Metallogenic Map of the Fennoscandian Shield

1:2 000 000

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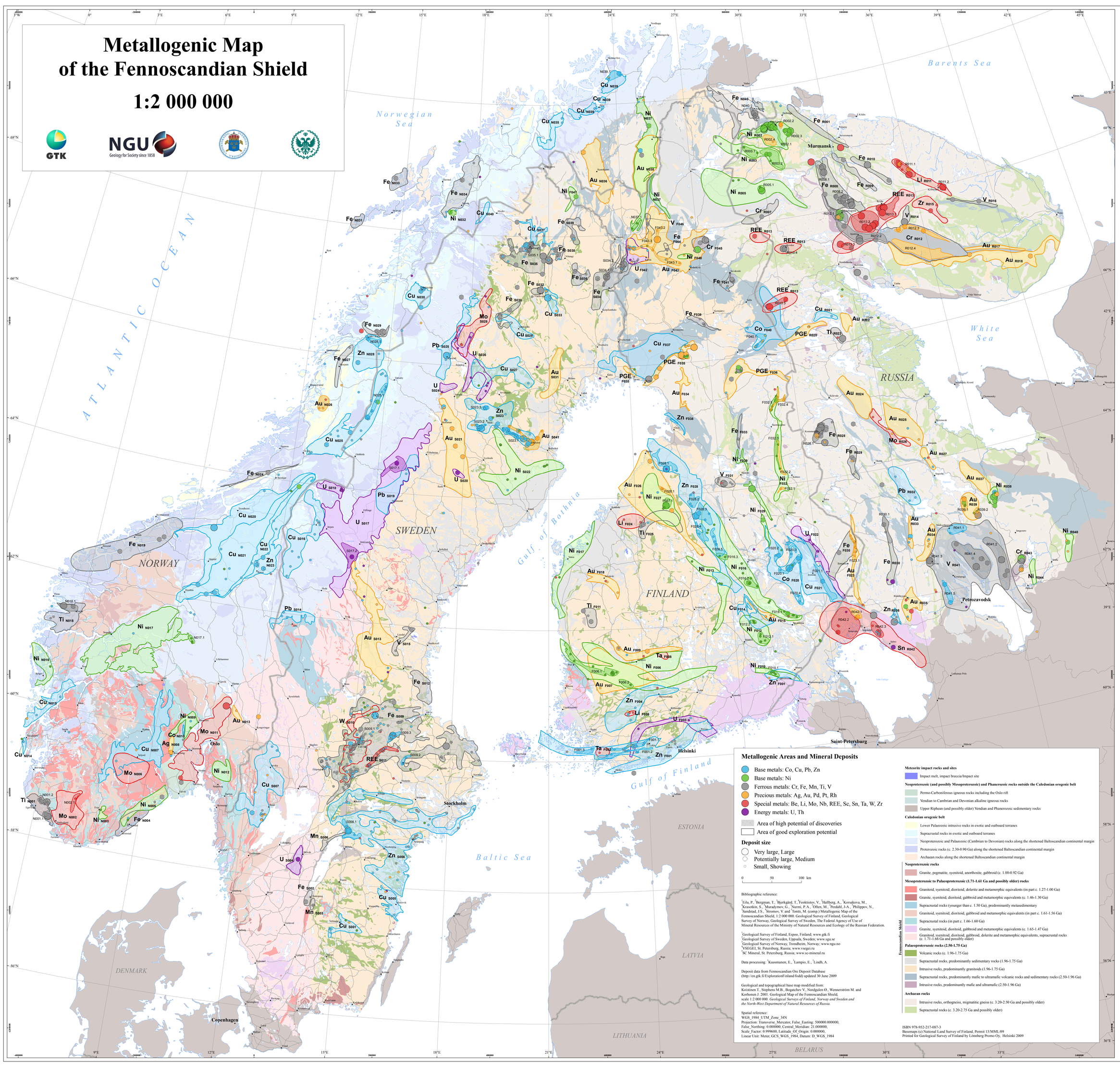

Metallogenic Areas and Mineral Deposits

- Base metals: Co, Cu, Pb, Zn
- Base metals: Ni
- Ferrous metals: Cr, Fe, Mn, Ti, V
- Precious metals: Ag, Au, Pd, Pt, Rh
- Special metals: Be, Li, Mo, Nb, REE, Sc, Sn, Ta, W, Zr
- Energy metals: U, Th
- Area of high potential of discoveries
- Area of good exploration potential

Deposit size

- Very large, Large
- Potentially large, Medium
- Small, Showing

0 50 100 km

Bibliographic reference:

[1]Eilu, P., [1]Bergman, T., [1]Bjerkgård, T., [2]Frederiksson, C., [3]Hallberg, A., [1]Korsakova, M., [4]Krasotkin, S., [5]Muradymov, G., [1]Nurmi, P. A., [1]Often, M., [1]Perdahl, J-A., [1]Philippov, N., [1]Sandstad, J. S., [1]Stromov, V. and [1]Iljin, M. (comp.) Metallogenic Map of the Fennoscandian Shield, 1:2 000 000. Geological Survey of Finland, Geological Survey of Norway, Geological Survey of Sweden, The Federal Agency of Use of Mineral Resources of the Ministry of Natural Resources and Ecology of the Russian Federation.

[1]Geological Survey of Finland, Espoo, Finland; www.gtk.fi
[2]Geological Survey of Sweden, Uppsala, Sweden; www.sgu.se
[3]Geological Survey of Norway, Trondheim, Norway; www.ngu.no
[4]VSEGEI, St. Petersburg, Russia; www.vsegei.ru
[5]SC Mineral, St. Petersburg, Russia; www.sc-mineral.ru

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Deposit data from Fennoscandian Ore Deposit Database (http://en.gtk.fi/ExplorationFinland/fodd) updated 30 June 2009

Geological and topographical base map modified from:
Koistinen T., Stephens M.B., Bogatchev V., Nordgulen Ø., Wennerström M. and Korhonen J. 2001. Geological Map of the Fennoscandian Shield, scale 1:2 000 000. *Geological Surveys of Finland, Norway and Sweden and the North-West Department of Natural Resources of Russia.*

Spatial reference:
WGS_1984_UTM_Zone_34N
Projection: Transverse_Mercator, False_Easting: 500000.000000,
False_Northing: 0.000000, Central_Meridian: 21.000000,
Scale_Factor: 0.999600, Latitude_Of_Origin: 0.000000,
Linear Unit: Meter, GCS_WGS_1984, Datum: D_WGS_1984

Meteorite impact rocks and sites

- Impact melt, impact breccia/Impact site

Neoproterozoic (and possibly Mesoproterozoic) and Phanerozoic rocks outside the Caledonian orogenic belt

- Permo-Carboniferous igneous rocks including the Oslo rift
- Vendian to Cambrian and Devonian alkaline igneous rocks
- Upper Riphean (and possibly older) Vendian and Phanerozoic sedimentary rocks

Caledonian orogenic belt

- Lower Palaeozoic intrusive rocks in exotic and outboard terranes
- Supracrustal rocks in exotic and outboard terranes
- Neoproterozoic and Palaeozoic (Cambrian to Devonian) rocks along the shortened Baltoscandian continental margin
- Proterozoic rocks (c. 2.30-0.90 Ga) along the shortened Baltoscandian continental margin
- Archaean rocks along the shortened Baltoscandian continental margin

Fennoscandian Shield

Neoproterozoic rocks

- Granite, pegmatite, syenitoid, anorthosite, gabbroid (c. 1.00-0.92 Ga)

Mesoproterozoic to Palaeoproterozoic (1.71-1.61 Ga and possibly older) rocks

- Granitoid, syenitoid, dioritoid, dolerite and metamorphic equivalents (in part c. 1.27-1.00 Ga)
- Granite, syenitoid, dioritoid, gabbroid and metamorphic equivalents (c. 1.46-1.30 Ga)
- Supracrustal rocks (younger than c. 1.50 Ga), predominantly metasedimentary
- Granitoid, syenitoid, dioritoid, gabbroid and metamorphic equivalents (in part c. 1.61-1.56 Ga)
- Supracrustal rocks (in part c. 1.66-1.60 Ga)
- Granite, syenitoid, dioritoid, gabbroid and metamorphic equivalents (c. 1.65-1.47 Ga)
- Granitoid, syenitoid, dioritoid, gabbroid, dolerite and metamorphic equivalents, supracrustal rocks (c. 1.71-1.66 Ga and possibly older)

Palaeoproterozoic rocks (2.50-1.75 Ga)

- Volcanic rocks (c. 1.96-1.75 Ga)
- Supracrustal rocks, predominantly sedimentary rocks (1.96-1.75 Ga)
- Intrusive rocks, predominantly granitoids (1.96-1.75 Ga)
- Supracrustal rocks, predominantly mafic to ultramafic volcanic rocks and sedimentary rocks (2.50-1.96 Ga)
- Intrusive rocks, predominantly mafic and ultramafic (2.50-1.96 Ga)

Archaean rocks

- Intrusive rocks, orthogneiss, migmatitic gneiss (c. 3.20-2.50 Ga and possibly older)
- Supracrustal rocks (c. 3.20-2.75 Ga and possibly older)

Metallogenic Areas

Area ID	Name	Main metal
F001	Orijärvi	Zn, Cu, Ag, Pb
F001.1	Aijala	Zn, Cu, Au
F001.2	Kuusila	Ag, Zn, Cu
F001.3	Attu	Zn, Ag, Pb, Cu
F002	Kemiö	Ta, Be
F003	Palmottu	U
F004	Hitura	Zn, Au, Ag
F005	Somero	Li
F006	Vammala	Ni, Co, Cu
F006.1	Pori-Vammala	Ni, Co, Cu
F006.2	Kylmäkoski	Ni, Co, Cu
F007	Pirkkala	Au
F008	Erjärvi	Ta, Li, Be
F009	Tampere	Au, Cu
F010	Telkkälä	Ni, Co
F010.1	Telkkä	Ni, Co
F011	Perikorpi	Ti
F012	Punmala	Ni, Co
F012.1	Niinimäki	Ni, Co
F012.2	Kekonen	Ni, Co, Cu
F013	Ilmolahti	Ni, Co, Cu
F014	Virtasalmi	Cu
F015	Ruotasalmi	Au
F016	Kotalahti	Ni, Co
F016.1	Laukunkangas	Ni, Co
F016.2	Kotala	Ni, Co, Cu
F016.3	Taflas	Ni, Co, Cu
F017	Oravainen	Ni, Co
F018	Seinäjoki	Au, Nb
F020	Outokumpu	Co, Cu
F020.1	Keretti	Co, Cu
F020.2	Laukuslahti	Co, Cu
F020.3	Saramäki	Co, Ni, Cu
F020.4	Hietajärvi	Co, Ni, Cu, Zn
F021	Hammaslahti	Cu, Zn
F021.1	Hammaslahti	Cu, Zn
F022	Koli	U
F023	Honnamäki	Au
F023.1	Hattu	Au
F024	Emmes	Li
F025	Koivusaarenneva	Ti, V
F026	Laivakangas	Au, Cu
F026.1	Vesiperä	Au, Cu, Ag
F027	Hitura	Ni, Co
F027.1	Hitura-Makola	Ni, Co
F028	Vihanti-Pyhäsalmi	Zn, Cu
F028.1	Vihanti	Zn, Cu
F028.2	Vuohtojoki	Zn, Cu
F028.3	Pyhäsalmi	Zn, Cu
F028.4	Kangasjärvi	Zn
F028.5	Sävä	Cu, Zn
F029	Talvivaara	Ni, Co, Zn
F030	Huhus	Fe
F031	Otanmäki	V, Fe, Ti
F032	Kuhmo	Ni, Ag, Au
F032.1	Taivaljärvi	Ag, Zn, Au
F032.2	Kuhmo	Au
F032.3	Arola	Ni
F032.4	Terrana	Au
F032.5	Suomussalmi	Ni, Co
F033	Pääkkö	Fe
F034	Oijärvi	Au, Ag
F035	Portimo	PGE, Cr, Ni
F036	Koillismaa	PGE, V, Ni, Fe, Co
F037	Penkojoja	Cu, Co, Fe
F038	Haukijoutas	Zn, Cu
F039	Misi	Fe, V
F040	Kuusamo-Kuolajärvi	Cu, Au
F040.1	Kuusamo	Co, Au
F041	Juurusmi	Fe
F042	Keskikittmutri	U
F043	Kiistä	Au, Co
F043.1	Sirkka	Cu, Au, Ni, Co
F043.2	Suurikuusikko	Au
F043.3	Hauklimaa	Au, Ag
F044	Porkonen-Puhtavaara	Fe, Mn
F045	Koistelainen	Cr, V, PGE
F046	Pyhäjärvi	V, Fe, Ti
F047	Ruossakero	Ni, Co
F048	Sattasvaara	Ni
N001	Rogaland	Ti, Fe, V
N001.1	Tellnes-Sokndal	Ti, Fe, V
N001.2	Bjerkreim	Ti, Fe, V
N002	Agder	Mo
N002.1	Knaben	Mo
N003	Evje	Ni, Co
N004	Arendal	Fe
N005	Bamble	Ni, Co, Fe, Ti
N006	Bandak-Nisser	Mo
N007	Telemark	Cu, Au, Ag
N008	Kongsberg	Ag
N009	Ringerike	Ni, Co
N010	Modum	Co, As, Au, Ag
N011	Oslo	Mo
N012	Indre Oslfjord	Ni, Co
N013	Eidsvoll	Au
N014	Karmøy	Cu, Zn
N015	Hardanger	Cu, Zn
N016	Bergen-Hosanger	Ni, Co, Fe, Ti
N017	Jotunheimen	Ni, Cu, PGE
N017.1	Espedalen	Ni, Cu, Co
N018	Sunnfjord	Ti, Fe
N018.1	Forde	Ti
N019	Moss	Fe, Ti
N020	Storen-Leksen	Cu, Zn
N021	Krøkne-Singsås	Cu, Zn, Ni
N022	Folldal-Meråker	Cu, Zn
N023	Røros-Tydal	Zn, Cu, Pb
N024	Fosdalen	Fe, Co
N025	Grong_Snåsningen	Cu, Zn, Au
N025.1	Stekenjokk	Cu, Zn
N026	Bindal	Au
N027	Vefsn	Fe
N028	Rana-Hemnes	Zn, Pb, Cu
N028.1	Mofjellet	Zn, Pb, Cu
N029	Rana	Fe
N030	Saltfjellmo	Cu, Zn
N031	Lofoten	Fe, Ti
N032	Röna	Ni, Cu
N033	Selsig	Fe, Ti
N034	Troms	Fe
N035	Vaddas-Birtavarre	Cu, Zn
N036	Kautokeino	Au, Co
N037	Karasjok-Laksefv	Ni, Cu, PGE
N037.1	Paljas	Ni
N038	Karasjok	Au, Co
N039	Alta-Repparfjord	Cu, Au
N039.1	Nussir-Sultvuan	Cu, Au, PGE
N040	Sør-Varanger	Fe
N040.1	Bjørnevatn	Fe
R001	Uraguba-Murmansk	Fe
R002	Pechenga	Ni, Cu, PGE, Co, Au
R002.1	North-Pechenga	Ni, Cu, Co
R002.2	Generalskaya	PGE, Ni, Cu
R002.3	Kuriksyor	Ni, Cu
R002.4	South-Pechenga	Au
R003	Allarechka	Ni, Co
R003.1	Khibinnyavi	Ni, Co
R003.2	Allarechka-Annam	Ni, Co
R005	Lotta	Ni, Co
R005.1	Lesnoarro	Ni, Co
R007	Kovdorumdra	Cr
R008	Zaimandrovskaya	Ti, Ti
R008.1	Gremyakha-Vyrmes	Ti, Fe
R008.2	Olenegorskyl	Ti, Fe
R009	Sholtyavr	Fe
R010	Pitkul'yavr	Fe
R011	Perssuarro-Voron'ya	Li, Nb, Ta
R011.1	Voron'ya	Li, Ta
R011.2	Kolmozero	Li
R012	Imandra-Varanga	Cr, PGE, Ni, Cu
R012.1	Monchegorskyi	Cr
R012.2	Nourky-Khibiny	Cr
R012.2	Federova-Panskaya	PGE, Cu, Ni
R012.4	Panarechka-Varanga	Au
R013	Kovdor-Lesnoarro	REE, Nb, Ta, Zr, Ti, Fe
R013.1	Lesnoarro	REE, Nb, Ta
R013.2	Khibiny	REE
R013.3	Afrikanda	REE, Ti, Fe
R013.4	Kovdor	Fe, Zr
R013.5	Salluatutsi-Yuorjyavri	Nb, Ta
R014	Tsaginskaya	V, Fe, Ti
R015	West-Keyry	Zr, Nb
R016	Kuropteveskaya	V, Fe, Ti
R017	Pernachskaya	Au
R018	South-Varanga	Au
R020	Olanga	PGE
R021	Kokias	Cu
R022	Winchozero	Au
R023	Elmozero	Ti, Fe, V, Nb
R024	Shombozero	Au
R025	Lachta	Au, Cu
R026	Paavaara-Lobash	Mo, Au
R027	Paranden-Nadvoisa	Au, Mo, Cu
R028	Kostomuksha	Fe, Au
R028.1	West Kostomuksha	Fe, Au
R029	Bolshozero	Fe, Au
R030	Gimoly	Fe, U
R030.1	Medozero	Fe
R032	Elmozero-Segozero	Pb, Cu
R033	Jangozero	Au, Co
R034	Pedrolampi-Elmus	Au, Cu, Zn
R035	Hautavara-Shotozero	Au, Pb, Zn, Ta, Nb, Ni
R036	Talmozero	Zn, Pb, Fe
R037	Palozero	Au
R038	Kamennozero	Ni, Zn, Cu
R039	South-Vygozero	Au, Ni, Cr
R039.1	Zalmozero	Au, Ni
R039.2	Rybozero	Au, Ni, Cr
R040	Voicheozero	Ni, Au, Cu
R041	Onega	V, Ti, U, PGE, Cu, Au
R041.1	Pesozero	Cu
R041.2	Pydozhgorskaj	Ti, Fe, PGE, V
R041.3	Koikarskaj	Ti, V, PGE, Au
R041.4	Padma	V, PGE, C, Au, Cu
R041.5	West Onega	Cu
R042	Northern Ladoga	Sn, Zn, Pb, U, Au, W, Fe, V
R042.1	Janisjarvi	Au
R042.2	Latvasjarskaj	W, U
R042.3	Pitkaranta	Sn, Pb, Zn
R043	Burakovka	Cr, PGE, Ni
R044	Mullakaisto	Ni
S001	Vetlanda	Cu, Ni, Au
S002	Taberg	Ti, Ti, V
S003	Sprsarjd	Mn
S004	Billingen	U, V, Mo
S005	Gladhammar-Västervik	Cu, Co, U, REE, Fe
S006	Bråtåt	Mn
S007	Dalsland-Värmland	Cu, Ag, U, Au, Fe, Mn
S008	Southern Bergslagen	Zn, Pb, Fe, Co, Ni
S008.1	Zinkgruven	Zn, Pb, Ag
S009	Northern Bergslagen	Fe, Cu, Zn, Pb, Ag
S009.1	Grängesberg	Fe
S009.2	Sala	Pb, Zn, Ag
S009.3	Garpenberg	Zn, Pb, Ag, Cu
S010	Western Bergslagen	W, Mo
S011	Riddarhyttan	REE, Fe
S012	Ilmaringe	Fe, Cu, W
S013	Österbygen-Los	Au, Zn, U
S014	Laxsjö	Pb, Zn
S015	Dellen-Ljusdal	V
S016	Sylarna	Cu, Zn, Pb, Ag
S017	Caledonian Black Shale	U, V, Mo
S017.1	Täsjö	U, REE, P
S017.2	Myrsjön	U, V, Mo
S018	Bostgen	U
S019	Dorotea	Pb, Zn, Ag
S020	Björkåmyran	U
S021	Gold Line	Au
S022	Lappträsket	Ni, Cu
S023	Skellefte District	Zn, Cu, Pb, Ag, Au
S023.1	Boliden	Cu, Zn, Pb, Au
S023.2	Kristineberg	Zn, Cu, Ag
S023.3	Adak	Cu, Zn, Ag, Au
S024	Dunkiboa	U
S025	Laisvall	Pb, Zn, Ag
S026	Arjeplog-Arvidsjaur	U
S027	Rudnejaur-Moskosel	Cu, Au, Zn, Pb, Ag
S028	Ruppen-Ulfesis	Mo, Cu, Au
S029	Vaikijaur	Cu, Mo, Au
S030	Kallak	Fe, Mn, Cu, Au
S031	Boden	Au, Ag, Cu
S032	Gällivare-Malmberget	Fe
S033	Aitik-Nautanen	Cu, Au
S034	Pajala-Kolari	Fe, Cu, Au
S034.1	Kaunisvaara	Fe, Cu, Au
S034.2	Kolari	Fe, Cu, Au
S035	Kiruna	Fe, Cu, Au
S035.1	Kiruna	Fe
S036	Tärendö	Fe, Zn, Cu
S037	Viscaria-Sautusvaara	Cu, Fe, Au, Zn, Ag, Co
S038	Vittangi	Fe, Cu, Au, Co, Mo
S039	Launavaara	Fe, Cu
S040	Sjangeli	Cu, Ag, Au, U
S041	Skellefte District Gold	Au

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