND
cmmi:CriticalMineralDepositsGeochemistry	Critical Minerals - Deposits and Geochemistry	Yellow circle, with labels for deposit names and sample IDs at scales smaller than 1:1,000,000.	○ Critical Minerals - Deposits and Geochemistry
cmmi:CriticalMineralDepositsGeochemistry-DepositEnvironment	Critical Minerals - Deposit Environments	Symbology based on deposit environment, with labels for deposit names and sample IDs at scales smaller than 1:1,000,000.	○ Erosional ○ Supergene ○ Infiltrational ○ Basin evaporative ● Basin chemical ▲ Basin hydrothermal ▲ Metamorphic hydrothermal ■ Metamorphic ▲ Regional metasomatic ▲ Volcanic basin hydrothermal ▲ Magmatic hydrothermal ■ Magmatic ■ Unknown

PUB_DATA.GEOCHEM_CM_DEPOSIT_GEOCHEMISTRY

Clastic-dominated (Zn-Pb) prospectivity model

LAYER NAME:	**cmmi:CD_prospectivity_model**
LAYER TITLE:	**Clastic-dominated (Zn-Pb) prospectivity model**
ABSTRACT:	Gradient boosting machines (GBM) prospectivity model results for clastic-dominated (Zn, Pb) deposits across Canada, the United States, and Australia. Model results were filtered to remove the bottom 90% of prospectivity values for visualization purposes. The remaining prospectivity values (i.e., top 10%) are colour coded using the Fisher-Jenks algorithm. The full description of the modelling method is freely available from: Lawley, C.J.M., McCafferty, A.E., Graham, G.E., Huston, D.L., Kelley, K.D., Czarnota, K., Paradis, S., Peter, J.M., Hayward, N., Barlow, M., Emsbo, P., Coyan, J., San Juan, C.A., and Gadd, M.G., 2022. Data–driven prospectivity modelling of sediment–hosted Zn–Pb mineral systems and their critical raw materials, Ore Geology Reviews, v. 141, 104635, https://doi.org/10.1016/j.oregeorev.2021.104635 The spatially indexed geological and geophysical datasets used to generate prospectivity models are freely available from: Lawley, C.J.M, McCafferty, A.E., Graham, G.E., Gadd, M.G., Huston, D.L., Kelley, K.D., Paradis, S., Peter, J.M., and Czarnota, K., 2021. Geological Survey of Canada, Open File 8836, 11 pages, https://doi.org/10.4095/329203.
KEYWORDS:	Australia Canada clastic-dominated (Zn, Pb) deposits prospectivity model United States of America
DATA NATIVE CRS:	EPSG: 4326
GEOGRAPHIC BOUNDING BOX:	N_LAT: 83.11 S_LAT: -43.58 E_LONG: 179.77 W_LONG: -171.88

FEATURE ATTRIBUTE NAME	DATA TYPE *	Allow NULL *	DESCRIPTION
fid	INTEGER	No (PK)	Unique Internal Row Identifier for each record.
H3_Address	TEXT	Yes	Unique address of the H3 cell within the Uber H3 Discrete Global Grid System (DGGS).
Country	TEXT	Yes	Country in which the cell occurs.
Province	TEXT	Yes	The country province (Canada) or state (United States of America, Australia).
Lithology	TEXT	Yes	Prospectivity modelling lithology.
Period_Maximum	TEXT	Yes	Maximum geological period.
Period_Minimum	TEXT	Yes	Minimum geological period.
Prospectivity	REAL	Yes	Gradient boosting machines (GBM) prospectivity model result. Full description of the modelling method available from https://doi.org/10.1016/j.oregeorev.2021.104635.

* **DATA TYPE** and **Allow NULL** values are based on column properties in the source GeoPackage table. PK = primary key			
STYLE NAME	**STYLE TITLE**	**ABSTRACT**	**LEGEND**
cmmi:CD_prospectivity_model_classification	Clastic-dominated (Zn-Pb) prospectivity model colour classifications	Clastic-dominated (Zn-Pb) prospectivity model colour classifications, polygons classified on Prospectivity attribute.	0.01 - 0.03 0.03 - 0.06 0.06 - 0.11 0.11 - 0.17 0.17 - 0.26 0.26 - 0.36 0.36 - 0.47 0.47 - 0.62 0.62 - 0.78 0.78 - 1.00

2021_Portal_CD_EPSG4326_v2.gpkg/2021_Portal_CD_EPSG4326

Mississippi Valley-type (Zn-Pb) prospectivity model

LAYER NAME:	**cmmi:MVT_prospectivity_model**
LAYER TITLE:	**Mississippi Valley-type (Zn-Pb) prospectivity model**
ABSTRACT:	Gradient boosting machines (GBM) prospectivity model results for Mississippi Valley-type (Zn, Pb) deposits across Canada, the United States, and Australia. Model results were filtered to remove the bottom 90% of prospectivity values for visualization purposes. The remaining prospectivity values (i.e., top 10%) are colour coded using the Fisher-Jenks algorithm. The full description of the modelling method is freely available from: Lawley, C.J.M., McCafferty, A.E., Graham, G.E., Huston, D.L., Kelley, K.D., Czarnota, K., Paradis, S., Peter, J.M., Hayward, N., Barlow, M., Emsbo, P., Coyan, J., San Juan, C.A., and Gadd, M.G., 2022. Data–driven prospectivity modelling of sediment–hosted Zn–Pb mineral systems and their critical raw materials, Ore Geology Reviews, v. 141, 104635, https://doi.org/10.1016/j.oregeorev.2021.104635 The spatially indexed geological and geophysical datasets used to generate prospectivity models are freely available from: Lawley, C.J.M, McCafferty, A.E., Graham, G.E., Gadd, M.G., Huston, D.L., Kelley, K.D., Paradis, S., Peter, J.M., and Czarnota, K., 2021. Geological Survey of Canada, Open File 8836, 11 pages, https://doi.org/10.4095/329203.
KEYWORDS:	Australia Canada Mississippi Valley-type (Zn-Pb) prospectivity model United States of America
DATA NATIVE CRS:	EPSG: 4326
GEOGRAPHIC BOUNDING BOX:	N_LAT: 83.12 S_LAT: -43.58 E_LONG: 153.33 W_LONG: -171.09

FEATURE ATTRIBUTE NAME	DATA TYPE *	Allow NULL *	DESCRIPTION
fid	INTEGER	No (PK)	Unique Internal Row Identifier for each record.
H3_Address	TEXT	Yes	Unique address of the H3 cell within the Uber H3 Discrete Global Grid System (DGGS).
Country	TEXT	Yes	Country in which the cell occurs.
Province	TEXT	Yes	The country province (Canada) or state (United States of America, Australia).
Lithology	TEXT	Yes	Prospectivity modelling lithology.
Period_Maximum	TEXT	Yes	Maximum geological period.
Period_Minimum	TEXT	Yes	Minimum geological period.
Prospectivity	REAL	Yes	Gradient boosting machines (GBM) prospectivity model result. Full description of the modelling method available from https://doi.org/10.1016/j.oregeorev.2021.104635.

* **DATA TYPE** and **Allow NULL** values are based on column properties in the source GeoPackage table. PK = primary key			

STYLE NAME	STYLE TITLE	ABSTRACT	LEGEND
cmmi:MVT_prospectivity_model_classification	Mississippi Valley-type (Zn-Pb) prospectivity model colour classifications	Mississippi Valley-type (Zn-Pb) prospectivity model colour classifications, polygons classified on Prospectivity attribute.	■ 0.03 - 0.06 ■ 0.06 - 0.11 ■ 0.11 - 0.16 ■ 0.16 - 0.24 ■ 0.24 - 0.32 ■ 0.32 - 0.43 ■ 0.43 - 0.56 ■ 0.56 - 0.70 ■ 0.70 - 0.83 ■ 0.83 - 1.00

2021_Portal_MVT_EPSG4326_v4.gpkg/2021_Portal_MVT_EPSG4326

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