RECONNAISSANCE MINERAL POTENTIAL EVALUATION, CENTRAL MINNESOTA, OPEN FILE REPORT

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Appendix 295-G: Drill Log Comment Field

Unique DDH#: 15464 DDH#: 306 P295 File #: DH2951-035

Comments: Laminated carbonate, magnetite, silicate iron formation. Core is fairly magnetic, and is somewhat phyllitic. One small quartz vein present. Only 15 cm. of core remains. Analysis on jar label indicates an analysis of 23.47% Fe, and 7.70% Mn.

Unique DDH#: 15465 DDH#: 307 P295 File #: DH2951-036

Comments: Laminated carbonate, magnetite, silicate iron formation, with surface(?) oxidation (hematitic) in the upper portion. Core is fairly magnetic, and locally (especially coarser portions) calcareous. One small quartz vein present. Only 25 cm. of core remains, with 5 jars of cuttings or crushed core. Analyses on jar labels indicates 22.63% Fe and 9.02% Mn for 55-60'; 22.15% Fe and 6.05% Mn for 60-65'; and 21.01% Fe and 7.57% Mn for 48-55'. Crushed core colors are 10R 3/4 (48-55') and 5Y 5/2 to 10YR 6/2 (55-65').

Unique DDH#: 15466 DDH#: 308 P295 File #: DH2951-037

Comments: Laminated carbonate, magnetite, silicate iron formation. Core is fairly magnetic. Samples consist of 6 cm. of core, and 2 jars of cuttings or crushed core. Analyses on jar labels indicates 23.61% Fe and 7.13% Mn for 55-60'; and 26.58% Fe and 6.38% Mn for 49-55'. Crushed core colors are 5Y 5/2 to 5Y 2/1. Schistosity is moderately developed, and intersects the bedding at a high angle.

Unique DDH#: 15467 DDH#: 309 P295 File #: DH2951-038

Comments: Samples limited to 13 cm of core and 1 bottle of crushed core. Rock is dark brown (goethitic?) ferruginous phyllite and siltstone. Crushed core color is 5YR 5/2 (58-60').

Unique DDH#: 15468 DDH#: 310 P295 File #: DH2951-039

Comments: Most of samples are crushed core. Identifiable rock fragments indicate chert hematite goethite magnetite iron formation. Some quartzite may also be present, with recrystallization making identification difficult. Calcite, vein quartz, and black oxide (Mn oxides?) is present in a number of samples. Jar labels indicate analyses with up to 49.55% Fe (165-170') and 14.26% Mn (115-120'). Crushed core colors are 5YR 3/2 (45-50, 120-125, 130-135, 150-175'), 5YR 4/4 (58-70, 95-100'), 10R 4/4 (70-75, 80-85'), 10YR 4/2 (85-90, 105-115'), 5YR 3/4 (90-95, 100-105, 115-120, 135-145'), 5YR 4/2 (125-130'), 10YR 3/2 (145-150'), 10R 3/4 (175-180'), and 10R 3/2 (180-185).

Unique DDH#: 10753 DDH#: 18135 P295 File #: DH2951-040

Comments: Dark green fine- to coarse grained altered "metagabbro". Variable textures look locally fragmental(?). Surface weathering to clays, limonite and hematite along fractures. Trace disseminated pyrite, and local deuteric(?) alteration.

Unique DDH#: 10754 DDH#: 18138 P295 File #: DH2951-041

Comments: Carbonate silicate magnetite iron formation with local oxidation to hematite, limonite, and goethite. Core may be deeply weathered, but these effects are difficult to separate from other (hydrothermal?) alteration. Quartz, grey hematite, carbonate and pyrite veins occur locally with local disseminated pyrite elsewhere. The iron formation in 283-300 also contains conformable pyrite and graphite. Local brecciation and alteration (300-315' especially) may have created "metabasalt" looking rocks. Greenish chalcedony vein at 284'. Goethitic portions have coarser secondary magnetite porphyroblasts.

Unique DDH#: 10755 DDH#: 18144 P295 File #: DH2951-042

Comments: Altered metagabbro. Locally clayey. Local deuteric(?) alteration. Hairline fractures-shears contain black oxides, pyrite, carbonate and quartz (with associated limonitic alteration?). Variable textures look locally fragmental.

Unique DDH#: 15469 DDH#: S118 P295 File #: DH2951-043
Comments: Core is white quartzite with minor oxide grains and Liesegang banding. Rock contains 20-30% white grains (altered feldspars? or kaolinite?). Mn oxide and some iron oxides are fracture related as is muscovite locally. Identifiable crushed core fragments are predominantly siliceous clastic rock, with minor iron oxides. Crushed core colors are 5YR 6/4 (77-80'), 10YR 6/4 (80-85'), 5YR 7/4 (85-90, 100-104, 119-124'), 10YR 7/4 (90-95'), 10YR 8/4 (95-100'), 10YR 7/2 (104-109'), and 10YR 8/2 (109-119').

Unique DDH#: 15470 DDH#: S124 P295 File #: DH2951-044
Comments: Interbedded quartzite (and recrystallized chert?) and goethite hematite iron formation. Oxides appear to be secondary (alteration or deep weathering?). Local black pisolitic Mn oxides(?) at 222'. Quartz veins are locally fractured to brecciated above 252'. White chalcedony veins occur locally. Fragmental samples are probably overburden to 110'. Crushed core colors are 5YR 4/4 (97-100, 135-145, 150-160'), 5YR 6/4 (100-105'), 10YR 7/4 (105-110'), 5YR 6/6 (110-115, 125-130'), 5YR 5/6 (115-125'), 5YR 5/5 (130-135'), 10R 3/6 (145-150, 160-165, 198-222'), 5YR 4/6 (165-170'), 5YR 3/4 (170-175'), 10R 3/4 (175-195'), and 10R 4/6 (195-198).

Unique DDH#: 15471 DDH#: S126 P295 File #: DH2951-045
Comments: Quartzite with argillite patches over limonitic goethitic hematitic iron formation. Argillite may be clastic dikes(?), soft sediment deformation related or deformed intraclasts. Local quartz veins and brecciation. Crushed core colors are 10YR 7/4 (72-79, 90-95'), 10YR 6/4 (79-85'), 10YR 7/2 (85-90'), 10YR 6/6 (95-100'), 10R 3/6 (100-105'), 5YR 4/6 (105-110'), 5YR 6/4 (107-115'), 5YR 4/4 (110-125'), and 10YR 3/4 (125-135').

Unique DDH#: 15472 DDH#: S1042 P295 File #: DH2951-046
Comments: Relatively little core. Goethitic hematitic iron formation with quartzite, recrystallized chert and ferruginous siltstone. Local brecciation (tectonism or solution collapse). Local carbonate. Minor sulfate within 297-301', 310-315', 325-330', 345-350'. The interval 255-260 contains many quartz vein fragments. Crushed core colors are 10R 3/4 (72-85, 100-105, 110-120, 122-149, 150-161, 165-170, 187-195, 208-220, 225-235, 265-275, 280-289, 295-315, 320-345, 350-355'), 10R 5/4 (85-100'), 10R 4/6 (88-100, 187-208, 235-265, 276-285, 289-295, 355-360'), 5YR 4/4 (105-110, 120-122, 360-370, 400-405, 410-420, 425-428'), 5YR 3/4 (122-135, 161-187, 375-395, 405-410, 420-425'), 5YR 2/6 (135-140, 149-150'), 10R 3/6 (222-225, 370-375'), and 5R 3/4 (315-320, 345-350').

Unique DDH#: 15473 DDH#: S1043 P295 File #: DH2951-047
Comments: Little drill core. Goethitic hematitic iron formation with quartzite, recrystallized chert. Grey hematite may be replacing the siliceous rock. Minor sulfate or kaolin within 25-30, and 95-100'). Recognizable fragments in crushed core are usually grey hematite. Crushed core colors are 10r 3/4 (0-5, 10-15, 25-35, 49-55 blast, 65-80, 85-90'), 5YR 3/4 (5-10, 49-60'), 10R 4/4 (15-20, 35-49, 60-65, 80-85'), and 5R 3/4 (90-100').

Unique DDH#: 15474 DDH#: S1044 P295 File #: DH2951-048
Comments: Goethitic hematitic iron formation and siliceous siltstone. Grey hematite and goethite may be replacing the siliceous rock. Few recognizable fragments in crushed core. Goethitic portions often vuggy to rubbley, and appear to be sinter(?) related. Crushed core colors are 10R 4/4 (0-10, 30-35, 45-50, 60-65'), 10R 3/4 (10-15, 40-45, 65-70, 90-95'), 5YR 4/4 (15-30, 35-40, 80-90'), 10R 4/6 (50-55'), 5YR 3/4 (55-60, 70-75'), and 7R 3/4 (75-80').

Unique DDH#: 10963 DDH#: 306 P295 File #: DH2951-049
Comments: Slightly phyllitic, graphitic, pyritic siltstone. Contains 1-5%? pyrite.

Unique DDH#: 10756 DDH#: 18145 P295 File #: DH2951-050
Comments: Variably altered metagabbro. Core generally clayey and limonitic. Igneous textures almost destroyed. Locally intensely weathered along fractures. Contains local limonitic vugs (deuteric?). Scattered thin quartz calcite veinlets.

Unique DDH#: 10761 DDH#: 18226 P295 File #: DH2951-051

Comments: Hematitic kaolinitic claystone over laminated carbonate silicate magnetite iron formation. Weathering effects decrease downwards. Contains siderite calcite veins. May contain altered plagioclase laths within 290-295'.

Unique DDH#: 10752 DDH#: 18132 P295 File #: DH2951-052

Comments: Clayey saprolite apparently developed on siliceous pyritic breccia over carbonate silicate magnetite iron formation with carbonate quartz pyrite veins. Breccia hydrothermal(?).

Unique DDH#: 10749 DDH#: 18427 P295 File #: DH2951-053

Comments: Saprolite developed on tuffaceous(?) siltstone with oxides and pyrite, over fragmental graphitic sulfide siltstone with chert or quartz veins; over variably goethitic and brecciated carbonate silicate magnetite iron formation. Porphyroblastic magnetite locally developed.

Unique DDH#: 10750 DDH#: 18430 P295 File #: DH2951-054

Comments: Saprolitic material developed on siltstone breccia with local iron formation, over non brecciated counterparts(?) of pyritic siliceous siltstone or chert, and chert carbonate silicate magnetite iron formation. These are over a mafic-intermediate volcanic or dyke. This is locally fragmental.

Unique DDH#: 10762 DDH#: 18228 P295 File #: DH2951-055

Comments: Altered weathered metagabbro, and perhaps minor iron formation at the top. Limonite and clay alteration decrease downward.

Unique DDH#: 10751 DDH#: 18435 P295 File #: DH2951-056

Comments: Variably weathered and brecciated carbonate silicate magnetite iron formation with minor chert, graphite and sulfide chemical sediment; and goethitic hematitic iron formation (sinter-like?). Brecciation (faulting?) most common in 275-285'.

Unique DDH#: 10757 DDH#: 18146 P295 File #: DH2951-057

Comments: Ferruginous clayey siltstone or argillite over carbonate silicate magnetite iron formation over brecciated volcaniclastic rock. Volcaniclasts to 5 cm. Probably intermediate. Brecciation scattered throughout the core. Clayey upper material has blue clay partings locally.

Unique DDH#: 10758 DDH#: 18218 P295 File #: DH2951-058

Comments: Rubbley hematitic goethitic clayey saprolitic rock over carbonate silicate magnetite iron formation with quartz pyrite veinlets. Minor green blue soft clays. Looks sinter-like locally.

Unique DDH#: 10759 DDH#: 18221 P295 File #: DH2951-059

Comments: Sheared and altered variably limonitic feldspar porphyry (andesitic to trachytic?). The interval 246-249' and 283-284' looks fragmental (tuffaceous?). Local xenoliths occur locally.

Unique DDH#: 10763 DDH#: 18230 P295 File #: DH2951-060

Comments: Limonitic hematitic clayey saprolitic iron formation, intermediate-mafic metatuff over graphitic carbonate siltstone over porphyritic iron silicate chemical sediment (mylonitic?). Local pyrite veining within 390-400'. Deformation and textures make protolith identities uncertain. Neat, strange stuff.

Unique DDH#: 10760 DDH#: 18223 P295 File #: DH2951-061

Comments: Ferruginous siltstone or paint rock over laminated silicate iron formation of mafic derived sediment(?). Locally brecciated, fragmental and mylonitic.

Unique DDH#: 15475 DDH#: S1 P295 File #: DH2951-062

Comments: Locally ferruginous siliceous to argillaceous tuffaceous siltstone. All crushed core samples contain black oxide fragments. Local quartz veining. Crushed core colors are 10R 6/2 (62-65'), 10R 5/4 (65-70, 80-85'), 10R 4/6 (70-80, 85-95'), and 5R 6/2 (95-105').

Unique DDH#: 15476 DDH#: S8 P295 File #: DH2951-063
Comments: Locally ferruginous siliceous to argillaceous tuffaceous siltstone. Local quartz veining. Crushed core colors are 10R 5/4 (55-60, 75-85'), 10R 4/4 (60-65'), 10R 4/2 (65-70'), and 10R 5/2 (70-75').

Unique DDH#: 15477 DDH#: S1131 P295 File #: DH2951-064
Comments: Variably brecciated goethite grey hematite martite(?) chert iron formation with quartz goethite veining.

Unique DDH#: 15478 DDH#: S1006 P295 File #: DH2951-065
Comments: Cherty limonitic goethitic iron formation over carbonate silicate magnetite iron formation. Quartz goethite veins have carbonate and minor pyrite. Rock is locally brecciated and folded.

Unique DDH#: 15479 DDH#: S364 P295 File #: DH2951-066
Comments: Limonitic goethite chert iron formation. Vuggy and rubbley textures locally throughout. Slightly magnetitic at depth.

Unique DDH#: 15480 DDH#: S346 P295 File #: DH2951-067
Comments: Silty siliceous arenite with poorly developed schistosity. Contains disseminated magnetite grains.

Unique DDH#: 15481 DDH#: S1060 P295 File #: DH2951-068
Comments: Laminated carbonate magnetite silicate iron formation with chert. Scattered veinlets with pyrite. Sulfidation of country rock within 55-60'. Much brecciation and folding.

Unique DDH#: 15482 DDH#: S1054 P295 File #: DH2951-069
Comments: Magnetite hematite goethite iron formation. No location information located, but may show up on maps with DDH's 1050, 1053, or 1060. Slight metamorphic fabric.

Unique DDH#: 15483 DDH#: S1053 P295 File #: DH2951-070
Comments: Recrystallized chert and goethite iron formation over red hematitic paint rock (argillaceous?). Goethitic portion looks vuggy, sinter-like, with hydrothermal brecciation.

Unique DDH#: 15484 DDH#: S1045 P295 File #: DH2951-071
Comments: Goethitic hematitic iron formation (saprolite??), over hematitic argillite, over altered calcareous tuff (29-31'), over ferruginous graphitic argillite. Rare minor white kaolinite or sulfate grains.

Unique DDH#: 15485 DDH#: S1046 P295 File #: DH2951-072
Comments: Core very broken. Goethitic iron formation with minor chert. Local goethite carbonate alteration.

Unique DDH#: 15486 DDH#: S1047 P295 File #: DH2951-073
Comments: Ferruginous phyllite and goethite hematite iron formation. Phyllite may be graphitic, especially toward the base. Iron formation vuggy (hydrothermal alteration activity??).

Unique DDH#: 15487 DDH#: S1048 P295 File #: DH2951-074
Comments: Goethite hematite iron formation over magnetite iron formation with little hematite. Minor quartz goethite veining.

Unique DDH#: 15488 DDH#: S1050 P295 File #: DH2951-075
Comments: Variably brecciated and deformed chert hematite and argillitic rock, over brecciated chert goethite rock over hematitic argillite (paint rock) over laminated chert magnetite iron formation. Goethitic breccia portion may have Mn oxides associated with it (46-50').

Unique DDH#: 15634 DDH#: S361 P295 File #: DH2951-076
Comments: Goethite chert grey hematite limonite iron formation with local brecciation and quartz carbonate goethite red hematite veinlets.

Unique DDH#: 11639 DDH#: 18600 P295 File #: DH2951-077

Comments: Brecciation and iron oxide alteration down to 160' or so may be fault related, or may be related to surficial weathering with associated solution collapse breccia. Hydrothermal brecciation and alteration is possible, but not probable. Any combination of the above could have occurred. Sulfide contribution of veins from graphitic sediments is unknown.

Unique DDH#: 11661 DDH#: 18400 P295 File #: DH2951-078

Comments: Good bauxitic textures and secondary magnetite are developed in surficially weathered material. Local brecciation may be tectonic solution collapse (not likely) and pseudobrecciation. Some sediments appear to be intraclastic. Replacement by hematite and goethite occurs locally throughout and could be surficial, hydrothermal or a combination.

Unique DDH#: 11641 DDH#: MR-5 P295 File #: DH2951-079

Comments: Rock is a deformed clastic sediment with quartz, dolomite, and sericite. This could be feldspar alteration products which may have resulted from a tuffaceous component.

Unique DDH#: 15489 DDH#: S1020 P295 File #: DH2951-080

Comments: Iron oxides vary and it is difficult to sort out probable methods controlling genesis of different portions (chemical sediment versus weathering versus hydrothermal alteration.) Iron rich and graphite rich chemical sediments merge in the basal 20'. Goethitic portion in 225-240' is vuggy with minor carbonate veins and may be some kind of sinter related material.

Unique DDH#: 15490 DDH#: 280 P295 File #: DH2951-081

Comments: Vein and alteration mineralogy is complex and variable. Tourmaline (and other mineralogy) veins may be from remobilized tourmaline laminae. Fold closures tend to be more heavily mineralized. Large tuff lapilli at 231'.

Unique DDH#: 12626 DDH#: 107 P295 File #: DH2951-082

Comments: Core largely broken. Upper 100' with much recrystallization. Hematite-goethite largely from weathering?. Trace disseminated pyrite in unweathered magnetite-silicate BIF.

Unique DDH#: 10007 DDH#: BM-11 P295 File #: DH2951-083

Comments: Most sulfides are stratiform. Interval 192-242' is deformed and hydrothermally altered. It offers a good example of goethite being a hydrothermal alteration product (in this case associated with sulfides(?).

Unique DDH#: 14380 DDH#: 18131 P295 File #: DH2951-084

Comments: Iron formation is predominantly magnetite and silicate with minor sulfides disseminated in lamina. Transition into unit below is difficult to discern. Unit is deformed, and is probably an intrusive although it could be a tuff also. Deformation and associated alteration increases downward from the base of the iron formation to the mylonite.

Unique DDH#: 15491 DDH#: S360 P295 File #: DH2951-085

Comments: Oxidized iron oxides over entire core may be due to surficial weathering, hydrothermal processes, or both. Rock is deformed, folded and brecciated; allowing easy movement of fluids. Some solution collapse breccia also occurs, especially in the upper portions.

Unique DDH#: 10013 DDH#: BM-3 P295 File #: DH2951-086

Comments: Upper "metagabbro" appears locally fragmental, with a slight chance that the rock is tuffaceous. Sulfide bearing iron formation and chemical sediments are locally associated with brecciation. Sulfide veins could be remobilized stratiform sulfides. There is also the association with goethite with remobilized sulfides and iridescent coatings perhaps analogous to Duluth Complex chloride compounds. Brecciation may be tectonic or hydrothermal in origin.

Unique DDH#: 14381 DDH#: 18133 P295 File #: DH2951-087

Comments: Coarser sediment is quartz rich with larger intraclasts such as hematitic iron formation. Sulfide appears stratiform (quartz grain matrix?) but could also have been introduced. Sorting is generally poor, although core is strongly recrystallized. Phyllite may be ashy tuffs. Hematite alteration in the larger unit affects the phyllitic interbeds.

Unique DDH#: 10072 DDH#: 52 P295 File #: DH2951-088

Comments: Deformed and altered igneous rocks above and below the chemical sediments may be tuffaceous (especially below). Small amount of "lamprophyre" in the upper unit may or may not be related to the surrounding rock. Chemical sediment is typically laminated and contorted. Much if not all pyrite is secondary replacement of more primary pyrrhotite. Tan veinlets of siderite within 247-292' may be sphalerite, however if it is sphalerite, then it is low in iron content.

Unique DDH#: 10006 DDH#: G-9 P295 File #: DH2951-089

Comments: Laminated magnetite, silicate,sulfide chert iron formation and graphitic phyllite with minor quartz veining and sulfide veining toward base.

Unique DDH#: 14496 DDH#: AB-9 P295 File #: DH2951-090

Comments: Rock appears to relatively fresh metagabbro (amphibolite). Local fractures-shears with minor 1-2 mm mylonites (pseudotachylites?) and associated alteration occur locally. Disseminated sulfide is probably related to alteration based on spatial distribution.

Unique DDH#: 14660 DDH#: PA-4B-3 P295 File #: DH2951-091

Comments: Rock may have had basaltic or gabbroic parentage (or more mafic?). Veinlets with pink K-feldspar may or may not be related to hairline fractures with chlorite-clays. Core appears unmineralized.

Unique DDH#: 15492 DDH#: G-3 P295 File #: DH2951-092

Comments: Quartz-calcite alteration occurs throughout, and veins have a higher percentage of quartz. Disseminated pyrite may be part of the alteration or it may be more primary. The veins lack sulfides.

Unique DDH#: 15493 DDH#: G-2 P295 File #: DH2951-093

Comments: Schistose rock may not all be tuffaceous, although interval with chemical sediment has recognizable coarse clasts. Some dark cherty layers may be tourmalinites(?), although they are poorly crystalline. There is also some doubt about the original volcanic composition also.

Unique DDH#: 15494 DDH#: 61 P295 File #: DH2951-094

Comments: Tourmaline is found in the uppermost chemical sediment unit. Contact with adjacent rock is carbonatized. Basal rock unit is very dark, probably due to oxides, but could also be tourmaline related(?).

Unique DDH#: 10037 DDH#: 16 P295 File #: DH2951-095

Comments: Typical sulfide-graphite-chert (tuffaceous?) chemical sediments with magnetite, chlorite and tourmaline(?) toward base. Base of chemical sediments is believed to be black schist chlorite alteration (223'-233'). Basal contact (233') may be faulted. Footwall rock is locally sheared with an uncertain composition (felsic to mafic?). Footwall is extensively altered, especially with calcite. Disseminated sulfides may be alteration related (some look like visible gold?). Pillows may be present toward the base. Crystalline siderite looks like low Fe sphalerite (will assay).

Unique DDH#: 10002 DDH#: G-4 P295 File #: DH2951-096

Comments: Typical graphitic pyrrhotite chemical sediments with secondary pyrite and lesser amounts of other chemical sediments. Core has been heavily sampled with a quarter core left.

Unique DDH#: 10020 DDH#: G-1 P295 File #: DH2951-097

Comments: Typical graphitic pyrrhotite chert carbonate chemical sediment with secondary pyrite and veins with siderite, pyrite, and quartz.

Unique DDH#: 10063 DDH#: 43 P295 File #: DH2951-098
Comments: Typical graphite pyrrhotite chemical sediments with minor chert and carbonate; and increasing magnetite downward. Basal unit may be altered cherty tuff. Minor chalcopyrite coloration occurs locally.

Unique DDH#: 10008 DDH#: BM-12 P295 File #: DH2951-099
Comments: Upper tuff-chert (and portions of the lower unit) is very calcareous except where leached. "Clastic" texture and alteration could result from tectonic brecciation. Magnetite increases with depth.

Unique DDH#: 10011 DDH#: BM-10 P295 File #: DH2951-100
Comments: Substantial quartz veining locally in basal unit. Some sulfide may be Fe rich sphalerite. Bornite coloration is minor. Area around 133' is probably heavily altered footwall. Brecciation in core is probably hydrothermal in part. Chemical sediment-sulfide iron formation portion has been heavily sampled (1/4 core left) although no sample cards are present.

Unique DDH#: 10023 DDH#: 85 P295 File #: DH2951-101
Comments: Rock is largely a recrystallized to schistose calcareous chlorite, hornblende, quartz, grey hematite rock that is probably a tuffaceous chemical sediment or iron formation. Calcite may be due to alteration or may be more primary. Minor sulfides and graphite is also chemical sediment although some sulfide may be alteration associated. Locally there is appreciable quartz and calcite veining. More sulfides (and previous sampling) occurs in the core within the small tin boxes.

Unique DDH#: 10078 DDH#: 58 P295 File #: DH2951-102
Comments: The rock above and below the chemical sediments are relatively similar. Alteration and recrystallization has made their characterization difficult. Both may represent the stratigraphic footwall (repetition due to folding?). The upper one may have the more pronounced footwall associated alteration. The chemical sediment within 171-140' may be locally hydrothermally brecciated.

Unique DDH#: 10010 DDH#: BM-1 P295 File #: DH2951-103
Comments: Generally a phyllite to silicate iron formation with lesser oxide and sulfide, and is generally well laminated. Oxides predominate over sulfides in the basal unit. Heavily sampled except below 170'. Current sampling should catch the transition of sulfide to oxide better than previous sampling.

Unique DDH#: 10096 DDH#: 86 P295 File #: DH2951-104
Comments: Metabasalt or metagabbro becomes more sulfide bearing toward contact with chemical sediments, and is locally leached. Previously sampled by TLL (A16783). Other core from this hole may have more remaining chemical sediments.

Unique DDH#: 10016 DDH#: BM-6 P295 File #: DH2951-105
Comments: Contact of upper two units is sheared, with the uppermost unit very altered. Parent rock may have been tuff or altered metagabbro or metabasalt. Graphitic-sulfide units are typical. Sample interval contains carbonate and chert laminae within graphitic sulfides. Core otherwise relatively heavily sampled.

Unique DDH#: 15495 DDH#: N-1 P295 File #: DH2951-106
Comments: Core is apparently arenite and tuffaceous siltstones (phyllitic schist) with a minor recrystallized magnetite chem sediment contribution.

Unique DDH#: 15496 DDH#: N-3 P295 File #: DH2951-107
Comments: Similar to tuffaceous phyllite of N-1 except for scattered chert beds and a lack of magnetite.

Unique DDH#: 15497 DDH#: N-2 P295 File #: DH2951-108
Comments: Calcareous gabbro with quartz and calcite veins. Contains enough disseminated magnetite and pyrrhotite to be somewhat magnetic. Most silicates don't appear to be too altered.

Unique DDH#: 15498 DDH#: 84 P295 File #: DH2951-109

Comments: Sampled(?) by Lawler earlier but not assayed(?). Basal silicate chert sulfide carbonate oxide iron formation, chemical sediment or altered rock at base is massive to poorly laminated and siliceous. Overlying graphite and sulfide is finely laminated and contorted. Core could be sinter locally.

Unique DDH#: 15499 DDH#: 83 P295 File #: DH2951-110

Comments: Upper portion of core is extensively altered (calcite,sericite,quartz and vuggy). Textural hints indicate that the rock was probably fragmental and tuffaceous(?).

Unique DDH#: 10251 DDH#: S129 P295 File #: DH2951-111

Comments: Red hematitic-goethitic rock with local chert and/or rexlized quartz veins. Rock is more argillaceous-phyllitic toward the base.

Unique DDH#: 14382 DDH#: 18134 P295 File #: DH2951-112

Comments: Most pyrite is oxidized to limonite. Basal unit is altered and sheared, but textures look like metabasalt(?).

Unique DDH#: 14383 DDH#: 18137 P295 File #: DH2951-113

Comments: Footwall metabasalt is sheared and altered (decreasing downward?) with carbonate and sericite. Disseminated sulfide may also have resulted from alteration.

Unique DDH#: 14379 DDH#: 18129 P295 File #: DH2951-114

Comments: Silicate magnetite carbonate iron formation becomes more magnetite rich with depth. Most of sulfide is vein related.

Unique DDH#: 10121 DDH#: DL-1 P295 File #: DH2951-115

Comments: Fragmental rock may be a mylonite, but it definitely has the appearance of a "tuff" including flattened "fragments", and "quartz eyes". There is enough magnetite crystals to be somewhat magnetic. If a mylonite, parent rock was siliceous-feldspathic.

Unique DDH#: 10122 DDH#: DL-2 P295 File #: DH2951-116

Comments: May be a less(?) mylonitized parent rock for DL-1. Rock could be a mylonitized granite or siliceous-feldspathic sediment. Thin sections would help and perhaps analyses.

Unique DDH#: 10118 DDH#: DL-3 P295 File #: DH2951-117

Comments: Phyllitic to mylonitic rocks probably of tuff, chemical sediment (oxide), and clastic sediment parentage. Oxide chemical sediment is marked by secondary magnetite and minor red hematite. Mylonitization PROBABLY isn't able to create the fragmental textures present.

Unique DDH#: 10119 DDH#: DL-4 P295 File #: DH2951-118

Comments: Rock appears more "mafic" than other DL cores. It is probably felsic-intermediate tuff with a silicate-oxide-sulfide(?) chemical, sediment contribution, although the mylonitization could also be responsible for some textures. Toward the bottom especially, there are slightly coarser fragments reminiscent of gabbro, and perhaps this core is a mylonitized gabbro. Sulfide is disseminated pyrite especially noticeable within 55-65'.

Unique DDH#: 10120 DDH#: DL-5 P295 File #: DH2951-119

Comments: Rock is probably altered mafic metavolcanic, and is relatively altered down to 100' or so. Metabasalt appears to be largely actinolite (more magnesic than hornblende?) with iron in the form of magnetite, making the core somewhat magnetic. Local quartz or calcite blebs may have been amygdales. Minor disseminated pyrite occurs locally.

Unique DDH#: 15501 DDH#: 236 P295 File #: DH2951-120

Comments: Goethitic BIF w/ minor red hematite, and chert and silicate (tuff?) laminae. Silicate chemical sediment is chlorite (now clays?), and is located near the top. Toward base are disturbed chert laminae.

Unique DDH#: 10318 DDH#: S238 P295 File #: DH2951-121
Comments: Hematite chert iron formation with disrupted chert and veins of hematite. Most deformation relatively brittle.

Unique DDH#: 10302 DDH#: 240 P295 File #: DH2951-122
Comments: Altered metabasalt. Alteration of ferromagnesians to chlorite and amphibole (calcareous also). Disseminated magnetite.

Unique DDH#: 10218 DDH#: S138 P295 File #: DH2951-123
Comments: Goethite (weathering product?) chert over laminated, slightly magnetic mag-chert silicate-carbonate iron formation. This may be tuffaceous, with mineralogy of silicates and carbonates (probably all siderite?) in question. Minor disseminated sulfide(?) occurs in some veins (with recrystallized quartz).

Unique DDH#: 10291 DDH#: S30 P295 File #: DH2951-124
Comments: The interval 120-135' may be hydrothermally altered in part with associated goethite, siderite(?), white quartz, and vugs. Mineralogy of tan, laminated "siderite" is uncertain.

Unique DDH#: 10268 DDH#: S45 P295 File #: DH2951-125
Comments: Rock is grey-hematite chert with considerable goethite in the upper portion. Recovery was poor. Grey hematite and goethite appear to replace chert(?).

Unique DDH#: 10347 DDH#: S46 P295 File #: DH2951-126
Comments: Laminated oxide-chert iron formation. Chert is leached(?) and could possibly be clastic or tuffaceous. Uppermost portion has secondary magnetite. Basal 60' is brecciated-mylonitized with associated replacement of chert by hematite.

Unique DDH#: 10269 DDH#: S47 P295 File #: DH2951-127
Comments: Little core left. Rock is fragmental chert (heavily replaced by grey hematite, or brecciated) in grey hematite matrix.

Unique DDH#: 10348 DDH#: 48 P295 File #: DH2951-128
Comments: Core is largely magnetite-silicate iron formation with minor quartz-carbonate?-sulfide veining and alteration. Contact with basal phyllite is red hematitic-goethitic (hydrothermal? alteration).

Unique DDH#: 10293 DDH#: S49 P295 File #: DH2951-129
Comments: Greenish chloritic iron silicates may be chemical sediment or mafic(?) tuff. This is primarily in the upper portion of the core, and with chert, appears to have been undergoing replacement by goethite and or hematite.

Unique DDH#: 10213 DDH#: S50 P295 File #: DH2951-130
Comments: Laminated chert-oxide iron formation that is perhaps more goethitic and magnetitic toward the top; and more grey hematitic toward the base. Several quartz veins with minor goethite and local vugs occur scattered.

Unique DDH#: 14497 DDH#: AB-28 P295 File #: DH2951-131
Comments: Good "greenstone" metavolcanics with minor disseminated pyrite, and minor quartz-pyrite veinlets, with sericite-muscovite especially along some slip surfaces.

Unique DDH#: 14500 DDH#: AB-27 P295 File #: DH2951-132
Comments: Graphitic argillite-phyllite that is brittley fractured (conjugate sets?) and quartz-pyrite veined (pseudobrecciated to brecciated). Probably some pyrrhotite is evenly dispersed within sediment. See MGS analyses; veined areas had higher Cu, Ag, Au, As, Sb, Hg, Mo, Pb and Zn.

Unique DDH#: 10397 DDH#: S204 P295 File #: DH2951-133
Comments: Oxide chert iron formation; more goethitic toward top and red hematitic downward. More quartz veining downward(?).

Unique DDH#: 10172 DDH#: 206 P295 File #: DH2951-134
Comments: Similar to S204, except for greenish argillaceous portions. This may be tuffaceous. Schistosity cuts bedding at high angle which may indicate proximity to fold closure.

Unique DDH#: 10398 DDH#: 207 P295 File #: DH2951-135
Comments: Little core left. Upper cherty material is recrystallized, vuggy, and could be vein material. Lower portion is relatively soft, dolomitic-clayey(?) with hematite replacement.

Unique DDH#: 15503 DDH#: S208 P295 File #: DH2951-136
Comments: Deformed chert with lesser limonitic iron formation, graphitic sulfide iron formation, and chlorite-magnetite rock. Chlorite?-magnetite-goethite? may be hydrothermal alteration (black schist affiliated??) and is within 252-260'. Magnetite is secondary. Limonitic iron formation is largely within 265-277'. Some chert is very dark (from graphite-sulfides or tourmalinites?). Sulfide veining may be simple remobilization. Rock is deformed-sheared. Remnants in chert may be from tuff phenocrysts(?).

Unique DDH#: 10173 DDH#: 210 P295 File #: DH2951-137
Comments: Rock is deformed to brecciated. Phyllite is mostly in the upper 10', and has been locally replaced by iron (predominantly red hematite).

Unique DDH#: 10399 DDH#: S211 P295 File #: DH2951-138
Comments: Rock is vuggy to "sinter-like" except for the quartz veins which are fractured with minor goethite.

Unique DDH#: 10174 DDH#: 215 P295 File #: DH2951-139
Comments: Predominantly goethitic and magnetite (secondary?). Supergene?

Unique DDH#: 10300 DDH#: S225 P295 File #: DH2951-140
Comments: Somewhat phyllitic hematitic siltstone-argillite with quartz vein(?) fragments (brecciated). Little core left.

Unique DDH#: 10314 DDH#: S228 P295 File #: DH2951-141
Comments: Dark grey to red phyllite with variable iron content. Iron may be depositional or replacement. May contain local tuffaceous component(?).

Unique DDH#: 10315 DDH#: S232 P295 File #: DH2951-142
Comments: Laminated oxide chert iron formation. Magnetite is probably secondary. Little core left.

Unique DDH#: 10175 DDH#: 234 P295 File #: DH2951-143
Comments: Laminated chert silicate magnetite iron formation with local massive goethite. Schistosity may indicate proximity to fold hinge. May be tuffaceous. Magnetite is stratiform, but possibly secondary(?).

Unique DDH#: 10176 DDH#: S241 P295 File #: DH2951-144
Comments: Laminated magnetite-silicate iron formation with some goethite. Siliceous portions may be tuffaceous. Minor veins with quartz, chlorite, carbonate(?), and pyrite.

Unique DDH#: 10177 DDH#: S242 P295 File #: DH2951-145
Comments: Laminated magnetite-carbonate-silicate iron formation. Portions may be tuffaceous. Minor veins with quartz, chlorite, carbonate (dolomite?), and pyrite.

Unique DDH#: 10320 DDH#: S244 P295 File #: DH2951-146
Comments: Laminated chert-goethite-red hematite iron formation with scattered late goethite-carbonate-quartz veinlets.

Unique DDH#: 10123 DDH#: S246 P295 File #: DH2951-147
Comments: Laminated oxide chert iron formation with minor quartz, goethite, carbonate veining.

Unique DDH#: 10303 DDH#: 247 P295 File #: DH2951-148
Comments: Laminated chert-oxide iron formation over greenish altered rock (largely clay, chlorite, sheet silicates, epidote; with fragments of red hematite and limonite). Altered rock appears brecciated with unknown parentage (mafic? metavolcanic?).

Unique DDH#: 10321 DDH#: S248 P295 File #: DH2951-149
Comments: Laminated chert oxide silicate iron formation. Iron silicates appear to be chloritic, although hematite (alteration?) makes textures difficult to discern. This could be chemical sediment, tuffaceous material or alteration products. Also, other portions of core may be silty clastic rocks and not cherty also.

Unique DDH#: 10178 DDH#: S250 P295 File #: DH2951-150
Comments: Phyllite contains no graphite. Minor disseminated sulfide is stratiform(?), perhaps associated with thin tuffaceous laminae. Red hematite may be secondary replacement. Good phyllite, with a local development of linear fabric (associated with fold closures or shears?).

Unique DDH#: 10322 DDH#: S251 P295 File #: DH2951-151
Comments: Laminated chert oxide silicate iron formation, generally subparallel to core axis with gentle fold closures. Silicates (chlorites?) may be tuff associated(?). Core is slightly magnetic from magnetite.

Unique DDH#: 10323 DDH#: S254 P295 File #: DH2951-152
Comments: Laminated chert oxide silicate iron formation, generally subparallel to core axis. Silicates (chlorites?) may be tuff associated(?), although textures are not discernible due to iron oxides. Core is very slightly magnetic from magnetite.

Unique DDH#: 10179 DDH#: S256 P295 File #: DH2951-153
Comments: Iron formation over phyllite. Goethite-magnetite-grey hematite iron formation results from secondary processes (hydrothermal or surficial weathering focussed along fractures). This unit contains vugs with drusy quartz(?). Basal phyllite is sericitic (almost "talcy" locally), and is locally hematitic.

Unique DDH#: 10301 DDH#: S257 P295 File #: DH2951-154
Comments: Altered-retrograde metamorphosed gabbro with minor disseminated sulfides. Probably hypabyssal. Trace of hematite staining along some fractures.

Unique DDH#: 10180 DDH#: 260 P295 File #: DH2951-155
Comments: Rock within 103-107' is a breccia (fault) of quartz and interstitial iron oxides. Some late iron oxide alteration appears locally, but brecciation did not appear to have effected the mineralogy of the pre-brecciation oxides.

Unique DDH#: 10325 DDH#: S261 P295 File #: DH2951-156
Comments: Textures are difficult to identify due to iron oxides, however it does appear to be schistose or somewhat phyllitic, with iron silicates (chlorite) or perhaps mafic volcanics(?). Rock is slightly magnetic.

Unique DDH#: 10326 DDH#: S264 P295 File #: DH2951-157
Comments: Laminated chert red hematite iron formation. High angle strain slip cleavage to bedding indicates possible proximity to fold axis. Local remobilization.

Unique DDH#: 10181 DDH#: 265 P295 File #: DH2951-158
Comments: Alternating magnetite-silicate (tuffaceous?) laminated iron formation, with minor veins with quartz, pyrite, magnetite?, grey hematite, and chlorite or other iron silicates. Magnetite may have minor disseminated pyrite (stratiform).

Unique DDH#: 10327 DDH#: S268 P295 File #: DH2951-159
Comments: Little core left. Rock may have iron silicate or carbonate component in the iron formation. Some goethitic-limonitic alteration around disrupted chert laminae.

Unique DDH#: 10182 DDH#: 270 P295 File #: DH2951-160
Comments: Remaining core is vein quartz with carbonate (dolomite-siderite?), goethite, and grey hematite. Local vugs occur with grey hematite needles. No country rock recognizable.

Unique DDH#: 10233 DDH#: S271 P295 File #: DH2951-161
Comments: Little core left. Rock is oxide chert iron formation and phyllitic(?) siltstone. Rock is deformed.

Unique DDH#: 10329 DDH#: S274 P295 File #: DH2951-162
Comments: Goethite magnetite grey hematite iron formation. Little core left. Upper materials (not mentioned in sumlog) appear to be glacial gravel-cobbles of granite and tonalite.

Unique DDH#: 10234 DDH#: S275 P295 File #: DH2951-163
Comments: Chert oxide iron formation, locally fairly magnetic. Laminae are deformed.

Unique DDH#: 10124 DDH#: 276 P295 File #: DH2951-164
Comments: Laminated magnetite-silicate iron formation with minor chert. Some silicate portions may be sideritic. Some silicates may be goethitic colored. Separate goethite grains may be oxidized sulfides. Rock is folded with possible interferences patterns.

Unique DDH#: 10331 DDH#: S279 P295 File #: DH2951-165
Comments: Laminated red hematite chert iron formation. Pyrite "trapped" or isolated in chert may indicate that pyrite was the precursor to the red hematite (oxidized).

Unique DDH#: 10183 DDH#: 281 P295 File #: DH2951-166
Comments: Interbedded contact of iron formation with grey phyllite, with heavy replacement of phyllite by red hematite near the contact.

Unique DDH#: 10190 DDH#: S15 P295 File #: DH2951-167
Comments: Laminated magnetite, silicate, carbonate iron formation. Local carbonate goethite quartz alteration veins. No visible sulfides.

Unique DDH#: 10184 DDH#: S295 P295 File #: DH2951-168
Comments: Chert oxide silicate iron formation, with magnetite, goethite, red and grey hematite(?). Rock has minor vugs locally throughout. Carbonate(?) may be more dolomitic than anything.

Unique DDH#: 10336 DDH#: S296 P295 File #: DH2951-169
Comments: Laminated magnetite silicate and chert(?) iron formation. Could be stratiform quartz vein instead of recrystallized chert. Core may have siderite also.

Unique DDH#: 10345 DDH#: 292 P295 File #: DH2951-170
Comments: Laminated silicate magnetite iron formation, with surface weathering oxidation to hematite in upper portion. Contains minor stratiform sulfide and siderite locally. Quartz vein at 134-135' has goethite red hematite at lower contact. Quartz vein at 143' contains sulfides.

Unique DDH#: 10379 DDH#: S118 P295 File #: DH2951-171
Comments: Brecciated hematite chert iron formation(?) with chlorite and other silicates. Much fine-grained secondary recrystallization of red hematite, silicates, and possibly carbonate. Fault brecciation(?). Alteration could be hydrothermal or from surficial weathering.

Unique DDH#: 10380 DDH#: 121 P295 File #: DH2951-172
Comments: Vuggy chert and oxide iron formation. Could be hydrothermal alteration or from surficial weathering.

Unique DDH#: 10381 DDH#: S127 P295 File #: DH2951-173
Comments: Vuggy chert and oxide iron formation. Could be hydrothermal alteration or from surficial weathering.

Unique DDH#: 10382 DDH#: S128 P295 File #: DH2951-174
Comments: Vuggy chert and oxide iron formation. Could be hydrothermal or from surficial weathering. Basal quartz vein, besides hematite, contains medium grained muscovite near margins. Analysis of vein interval will be cuttings with portions of the vein core since there is little core. Whether any of this vein material was crushed in this cuttings interval is unknown. Compare with unique DDH S118.

Unique DDH#: 10253 DDH#: S316 P295 File #: DH2951-175
Comments: Little core. Composed of sericitic phyllite (with ghosts of tuffaceous fragments?) and siliceous siltstone, arenite or chert. This appears to be clastic and is probably silicified. Minor red and grey hematite laminae-veins occur locally. Use ratios when comparing chemistry with other phyllites because of silica addition.

Unique DDH#: 10254 DDH#: S317 P295 File #: DH2951-176
Comments: Oxide chert iron formation. More goethitic toward base. Minor quartz hematite veins and also minor carbonate quartz goethite veinlets.

Unique DDH#: 10255 DDH#: S318 P295 File #: DH2951-177
Comments: Oxide chert iron formation with minor quartz goethite (and carbonate?) veinlets.

Unique DDH#: 10217 DDH#: S324 P295 File #: DH2951-178
Comments: Oxide iron formation with minor chert. Chert may also be siliceous tuff or some other exhalative. Mineralogy may be more than quartz.

Unique DDH#: 10257 DDH#: S325 P295 File #: DH2951-179
Comments: Chert oxide silicate iron formation with fracturing and veining toward the base with pyrite, quartz, and grey hematite.

Unique DDH#: 10258 DDH#: S326 P295 File #: DH2951-180
Comments: Goethite chert iron formation over tuffaceous(?) phyllite that is partially altered to red hematite.

Unique DDH#: 10259 DDH#: S327 P295 File #: DH2951-181
Comments: Chert oxide iron formation with minor calcite veining near top, and oxide veins towards base.

Unique DDH#: 10289 DDH#: S29 P295 File #: DH2951-182
Comments: Oxide chert argillaceous iron formation over the same with chloritic-carbonate phyllite (with porphyroblastic siderite). Phyllite and chert is locally pyritic (stratiform?) and may indicate that sulfides were more common before iron oxidation. Basal phyllite is very dark and may be graphitic; and is locally siliceous. This could be an alteration product and not a clastic-chemical sediment.

Unique DDH#: 10210 DDH#: S33 P295 File #: DH2951-183
Comments: Goethite chert grey hematite iron formation with minor silicate iron formation or argillite (tuffaceous?). Local calcite veinlets occur locally.

Unique DDH#: 10359 DDH#: S31 P295 File #: DH2951-184
Comments: Red to grey slightly phyllitic argillite that is probably carbonate (dolomite?) bearing. Red hematitic alteration is sporadic. Calcite veinlets occur locally.

Unique DDH#: 15504 DDH#: S330 P295 File #: DH2951-185
Comments: Goethitic iron formation with brittle fractures-brecciation, calcite and pyrite veins. Little core, but cuttings for 92-235' can be analyzed.

Unique DDH#: 10361 DDH#: S36 P295 File #: DH2951-186
Comments: Oxide (with minor chert) iron formation over argillite. Magnetite is present in upper part of oxide iron formation. Brecciation, and oxidation increases downward, and is most prevalent in 200-220'. Calcite quartz veining is also associated with the predominant goethite alteration of oxides. Brecciation also occurs at contact with argillite, where variable red hematite alteration occurs. Hydrothermal? or surficial alteration along shears(?).

Unique DDH#: 10211 DDH#: S37 P295 File #: DH2951-187
Comments: Core is phyllite that is locally dolomitic(?) and calcareous. Rock appears to be sericitic.

Unique DDH#: 10264 DDH#: S38 P295 File #: DH2951-188
Comments: Argillaceous (now micas?) red hematite-goethite iron formation. Unit more goethitic toward base. Quartz veins contain minor calcite, and also hematite fragments.

Unique DDH#: 10265 DDH#: S39 P295 File #: DH2951-189
Comments: Sericitic phyllite and chert. Chert could also be silicified phyllite. Local red hematite staining, especially associated with replacement of (pyrite?) cubes by red hematite.

Unique DDH#: 10185 DDH#: S40 P295 File #: DH2951-190
Comments: Oxide iron formation over hematitic phyllite. Local quartz veining (with brecciation?, minor pyrite), especially near top. Clayey silicate(?) iron formation at 135-140'. Minor oxidation and vugs occur locally. Hematite in phyllite may be alteration.

Unique DDH#: 10266 DDH#: S41 P295 File #: DH2951-191
Comments: Predominantly grey hematite oxide chert iron formation. Minor quartz oxide veining with some calcite toward base. Vein pyrite may be stratiform-related to silicate portion of iron formation. Little core left, with no core between 160 and 218'.

Unique DDH#: 10267 DDH#: S42 P295 File #: DH2951-192
Comments: Similar to DDH S41 (unique 10266) lithologically. Sulfide and silicate portions appear to be more stratiform than cross-cutting (chemical sediment or stratiform alteration?).

Unique DDH#: 10195 DDH#: S5 P295 File #: DH2951-193
Comments: Oxide chert iron formation with carbonate goethite quartz red hematite alteration. Rock is locally vuggy with drusy carbonate or barite.

Unique DDH#: 10294 DDH#: S6 P295 File #: DH2951-194
Comments: Goethite grey hematite chert silicate iron formation with phyllite locally within 135-140'. Phyllite has dark grains of organic matter, phosphate or iron oxides. Core locally limonitic and slightly calcareous.

Unique DDH#: 10196 DDH#: S7 P295 File #: DH2951-195
Comments: Laminated goethite grey hematite silicate iron formation, with veining reactivating these components.

Unique DDH#: 10346 DDH#: S43 P295 File #: DH2951-196

Comments: Iron formation over phyllite. Basal iron formation and phyllite are fragmental (faulting-brecciation). Fragments phyllite are rounded (abraded during brecciation?), with fragments appearing to predate foliation formation (need thin section). Disseminated-blebby pyrite may be stratiform or remobilized (some oxidized to red hematite). Minor amount of very fine grey hematite(?) in some laminae.

Unique DDH#: 11444 DDH#: BM-2 P295 File #: DH2951-197

Comments: Brecciated to mylonitic argillitic red hematite, chert, magnetite, silicate(?) iron formation over phyllite. Silicification and quartz veins common in iron formation, with lesser calcite and local pyrite in quartz veins. Local fractured fold closures present.

Unique DDH#: 15505 DDH#: 101 P295 File #: DH2951-198

Comments: More cuttings than core. Material with sulfides(?) had more corroded tin boxes, especially the intervals 185-195' and 240-250' (possible contamination in analytical samples?). Corrosion was less extreme in the other tins. Altered basalt or andesite may be altered from weathering or retrograde metamorphism. Presumed not to be Keweenawan. This sample for analysis is core and no cuttings. Sample of graphite sulfide phyllite only cuttings-core fragments. Basal silicate goethite iron formation mineralogy uncertain. Color of cuttings are 5 Y 4/4 (125-135'), 10 YR 4/2 (135-140'), 5 GY 5/1 (140-150'), 10 YR 5/2 (150-160'), 5 YR 3/1 (185-195'), 10 YR 3/2 (240-250'), 10 YR 4/2 (260-270'), and 10 YR 3/2 (270-275').

Unique DDH#: 15506 DDH#: 102 P295 File #: DH2951-199

Comments: Cuttings in 190-200', 210-220' and 320-327' were in heavily corroded tin boxes (from sulfides?). Other tins were less corroded. The tuffaceous greywacke may be andesitic to dacitic. This gets calcareous toward the base where the rock has round calcite quartz cavity fillings (look like amygdales). Cuttings colors are 10 YR 6/4 (152-160'), 10 YR 6/6 (160-170'), 10 R 4/4 (180-190'), 5 YR 6/4 (190-200'), 10 YR 6/4 (210-220'), 1O YR 6/2 (250-260'), and 10 YR 6/4 (260-270').

Unique DDH#: 15507 DDH#: 103 P295 File #: DH2951-200

Comments: Core amount increases downward. Uppermost phyllite (124-128') appears to contain a fair amount of goethite and magnetite in the cuttings. Color of cuttings are 5 YR 3/2 (124-128'), 5 YR 3/4 (140-143'), 5 YR 3/2 (150-155'), 5 YR 3/4 (155-160'), and 5 Y 3/1 (160-170'). Original tin boxes showed only minor to moderate corrosion.

Unique DDH#: 15508 DDH#: 104 P295 File #: DH2951-201

Comments: Very little core. Cuttings appear to have increased goethite magnetite below 209'. The interval 275-280' appears to have some sulfate oxidation (from sulfides?), with the original tin box very corroded (geochem sample contaminated?). Color of cuttings are 10 YR 6/4 (175-209'), 10 YR 4/2 (209-230'), 5 YR 4/4 (250-265'), 10 YR 5/4 (265-270'), 5 YR 4/4 (270-275'), and 5 YR 3/2 (275-280').

Unique DDH#: 10290 DDH#: S3 P295 File #: DH2951-202

Comments: Hematite goethite chert iron formation with minor thin quartz pyrite veins.

Unique DDH#: 10292 DDH#: S4 P295 File #: DH2951-203

Comments: Silicate (and carbonate?) chert with relatively minor magnetite iron formation, over goethite chert red hematite limonite iron formation. Minor quartz pyrite veins in upper material. Minor pyrite gash fillings occur in brittle boudinaged chert laminae. Basal portion may have pyrite veins(?).

Unique DDH#: 10295 DDH#: S8 P295 File #: DH2951-204

Comments: Chert red hematite predominating iron formation over goethite predominating iron formation. Goethite appears to be replacing-cross cutting the red hematite (and chert?). Chert red hematite portions contain minor quartz pyrite veins.

Unique DDH#: 10197 DDH#: S9 P295 File #: DH2951-205
Comments: Predominantly chert oxide iron formation that appears to be brecciated locally. Minor pyrite(?) may occur as veins, along with iron silicate or carbonate. Basal portion is argillitic.

Unique DDH#: 10275 DDH#: S10 P295 File #: DH2951-206
Comments: Greenish chert silicate (and carbonate?) iron formation with goethite (and more localized hematite quartz) alteration toward the top.

Unique DDH#: 10278 DDH#: S11 P295 File #: DH2951-207
Comments: Predominantly goethite with minor chert and limonite.

Unique DDH#: 10188 DDH#: S12 P295 File #: DH2951-208
Comments: Magnetite silicate carbonate(?) iron formation with some chert and minor veining. Possible some disseminated stratiform sulfides. Some quartz veins have a trace of green coloration (mineral? such as chlorite? or fuchsite??).

Unique DDH#: 10282 DDH#: S13 P295 File #: DH2951-209
Comments: Goethite chert iron formation with minor hematite (alteration of goethite). Local cross cutting vuggy silica or silicate(?).

Unique DDH#: 10189 DDH#: S14 P295 File #: DH2951-210
Comments: Rock is locally vuggy and sintery in appearance. Chert is dark grey (graphitic?) in the upper portion, with disseminated to blebby pyrite (part of chert chemical sediment or later alteration product?). At lower contact with limonitic goethitic clayey rock is siderite or sphalerite veins-alteration with sheet silicates(?). Local vugs in basal grey hematite chert iron formation has goethite and minor chlorite(?) and perhaps carbonate(?).

Unique DDH#: 10202 DDH#: S21 P295 File #: DH2951-211
Comments: Chert hematite iron formation over phyllite. Brecciation and local veining in iron formation. Phyllitic texture variably developed, and rock appears fragmental (probably fault breccia, not tuff?). Argillaceous rock is variably replaced by red hematite (paint rock), especially near contact with overlying iron formation. Chert has oxide remnants of cubes locally (after pyrite?).

Unique DDH#: 10192 DDH#: S22 P295 File #: DH2951-212
Comments: Magnetite chert silicate iron formation with local minor goethitic alteration and quartz or grey hematite veins. Silicate carbonate portions may have minor pyrite.

Unique DDH#: 10288 DDH#: S20 P295 File #: DH2951-213
Comments: Largely altered argillaceous rock and lesser chert red hematite iron formation. Argillaceous rock-phyllite is limonitic to goethitic to red hematitic, and is generally clayey. Textures indicate ductile deformation of "phyllite" and more brittle deformation of chert. Iron alteration of argillaceous rock may be surficial or fault related(?). Minor pyrite veining is preserved near some chert.

Unique DDH#: 10204 DDH#: S23 P295 File #: DH2951-214
Comments: Laminated red hematite chert magnetite silicate (and carbonate?) iron formation. Green silicate portions could be argillaceous-tuffaceous. Magnetite is spotty (replaced by red hematite?). Breccia within 200-205'.

Unique DDH#: 10193 DDH#: S24 P295 File #: DH2951-215
Comments: Laminated magnetite silicate carbonate iron formation, perhaps with minor chert in some silicate laminae. Local recrystallization of magnetite and minor veinlets-fractures with quartz and goethite(?).

Unique DDH#: 10206 DDH#: S25 P295 File #: DH2951-216

Comments: Chert grey hematite iron formation over red and greenish phyllite, with chert and green tuffaceous (mafic?) material at the contact. Phyllite appears locally brecciated, and is variably altered-oxidized to red hematite. Greenish portions MAY contain very fine-grained pyrite(?). Some portions of phyllite appear to be goethitic (?). Chert locally contains iron oxide cubes (after pyrite?).

Unique DDH#: 10194 DDH#: S27 P295 File #: DH2951-217

Comments: Laminated magnetite iron formation with minor chert and silicates (and carbonate?), upper part of which contains much goethite. Below this is a thin brecciated phyllite (mylonitic?), below which magnetite is associated with grey hematite. A few thin red hematite goethite clay altered intervals occur within this lower portion (shear related?).

Unique DDH#: 12019 DDH#: MO-1 P295 File #: DH2951-218

Comments: Sand (assuming from sandstone) is generally poorly cemented except where quartz cement or pressure welding. Sand is typically tinted hematite pink to limonite yellow. Rock is probably Keweenawan rift fill or less likely Cambrian. Locally cemented in 1-2 mm blebs of goethite, other iron oxides, or pyrite. Interval 180-185' is very goethitic.

Unique DDH#: 12018 DDH#: MO-2 P295 File #: DH2951-219

Comments: Similar to MO-1 except no pyrite seen, and perhaps more grey hematite and magnetite (contamination? from above). Unit contains locally numerous round (concretionary?) goethite grains, especially within 175-280'. Sediment is probably Keweenawan rift fill or (less likely) Cambrian.

Unique DDH#: 12017 DDH#: MO-3 P295 File #: DH2951-220

Comments: Similar to other MO holes except sand has more recovered silt. Sand is predominantly with minor limonite. There appears to be much contamination from upper glacial materials down to perhaps 145' or so. Sandstone is probably Keweenawan rift fill or less likely Cambrian.

Unique DDH#: 12617 DDH#: R-1 P295 File #: DH2951-221

Comments: Hornblende, plagioclase, quartz, biotite, magnetite schist with local basalt or granite intrusives along shears. Basalts are less than 10' thick and granites are less than 1'. Granite is typically with quartz k-feldspar intergrowths. Alteration (also associated with at least some shears) is typically carbonatization. Disseminated magnetite occurs throughout making the unit somewhat to moderately magnetic. Disseminated sulfide occurs throughout but may be more alteration associated. Analyzed interval is veined and carbonatized in general. Basalt is probably Keweenawan.

Unique DDH#: 12750 DDH#: PR-1 P295 File #: DH2951-222

Comments: Generally ferruginous, probable Keweenawan rift fill sands, silts and sedimentary breccia-conglomerate over gneiss. Sedimentary breccia conglomerate increases with depth. Gneiss is locally sheared. Contact deformation of overlying sediment may be due to tectonism or deposition over an irregular surface or both. Minor disseminated pyrite (rare grains) occur throughout, but most common toward the contact with the gneiss. Much dolomite veining near contact with the gneiss.

Unique DDH#: 15502 DDH#: 201 P295 File #: DH2951-223

Comments: Log based on rock chips in cuttings. Magnetite goethite silicate iron formation over altered schistose metagabbro. Lower rock is clayey and appears to be sheared (and contact sheared?). Glacial material is more clayey within 65-75'.

Unique DDH#: 10148 DDH#: S253 P295 File #: DH2951-224

Comments: Core in cuttings boxes. Laminated, somewhat phyllitic sulfide graphite iron formation. May possibly contain Mn oxides(?). Minor veinlets with red siderite (or sphalerite?).

Unique DDH#: 10263 DDH#: S130 P295 File #: DH2951-225

Comments: Laminated silicate carbonate iron formation with chert and magnetite. Locally cut by veins with calcite, quartz, and pyrite. Porphyroblastic(?) dark siderite or sphalerite occurs within 215-220'.

Unique DDH#: 10383 DDH#: S131 P295 File #: DH2951-226
Comments: Oxide chert iron formation with minor quartz goethite calcite veins. Chert locally vuggy.

Unique DDH#: 10384 DDH#: S133 P295 File #: DH2951-227
Comments: Oxide chert iron formation with minor quartz goethite calcite veins. Hydrothermal alteration(?).

Unique DDH#: 10160 DDH#: S134 P295 File #: DH2951-228
Comments: Oxide chert iron formation with minor quartz goethite calcite veins. Large quartz vein at top has minor calcite and goethite.

Unique DDH#: 10219 DDH#: S140 P295 File #: DH2951-229
Comments: Carbonate silicate magnetite chert (sulfide?) iron formation, with minor carbonate pyrite goethite quartz veinlets. Some sulfide may be stratiform.

Unique DDH#: 10385 DDH#: S142 P295 File #: DH2951-230
Comments: Argillaceous hematite iron formation and ferruginous phyllite, with minor goethite.

Unique DDH#: 15500 DDH#: S143 P295 File #: DH2951-231
Comments: Typical oxide chert silicate iron formation, with minor fractures, veinlets, vugs and calcite.

Unique DDH#: 10220 DDH#: S144 P295 File #: DH2951-232
Comments: Oxide chert argillite (tuffaceous?) iron formation. Argillitic portion is locally very calcareous (presumed alteration?). Rock is folded to perhaps brecciated.

Unique DDH#: 10405 DDH#: S146 P295 File #: DH2951-233
Comments: Laminated chert oxide silicate (and carbonate?) iron formation with minor sulfide(?) that is probably stratiform(?).

Unique DDH#: 10222 DDH#: S148 P295 File #: DH2951-234
Comments: Chert magnetite silicate (and carbonate?) grey hematite goethite iron formation. Goethite portion (alteration) could be hydrothermal and/or surficial.

Unique DDH#: 10386 DDH#: S149 P295 File #: DH2951-235
Comments: Chert hematite iron formation with minor goethite and minor hairline veinlets with quartz and iron oxides.

Unique DDH#: 10387 DDH#: S150 P295 File #: DH2951-236
Comments: Chert hematite iron formation with minor hairline veinlets with quartz and iron oxides. Also local fractures with offset. Chert is locally vuggy.

Unique DDH#: 10388 DDH#: S151 P295 File #: DH2951-237
Comments: Chert hematite iron formation with minor hairline veinlets with quartz and iron oxides. Chert is locally vuggy or contains blebby hematite. Local layers with 1-2 mm muscovite (alteration? or tuffaceous component?).

Unique DDH#: 10223 DDH#: S152 P295 File #: DH2951-238
Comments: Hematite goethite magnetite chert iron formation, with minor oxide carbonate quartz alteration veinlets. Magnetite may be associated with goethite (alteration?).

Unique DDH#: 10389 DDH#: S154 P295 File #: DH2951-239
Comments: Red (and tan) hematitic phyllite with minor red hematite iron formation and chert. Rock is deformed with local brecciation of chert. Minor calcite quartz limonite along veinlets.

Unique DDH#: 10390 DDH#: S155 P295 File #: DH2951-240
Comments: Red hematite chert iron formation, with local quartz (minor calcite) veinlets and associated drusy quartz.

Unique DDH#: 10161 DDH#: S156 P295 File #: DH2951-241
Comments: Red hematite chert goethite iron formation with local quartz veins with minor pyrite locally. Chert also has oxide replacing cubes (pyrite?), and is also locally vuggy.

Unique DDH#: 10162 DDH#: 158 P295 File #: DH2951-242
Comments: Argillaceous oxide iron formation with minor slickensides and hematite veinlets. Minor pyrite along some veinlets-shears.

Unique DDH#: 10163 DDH#: S160 P295 File #: DH2951-243
Comments: Argillaceous iron formation to hematitic phyllite. May contain scattered pyrite(?) or mica grains.

Unique DDH#: 10164 DDH#: 163 P295 File #: DH2951-244
Comments: Argillaceous iron formation to hematitic phyllite.

Unique DDH#: 10304 DDH#: S166 P295 File #: DH2951-245
Comments: Predominantly goethitic iron formation and quartz vein with minor goethite and calcite. Goethite has a sintery texture, and may be hydrothermal alteration.

Unique DDH#: 10165 DDH#: 168 P295 File #: DH2951-246
Comments: Argillaceous goethite hematite magnetite silicate iron formation with local veinlets with magnetite or pyrite with quartz. Upper portion of core is more goethitic and magnetitic, with the basal 10' more hematitic.

Unique DDH#: 10166 DDH#: 172 P295 File #: DH2951-247
Comments: Oxide chert iron formation. Limonite goethite hematite may be from surficial weathering. Oxide replacing pyrite(?) cubes in chert locally.

Unique DDH#: 10391 DDH#: S173 P295 File #: DH2951-248
Comments: Oxide chert silicate(?) iron formation. Could also be argillaceous(?). Red hematite, goethite, limonite probably from surficial weathering. Color of crushed core is 10R 3/4 (103-108'), 10R 4/4 (108-113'), and 5YR 4/4 (113-133').

Unique DDH#: 10392 DDH#: 179 P295 File #: DH2951-249
Comments: Red hematitic phyllite with brecciated chert layers. Only core below 125'. Crushed core colors are 10R 5/6 (104-109', 125-130'), 10R 6/6 (109-114'), 10R 3/6 (114-120'), and 10R 4/6 (120-130').

Unique DDH#: 10167 DDH#: 182 P295 File #: DH2951-250
Comments: Magnetite chert silicate carbonate iron formation with minor veinlets with quartz, carbonate, and hematite or local limonite. Color of crushed core is 5YR 4/2 (92-93'), 5Y 3/1 (93-98'), 10YR 3/2 (98-108'), and 10YR 2/2 (108-113').

Unique DDH#: 10393 DDH#: S183 P295 File #: DH2951-251
Comments: Argillaceous chert red hematite silicate iron formation. Chert is broken-brecciated locally, and contains oxidized pyrite cubes (now hematite). Color of crushed core is 5R 3/2 (95-101'), 10R 2/4 (101-106'), and 10R 3/4 (106-111').

Unique DDH#: 10168 DDH#: 186 P295 File #: DH2951-252
Comments: Rock is largely vein quartz with minor goethite, calcite(?), and one pyrite grain along internal fractures. Remaining rock is predominantly goethite (local vugs), quartz, and calcite (minor), and is probably hydrothermal alteration products associated with the quartz vein.

Unique DDH#: 10394 DDH#: S187 P295 File #: DH2951-253
Comments: Locally vuggy oxide silicate carbonate iron formation that is extremely altered,and is predominantly red hematite, limonite and goethite. Dark porphyroblastic siderite(?) is locally common. Color of crushed core is 5R 3/6 (94-110'), and 10R 4/4 (110-115').

Unique DDH#: 10169 DDH#: 192 P295 File #: DH2951-254

Comments: Oxide chert iron formation with local tuffaceous or silicate portions with difficult textures. Core is locally deformed to mylonitic. Contains typical minor veinlets with quartz carbonate goethite and other iron oxides.

Unique DDH#: 10395 DDH#: 193 P295 File #: DH2951-255

Comments: Sheared clayey rock is probably tuffaceous (greenish colored), but could be partially argillaceous. Contains abundant quartz grains (quartz eyes??), possible feldspar phenocrysts, and other fragments; all of which could also be tectonic. Crushed core is colored 10YR 5/2 (98-103'), 10YR 6/4 (103-115'), and 10YR 4/4 (115-120').

Unique DDH#: 10170 DDH#: S195 P295 File #: DH2951-256

Comments: Oxide chert iron formation with minor silicate-carbonate iron formation. Oxide is goethite, grey hematite (some replacing other components?). Minor carbonate quartz veinlets occur locally.

Unique DDH#: 10396 DDH#: S201 P295 File #: DH2951-257

Comments: Vuggy fractured oxide chert iron formation. Very vuggy and fractured. Red hematite probably from surficial weathering, but other features may be related to tectonism and/or hydrothermal alteration(?).

Unique DDH#: 12752 DDH#: RS-2 P295 File #: DH2951-258

Comments: Probable Keweenawan rift sediment unconformably over gneiss. Sediment is either reddish (hematitic) or greenish (reduced Fe), with minor disseminated pyrite in greenish portions. Calcite cement becomes more dolomitic toward unconformity. Feldspar and quartz grains make up most of the coarser grains. Gneiss is sheared to schistose locally, and locally contains late fractures with minor pyrite.

Unique DDH#: 10133 DDH#: S331 P295 File #: DH2951-259

Comments: Only remaining material is crushed core or cuttings. Material appears to be largely quartz vein and goethitic to argillaceous material. A few recognizable fragments are fragmental with slickensides. Minor disseminated pyrite also occurs. Host rock of veins may not have had much iron. Color of the material is 5YR 6/4 (103-113'), 5YR 5/4 (113-133'), 10YR 6/4 (133-138'), 10YR 5/4 (138-143'), 10YR 6/4 (143-148'), and 5YR 5/6 (153-158').

Unique DDH#: 12618 DDH#: 265-1/1 P295 File #: DH2951-260

Comments: Rock is altered (to chlorite, clays, hornblende?) dark green mafic-ultramafic rock. Some grains appear to be olivine or pyroxene (originally), and generally are rounded. Company log reports calcite veins and dark mica.

Unique DDH#: 10511 DDH#: LS-10 P295 File #: DH2951-261

Comments: Rock is medium-grained granite, with reddish K-feldspar (hematite) and epidote alteration. Variable glacial contamination decreases with depth.

Unique DDH#: 10512 DDH#: LS-11 P295 File #: DH2951-262

Comments: Rock is medium-grained granite, with pinkish K-feldspar and variable alteration (especially of feldspar, albitization and clays). Very clayey in the upper portion of the samples (weathering presumed). Possible glacial contamination decreases with depth.

Unique DDH#: 12759 DDH#: DRP-1 P295 File #: DH2951-263

Comments: Core appears to be going up section through a metamorphosed volcaniclastic-sediment pile topped by chemical sediments. Below 170' or so, textures indicate a primary coarser fragmental nature (also less mafics with depth(?), and increasing(?) sulfide (minor however). Biotite in this sediment-volcaniclast schist has a peculiar dark grey color (possibly a dark grey chlorite?? instead of biotite). Chert marble chemical sediment is locally vuggy and sintery looking, and is locally brecciated and recemented, generally with calcite (marble). Marble may contain minor tremolite(?). Basal dark clayey altered breccia probably is NOT the more mafic portion of the next sequence, as the K feldspar fragments in the basal 10' or so may indicate. Relatively minor sulfides in general, with the most in the graphitic portions. Relatively little carbonate outside the marble.

Unique DDH#: 12760 DDH#: DRP-2 P295 File #: DH2951-264

Comments: Similar to DRP-1. Upper schist unit like DRP-1 contains disrupted chert layers or quartz veins, and some of the "fragmental" nature may result from this. They is generally little quartz in the "marble" unit. Schist within marble may indicate that carbonate is perhaps a replacement. In general, upper schist is finer(?) grained than the same unit in DRP-1 (more distal??). This schist may contain more sulfide (pyrite-pyrrhotite) than in DRP-1. Marble in DRP-2 appears to be considerable thicker. Contact is more sheared.

Unique DDH#: 12758 DDH#: JW-1 P295 File #: DH2951-265

Comments: Schist probably derived from volcanic sediments or volcanics (intermediate? to locally mafic?). Hints of larger fragments, but if so, then they are extremely flattened. Minor calcite veins, especially in a more mafic portion at about 142'.

Unique DDH#: 12751 DDH#: RS-1 P295 File #: DH2951-266

Comments: Keweenawan sediment unconformably over gneiss. Not as much carbonate as in contact as other cores. Gneiss contains more mafic portions than other cores. These are typically hornblende chlorite magnetite rich. Carbonate veins and very minor disseminated sulfides in gneiss locally (preferentially associated with shears?).

Unique DDH#: 10171 DDH#: 1016 P295 File #: DH2951-267

Comments: Sericitic phyllite-argillite with minor goethite-red hematite and chert. Local red hematite replacing cubes (former pyrite?) in chert.

Unique DDH#: 10135 DDH#: 1018 P295 File #: DH2951-268

Comments: Rock is goethitic-graphitic phyllite.. May contain minor disrupted chert beds. Minor limonite or quartz veins.

Unique DDH#: 10136 DDH#: 1019 P295 File #: DH2951-269

Comments: Locally brecciated chert goethite hematite magnetite iron formation over graphitic goethitic hematitic phyllite. Goethite-magnetite is locally vuggy and sintery looking. The interval 238-243' contains pyrite (some arsenopyrite??) veins-laminae with minor quartz.

Unique DDH#: 10186 DDH#: 53 P295 File #: DH2951-270

Comments: Chert hematite goethite silicate iron formation, with minor quartz goethite veinlets. Upper part is hematitic (from surficial weathering??). Local vugs.

Unique DDH#: 10274 DDH#: S1 P295 File #: DH2951-271

Comments: Goethite hematite chert iron formation over silicate carbonate magnetite iron formation. Goethite hematite may be from surficial oxidation(?)

Unique DDH#: 12753 DDH#: MLCH-13 P295 File #: DH2951-272

Comments: Keweenawan rift fill sediments over chlorite quartz carbonate amphibole(?) talc plagioclase sericite mylonitic schist. Schist is sheared, with quartz carbonate k-feldspar veining. Not as much carbonate as other holes drilling the basal sediment contact. Protolith of schist is unknown, but is generally intermediate-mafic in nature. May contain minor disseminated pyrite(?).

Unique DDH#: 12755 DDH#: KRCH-8 P295 File #: DH2951-273
Comments: Schistose quartz chlorite muscovite amphibole garnet metasediment-metavolcanic rock. Difficult to tell feldspar content. Interval 401-405' has 1-2 mm sulfide intraclasts. Rock appears to be bedded in general. Rock has local more mafic areas. Shearing has destroyed much of the original grain textures. Minor sulfide associated with quartz carbonate chlorite.

Unique DDH#: 10513 DDH#: 286-6/1 P295 File #: DH2951-274
Comments: Only samples are cuttings-fragments. Rock appears to have little feldspar (ultramafic?). Mica present appears to be a rock component and not contamination (rock is lamproitic?).

Unique DDH#: 12762 DDH#: ML-42C P295 File #: DH2951-275
Comments: Same lithologies as DRP drill cores. Sulfides in chert graphitic sulfide unit appear to have chalcopyrite. Brecciation in chert marble unit may be tectonic or may be related to hydrothermal deposition(?) on sea floor. Marble is locally tremolitic(?). Minor crosscutting veinlets-fractures have muscovite. Some may have minor amounts of grey sulfide (molybdenite?? galena??).

Unique DDH#: 10137 DDH#: 203 P295 File #: DH2951-276
Comments: Argillitic chert hematite goethite iron formation over graphitic sulfide phyllite schist. Core largely crushed, with identifiable fragments only below 195'. Colors of crushed core are 10R 2/4 (121-130', 140-145'), 10R 3/4 (130-140', 145-150', 230-235', 285-290'), 10R 4/4 (150-160', 185-190', 225-230', 265-270', 290-295'), 5YR 5/4 (160-165'), 10YR 4/2 (165-170'), 10YR 4/4 (170-175'), 5YR 5/2 (175-180'), 10YR 5/2 (180-185'), 5YR 4/4 (190-195', 200-205', 220-225', 235-255', 270-275', 295-305'), 5YR 3/4 (195-200', 205-210', 215-220', 275-280'), 10R 3/2 (210-215'), 10R 3/6 (255-265'), and 5R 2/4 (280-285').

Unique DDH#: 10142 DDH#: 208 P295 File #: DH2951-277
Comments: Only crushed core samples with local remaining fragments. Largely silicate goethite magnetite chert iron formation, with central portion of clayey limonite altered silicate iron formation(?). No core fragments below 235' although the lowermost recognized lithology appears to continue. Crushed core colors are 5YR 3/4 (110-115', 140-170', 210-220', 225-235', 240-245', 265-272'), 5YR 2/4 (115-120', 235-240'), 10YR 3/2 (120-135'), 5YR 3/2 (135-140'), 5YR 5/7 (170-175'), 5YR 4/4 (175-185', 200-210', 245-260'), 5YR 5/4 (185-190', 195-200'0, 10YR 6/4 (190-195'), and 10R 3/4 (260-265', 220-225').

Unique DDH#: 12761 DDH#: ML-22 P295 File #: DH2951-278
Comments: Cuttings with recognizable rock fragments. No samples between 335-385'. Most of samples are overburden or dolomitic quartz marble with rare tremolite and epidote. Rock is somewhat schistose.

Unique DDH#: 12763 DDH#: ML-55CA P295 File #: DH2951-279
Comments: Keweenawan rift clastics over dolomitic quartz (recrystallized chert?) marble that is locally brecciated. Minor disseminated pyrite along some veinlets. Bottom sample taken has black chert clast. Some reduction spots in rift sediment have dark organic(??) matter as a nucleus (no noticeable odor).

Unique DDH#: 11445 DDH#: BM-3 P295 File #: DH2951-280
Comments: Phyllitic magnetite carbonate (dolomitic?) silicate(?) iron formation, and phyllitic laminae. Minor quartz veins, with minor sulfide veins and brecciation increasing with depth.

Unique DDH#: 12754 DDH#: KR-2 P295 File #: DH2951-281
Comments: Biotite quartz calcite muscovite schist (predominantly biotite?). Rock is generally crenulated. Minor quartz calcite veins with sulfide locally toward the base.

Unique DDH#: 10152 DDH#: 207 P295 File #: DH2951-282
Comments: Argillitic chert oxide silicate iron formation. Recognizable core fragments within 165-180' and below 265'. Rock is sheared deformed, including the chert and quartz veins(?). Oxides (originally magnetite?) are heavily altered to goethite and grey hematite with some limonite-red hematite in more siliceous-argillaceous portions. Core has pyrite locally below 305'. Amount of aluminosilicates may be from argillitic material or silicate chemical sediments. Crushed core colors are 5YR 4/4 (118-125, 140-150, 165-175, 220-225, 230-235, 240-255, 270-275, 290-295, 300-315'), 10YR 6/4 (125-130'), 10YR 5/4 (130-135'), 10R 5/6 (135-140'), 10R 4/6 (150-155'), 10R 3/6 (155-160, 260-265'), 10R 3/4 (160-165, 175-180'), 5YR 2/4 (180-190'), 5YR 3/2 (190-200'), 10R 2/4 (200-205'), 5YR 3/4 (205-220, 225-230, 235-240, 275-285'), 5YR 5/6 (255-260'), 10YR 4/4 (270-275, 285-290'), 5YR 5/4 (295-300').

Unique DDH#: 10154 DDH#: S1033 P295 File #: DH2951-283
Comments: Silicate (and carbonate?) magnetite iron formation that is oxidized at the top and bottom. Unit is locally folded and broken, with local quartz chlorite veins.

Unique DDH#: 10157 DDH#: S1034 P295 File #: DH2951-284
Comments: Oxide chert iron formation, with hematite and goethite replacing chert. Chert is locally bleached. Local brecciation, including quartz veins. Minor dolomite crystals in vugs.

Unique DDH#: 10159 DDH#: S15 P295 File #: DH2951-285
Comments: Chert goethite iron formation with minor red hematite and veinlets with a trace of pyrite.

Unique DDH#: 15509 DDH#: S20 P295 File #: DH2951-286
Comments: Sericitic phyllite with variable red hematite (alteration?). Minor late pyrite (or marcasite?) along some cleavage planes. Crushed core colors are 5R 5/2 (29-35'), 10R 6/4 (35-40') and 10R 5/6 (40-45').

Unique DDH#: 10337 DDH#: S21 P295 File #: DH2951-287
Comments: Brecciated chert goethite iron formation. Goethite appears to be locally replacing pyrite cubes. Quartz veins or recrystallized chert is fractured-brecciated with interstitial goethite. Crushed core sample colors are 5R 3/4 (28-30'), 10R 3/4 (30-45', 65-70', 80-82'), 10R 4/4 (45-55'), 5YR 4/4 (55-60', 75-80', 82-85'), 5YR 3/4 (60-65', 70-80') and 5R 4/4 (85-89').

Unique DDH#: 10130 DDH#: S1022 P295 File #: DH2951-288
Comments: Oxide chert iron formation. Appears to be fragmental (intraclastic?). Crushed core colors are 10R 3/6 (0-5, 25-30, 75-80, 95-100, 170-180'), 10R 3/4 (5-15, 20-25, 30-60, 65-75, 145-150, 180-190, 195-200), 5YR 3/4 (60-65, 150-155, 190-195'), 10R 2/4 (15-20), 5YR 4/4 (80-95, 100-145, 160-170'), and 5YR 4/4 (165-170').

Unique DDH#: 10212 DDH#: S1031 P295 File #: DH2951-289
Comments: Argillitic(?) slightly graphitic chert with minor sulfide. Could be silicified phyllite also. Crushed core colors are 10R 4/4 (75-80, 95-100, 110-115, 130-140'), 10R 3/6 (80-85, 90-95, 115-125'), 10R 4/6 (85-90, 100-105'), 10R 3/4 (105-110, 140-145'), 5R 3/4 (125-130'), 5YR 5/4 (145-150'), 5YR 3/4 (150-155'), 1OYR 4/2 (155-160'), and 5YR 4/2 (160-162').

Unique DDH#: 10363 DDH#: S1029 P295 File #: DH2951-290
Comments: Laminated oxide chert iron formation. More hematitic magnetitic toward top and goethitic toward base. Local quartz carbonate goethite veinlets. Goethite hydrothermal?

Unique DDH#: 10357 DDH#: S1030 P295 File #: DH2951-291
Comments: Chert goethite hematite iron formation with goethite predominating. Goethite is locally brecciated with calcite cement.

Unique DDH#: 10214 DDH#: S222 P295 File #: DH2951-292
Comments: Oxide chert iron formation. More goethitic and quartz veins toward the base.

Unique DDH#: 10215 DDH#: S223 P295 File #: DH2951-293
Comments: Generally goethite chert iron formation, with limonite alteration and minor disseminated pyrite and quartz veins.

Unique DDH#: 10368 DDH#: S224 P295 File #: DH2951-294
Comments: Goethite predominating oxide chert iron formation. Locally brecciated and vuggy, possibly from hydrothermal brecciation.

Unique DDH#: 10370 DDH#: S1036 P295 File #: DH2951-295
Comments: Locally argillaceous goethite hematite chert iron formation, with minor goethite quartz veinlets.

Unique DDH#: 10034 DDH#: S1040 P295 File #: DH2951-296
Comments: Silicate magnetite chert iron formation, with quartz carbonate biotite (minor muscovite and/or chlorite??) veins. May contain minor disseminated sulfide near 31'(?).

Unique DDH#: 10198 DDH#: S1046 P295 File #: DH2951-297
Comments: Silicified chert silicate oxide(?) iron formation with minor goethite quartz veinlets. Rock contains little iron oxides.

Unique DDH#: 10199 DDH#: S1033 P295 File #: DH2951-298
Comments: Brecciated(?) chert limonite goethite iron formation with minor magnetite. Chert heavily recrystallized, although some could be vein quartz.

Unique DDH#: 10285 DDH#: 276 P295 File #: DH2951-299
Comments: Silicate magnetite carbonate iron formation cut by goethite quartz pyrite alteration and veining. Top of silicate magnetite carbonate iron formation has chlorite, biotite tourmaline, quartz vein. Tourmaline may be remobilization of tourmalinite laminae(?) in that same portion. Thin 1.5 cm, weird breccia at about 139'. Lower goethitic portion is somewhat calcareous.

Unique DDH#: 10203 DDH#: S720 P295 File #: DH2951-300
Comments: Chert and graphitic(?) Mn oxide(?) goethite magnetite grey hematite iron formation. Magnetite amount is small. Black coloration identity in iron formation is uncertain. Chert appears tuffaceous-fragmental locally (silicified tuff?). Small amount of pyrite locally.

Unique DDH#: 10317 DDH#: S-2-55 P295 File #: DH2951-301
Comments: Red hematite chert goethite iron formation. Rock is locally fragmental-tuffaceous(?). Dark hematite-Mn oxides(?) along some veins.

Unique DDH#: 11065 DDH#: 10 P295 File #: DH2951-302
Comments: Weathered, clayey goethitic silicate magnetite carbonate(?) sulfide iron formation; getting less weathered and containing minor chert with depth. No recognizable core fragments above 150'. Sulfate (oxidation of sulfides?) occurs below 135'. Veinlets with dark chlorite below 200'. Vein with quartz(?), grey hematite(?) and tourmaline within 205-210'. Crushed core colors are 5YRyr 3/4 (75-80, 85-95, 150-160, 175-180, 210-270'), 5YR 4/4 (80-85, 100-105, 130-135'), 10YR 4/4 (95-100'), 5YR 4/6 (105-110, 123-130, 135-145'), 10R 4/6 (110-120'), 5YR 5/6 (120-123'), 5YR 3/2 (145-150'), 10YR 4/2 (160-165, 180-210'), and 10YR 3/2 (165-175').

Unique DDH#: 10205 DDH#: 204 P295 File #: DH2951-303
Comments: Predominantly chert goethite over predominantly silicate carbonate iron formation. No core above 235'. Cuttings colors are 10YR 6/2 (150-155'), 10R 5/2 (155-160'), 5YR 3/1 (160-165'), 10R 4/6 (165-170'), 5YR 4/4 (170-175, 250-255'), 5YR 3/4 (175-200, 235-250, 255-265, 275-295'), 10YR 4/4 (200-225'), 10YR 3/2(225-230'), 10YR 4/2 (230-235') and 10YR 4/6 (265-275').

Unique DDH#: 10143 DDH#: 206 P295 File #: DH2951-304
Comments: No core above 230' (regolith??). The interval 230-240' is vuggy-weathered. Rock is rather calcareous, with original textures obscured. Original rock was finer gabbro or coarser basalt (porphyritic?). Calcite veins have quartz and pyrite with depth. Cuttings colors are 10YR 6/4 (116-125'), 10YR 5/2 (125-130, 135-140'), 5YR 5/1 (130-135'), 10YR 4/2 (140-145, 200-205'), 5YR 6/4 (145-150, 155-160'), 5YR 7/4 (150-155'), 5YR 5/6 (160-165'), 10YR 4/4 (165-175, 225-230'), 5YR 4/4 (175-180, 185-190'), 5YR 4/6 (180-185'), 5YR 3/4 (190-200, 205-210'), 10YR 5/6 (210-215'), 5YR 6/6 (215-225'), and 10YR 7/2 (230-235').

Unique DDH#: 10144 DDH#: 205 P295 File #: DH2951-305
Comments: Only recognizable rock fragments within 205-215'. This is goethitic limonitic iron formation, probably resulting from surficial oxidation(?). Contains minor carbonate and white kaolin(?). Cuttings colors are 10YR 5/2 (137-140'), 10YR 6/4 (140-145'), 10YR 4/4 (145-150, 215-220'), 5YR 4/4 (150-155'), 10YR 5/6 (155-160'), 5YR 4/6 (160-170, 175-185, 195-200, 205-210'), 5YR 3/6 (170-175, 200-205'), 10R 3/6 (185-195'), and 5YR 5/6 (210-215, 220-227').

Unique DDH#: 10146 DDH#: 202 P295 File #: DH2951-306
Comments: Only scattered recognizable rock fragments within 170-195'. These are limonitic phyllite and goethite magnetite iron formation. Phyllite is yellow tan limonitic and is fragmental(?) tuffaceous(?). Minor sulfide veining in the lowermost phyllite. Cuttings colors are 10YR 7/2 (55', 150-155'), 5Y 6/1 (55-72'), 10 YR 6/2 (72-105'), 5YR 4/6 (105-110'), 5YR 4/4 (110-125, 160-180'), 5YR 6/4 (125-130'), 10YR 5/4 (130-150'), 10YR 5/2 (155-160'), 5YR 3/4 (180-190'), 5YR 5/6 (190-195'), and 10YR 4/2 (195-200').

Unique DDH#: 10015 DDH#: BM-5 P295 File #: DH2951-307
Comments: Graphite pyrrhotite chert iron formation with minor cherty tuff downhole. Pyrite locally replaces pyrrhotite. Local folding, brecciation, and quartz carbonate veins (latter especially downhole).

Unique DDH#: 10004 DDH#: G-6 P295 File #: DH2951-308
Comments: Graphite pyrite chert phyllite with minor cherty tuff and tourmalinite layers. Local coarser more schistose amphibolitic (with tourmaline?) portion within 95-100'. Commonly finely laminated.

Unique DDH#: 10003 DDH#: G-5 P295 File #: DH2951-309
Comments: Graphite pyrite chert phyllite with minor cherty tuff(?) and magnetite portions. Commonly finely laminated. Local quartz pyrite veins. Pleochroic tourmaline in darker laminae.

Unique DDH#: 10005 DDH#: G-8 P295 File #: DH2951-310
Comments: Graphite pyrite chert phyllite with minor cherty and calcareous tuff and amphibolitic (with tourmaline?) portions. Commonly finely laminated. Local quartz pyrite carbonate veins.

Unique DDH#: 10009 DDH#: BM-12F P295 File #: DH2951-311
Comments: Altered intermediate (perhaps felsic?) volcanics. Rock was probably tuffaceous originally. Rock is calcareous-micaceous, with sulfide also resulting from alteration (or chemical sedimentation?). Shears-veins with pale muscovite, sulfide, quartz, goethite and calcite. Rock has altered phenocrysts, amygdales and/or volcaniclasts.

Unique DDH#: 10014 DDH#: BM-4 P295 File #: DH2951-312
Comments: Sulfide graphite chert silicate iron formation with felsic tuff (siliceous) below intermediate(?) volcanics (chloritic micaceous schist). Graphite sulfide chert iron formation is phyllitic, brecciated to folded, with local siliceous (felsic?) tuff layers. Sulfide predominantly pyrrhotite with secondary pyrite. Possibly some black schist chloritic alteration in the upper portion of the sulfide iron formation unit.

Unique DDH#: 10012 DDH#: BM-2 P295 File #: DH2951-313

Comments: Sulfide graphite chert silicate iron formation with felsic tuff (siliceous, with iron carbonate). Graphite sulfide chert iron formation is phyllitic, brecciated to folded, with local siliceous (felsic?) tuff layers. Sulfide predominantly pyrrhotite with secondary pyrite. Sulfide and graphite decrease in general with depth, with silicate iron formation increasing.

Unique DDH#: 10097 DDH#: 87 P295 File #: DH2951-314

Comments: Chlorite sulfide graphite carbonate iron formation over siliceous tuff, chert and chert conglomerate. Chemical sediment is more coarsely recrystallized, and may be a product of hydrothermal alteration. Tuff is fragmental, siliceous and slightly graphitic. Chert clasts are elongate and generally rounded. They may be intraclastic, or tectonically produced. They are typically in distinct beds/layers.

Unique DDH#: 10031 DDH#: 79 P295 File #: DH2951-315

Comments: Sulfide graphite chert silicate carbonate iron formation over a chloritic biotitic siliceous semischist (recrystallized?). Basal material may be a hydrothermal alteration product (dark, fine-grained) of a tuffaceous unit(?). Contains local veins/segregations with quartz chlorite pyrite and minor dolomite, and brecciated or conglomeratic chert (or quartz veins???). Flattened clasts (tuff?) are recognizable in the vicinity of the contact between the units.

Unique DDH#: 10030 DDH#: 78 P295 File #: DH2951-316

Comments: Graphite sulfide chert iron formation over dark siliceous (and carbonate) tuffaceous semischist. Some chert conglomeratic layers near contact. Tuff may be somewhat chloritic/biotitic. Tuff is altered(?), and/or contains silicate carbonate iron formation layers with porphyroblastic needles of amphibole(?) pyroxene(?) or tourmaline(?) (probably amphibole). Chert conglomerate could be tectonic.

Unique DDH#: 10029 DDH#: 73 P295 File #: DH2951-317

Comments: Sulfide chert graphite iron formation over dark, siliceous tuff, with local chert conglomerate near contact. Tuff is chloritic-biotitic(?). Chert is locally brecciated, and "conglomeratic" chert may also have this origin.

Unique DDH#: 10033 DDH#: 82 P295 File #: DH2951-318

Comments: Graphite chert sulfide iron formation (locally tuffaceous) over carbonate silicate iron formation with local amphibole needles similar to DDH 78 (10030). Iron formation also has minor chert and stratiform pyrrhotite. As in other sulfide iron formation, pyrite is later than pyrrhotite. Trace chalcopyrite(?) in some veins.

Unique DDH#: 10017 DDH#: BM-7 P295 File #: DH2951-319

Comments: Kaolinitic regolith developed on graphite sulfide chert iron formation with tuff. Becomes less deformed, more cherty and tuffaceous with depth.

Unique DDH#: 15510 DDH#: SR-1 P295 File #: DH2951-320

Comments: Very calcareous chlorite biotite quartz schist, with carbonate pyrite veins with quartz and possibly K-feldspar. Protolith was probably intermediate-mafic volcanics (flows and tuffs or sheared flows). Probably basaltic; more biotitic schistose portions may just result from shearing and alteration.

Unique DDH#: 15511 DDH#: SR-3 P295 File #: DH2951-321

Comments: Locally pillowed(?) metabasalt over more schistose sericite chlorite quartz carbonate metatuff(?). Mafic dyke with chilled margins essentially in between other rock types. Dyke magnetic and relatively fresh except for late calcite veins (Keweenawan?). Several feet of metabasalt occur in center of dyke. Sulfides predominantly in metabasalt. Not as calcareous as other SR cores, but still altered.

Unique DDH#: 15512 DDH#: SR-2 P295 File #: DH2951-322

Comments: Graphite sulfide phyllite over very calcareous chlorite biotite quartz schist, with carbonate pyrite veins with quartz and possibly K-feldspar. Protolith was probably intermediate-mafic volcanics (flows and tuffs or sheared flows). Probably basaltic(?); more biotitic schistose portions may just result from shearing and alteration.

Unique DDH#: 10556 DDH#: SL-1 P295 File #: DH2951-323

Comments: Tuffaceous chlorite sericite actinolite(?) schist over sulfide graphite iron formation over tuffaceous graphitic pyritic chert with magnetite garnet sillimanite(?) or tremolite(?) or wollastonite(?) schist and garnet chlorite schist. Acicular radiating masses of silicates (associated with garnet and magnetite) is probably amphibole or sillimanite. Metamorphic mineralogy is probably preferentially superimposed on some kind of hydrothermal alteration chemistry. May or may not be hydrothermal system related metamorphism. Footwall-hanging wall relations are uncertain. Neat rock. Base of the upper tuffaceous schist has alteration to kaolin, sulfates, or clays (no discernible taste). Sulfides occur throughout in variable amounts.

Unique DDH#: 10560 DDH#: CK-1 P295 File #: DH2951-324

Comments: Only cuttings rock fragments. Predominantly sericitic phyllite-phyllitic schist. The interval 475-485' contains quartz K-feldspar veins with associated(?) pyrite. Granite veins?? Sulfide may also be remobilized.

Unique DDH#: 10561 DDH#: CK-2 P295 File #: DH2951-325

Comments: Only cuttings rock fragments. Predominantly sericitic phyllite-phyllitic schist. Lower portion contains quartz K-feldspar veins, with(?) sulfides. Could be remobilized sulfides. Granite veins??

Unique DDH#: 10562 DDH#: CK-3 P295 File #: DH2951-326

Comments: Only cuttings rock fragments. Predominantly sericitic phyllite-phyllitic schist. Upper portion contains quartz K-feldspar veins, but no pyrite. Granite veins?? Central portion has dolomitic marble (could be chemical sediments or veins).

Unique DDH#: 10563 DDH#: CK-4 P295 File #: DH2951-327

Comments: Only cuttings rock fragments. Predominantly sericitic phyllite-phyllitic schist. Lower portion contains quartz K-feldspar veins, but with no pyrite. Granite veins??

Unique DDH#: 10564 DDH#: CK-5 P295 File #: DH2951-328

Comments: Only cuttings rock fragments. Predominantly sericitic phyllite-phyllitic schist. Upper portion contains quartz K-feldspar veins, but without pyrite. Granite veins?? Lower sericitic phyllite contains sulfide chemical sediments (and veins?-may be remobilized).

Unique DDH#: 10565 DDH#: HM-1 P295 File #: DH2951-329

Comments: Sericitic phyllitic schist and phyllitic marble. Local pyrite chemical sediment and K-feldspar.

Unique DDH#: 10544 DDH#: MM-1 P295 File #: DH2951-330

Comments: Few fragments of parent rock appear to be amphibolitic granite, amphibolite and chlorite schist-phyllite. Rock is clayey and altered down to bottom.

Unique DDH#: 10545 DDH#: MM-2 P295 File #: DH2951-331

Comments: Only cuttings with small rock fragments making identification difficult. Rock appears to be altered(?) mafic igneous, with local coarse hornblende(?).

Unique DDH#: 10553 DDH#: EF-1 P295 File #: DH2951-332

Comments: Variably siliceous sericitic phyllitic schist with granitic-quartz veins. Locally somewhat calcareous. Basal sample has minor sulfide (chemical sediments??).

Unique DDH#: 10558 DDH#: MG-2 P295 File #: DH2951-333

Comments: Variably graphitic sericitic phyllitic schist with minor argillitic marble over the same with minor pyritic chemical sediment. Bottom unit is locally chloritic or tuffaceous with local feldspar phenocrysts and quartz eyes. Quartz and dolomite predominating veins in the upper portion become more quartz and pyrite predominating with depth (remobilization of country rock?). More chloritic with depth(?). Rock mylonitic to locally brecciated with local folds/kinks. K-feldspar also developed in some veins (heat provided by mylonitization???).

Unique DDH#: 10557 DDH#: MG-1 P295 File #: DH2951-334

Comments: Rock fabric strongly developed as in MG-2, with folding and multiple slip surfaces. Coarser (fine- to medium-grained) tuffaceous slices have by contrast little internal fabric development. Volcanic contribution problematic. "Tuffaceous slices" such as within 348-390' locally have quartz eyes, feldspar phenocrysts, and tend to be carbonate bearing. The interval 324-344' appears to be coarser (cm's??) fragmental (where deformation hasn't quite smeared out the textures?). Such fragments could be primary or they could result from deformation. The unit at 210-220' could be recrystallized silicified tuff, siliceous clastic, or even in part quartz vein. Henk says to note good sedimentary features (foreset cross-beds) near 186'.

Unique DDH#: 10559 DDH#: MG-4 P295 File #: DH2951-335

Comments: More sericitic phyllite and phyllitic schist, with more tuffaceous (at least coarser, recognizable compared to the phyllite, should that have a tuffaceous component) and chloritic material with depth. Minor granitization occurs in the more sericitic stuff (probably more of a solid state recrystallization?). A lot of dolomite and lesser calcite around. Minor epidote associated with some of the more igneous looking granite (not noted in log). All vein materials may be locally derived-sweated out.

Unique DDH#: 10566 DDH#: MG-3 P295 File #: DH2951-336

Comments: More sericitic phyllite and phyllitic schist, with more tuffaceous (at least coarser, recognizable compared to the phyllite, should that have a tuffaceous component) and perhaps chloritic material with depth. Minor vein granite (with some epidote and pyrite) occurs in the lowermost unit. Not as much carbonate as some of the previous holes of this series. Local porphyroblastic dolomite occurs locally. All vein materials may be locally derived-sweated out. Recrystallization of quartz makes the separation of disrupted chert beds and stratiform quartz veins not possible.

Unique DDH#: 12757 DDH#: ML-27 P295 File #: DH2951-337

Comments: Only cuttings. Largely sericitic phyllitic schist, muscovite quartz schist, and minor carbonate (latter decreases downward?). Local quartz hornblende amphibolite (usually with carbonate), although this has enough plagioclase and "igneous texture" to look intrusive. Minor "granitization", especially in upper part of basal unit. Minor disseminated pyrite within 215-220' (associated with porphyroblastic carbonate?).

Unique DDH#: 10554 DDH#: KRCH-6 P295 File #: DH2951-338

Comments: "Greenstone" looking mafic to intermediate metavolcanics (chlorite, actinolite, biotite, quartz, carbonate, feldspar? schist). Locally pillowed and coarsely fragmental. Much carbonate alteration and veins. Quartz or minor sulfides (including chalcopyrite or bornite) associated with some veins. Rock has local dikes-veins of fine- to medium-grained dacite(?). Some "brecciation" could be tectonic, but is probably more primary. Percent of mafics increase(?) downhole. Some quartz veins may have minor feldspar associated with them. Carbonate is predominating material between pillows and fragments. Boxes of core missing at 276-286' and 488-498'.

Unique DDH#: 10555 DDH#: KRCH-7 P295 File #: DH2951-339

Comments: Predominantly mafic metavolcanics and sills (porphyritic), with minor pillows and more felsic (thin) volcanics. Most of rock is schistose chlorite and actinolite, with other materials more siliceous and/or biotitic. Disseminated sulfide (pyrite, pyrrhotite, and lesser chalcopyrite, and bornite) and carbonate alteration amounts occur predominantly in material between the mafic volcanics or intrusives. Carbonate veins fairly common with lesser quartz. More calcite than dolomite compared with KRCH-6. Local boxes of core missing (187-197', 254-263', 407-416', 484-494', 577-587', 619-629', and 726-735')

Unique DDH#: 14524 DDH#: P-11 P295 File #: DH2951-340

Comments: Amphibolitic schist and amphibole, biotite, quartz, plagioclase, K-feldspar gneiss with local igneous textures (neosome??). Much feldspar appears perthitic. Minor disseminated pyrite, especially in amphibolitic schist portions.

Unique DDH#: 14523 DDH#: P-12 P295 File #: DH2951-341

Comments: Biotite, quartz, K-feldspar, plagioclase schist and gneiss. Local porphyroblastic K-feldspar. Kaolinitic-clay weathering at top and along fractures.

Unique DDH#: 14734 DDH#: PX-1 P295 File #: DH2951-342

Comments: Rift clastics over mixed gneisses and schists. Rift clastics are variably hematitic, but are locally reduced. Sediments vary from mudstone to very coarse angular grains. Gneisses and schists are intermixed, with local igneous textures. They vary from being mafic rich to quartzofeldspathic. The older rocks appear to be altered near the unconformity (clays, chlorite?, kaolin?). The older rocks contain dolomite veins. More mafic portions (only?) have minor disseminated pyrite. Rock locally pegmatoidal.

Unique DDH#: 14525 DDH#: P-9 P295 File #: DH2951-343

Comments: Mica feldspar quartz (garnet?) schist with shears, quartz K-feldspar veins with local chlorite and sericite (muscovite). Minor carbonate and disseminated pyrite. Porphyroblastic garnet (soft) or carbonate (less likely?). Protolith greywacke??. Believed to be Penokean deformed Proterozoic sediment not Archean.

Unique DDH#: 14492 DDH#: 264-7/2 R1 P295 File #: DH2951-344

Comments: Mylonitic granite schist-gneiss with abundant biotite and lesser muscovite. Core is somewhat magnetic from magnetite. Muscovite alteration product along with carbonate and epidote. Some pinite looking muscovite along slip surfaces (from altering cordierite???).

Unique DDH#: 15049 DDH#: 285-25/2 R1 P295 File #: DH2951-345

Comments: Biotite hornblende pyroxene(?) magnetite granite. Occurs as fine- to medium-grained phase and a coarser intrusive phase (remelting of former?). Rocks have a variety of textures, and several phases may be represented. May get more plagioclase rich (albitization???) with depth. Rock is moderately magnetic (disseminated magnetite). Pyrite occurs as disseminated grains, and locally along fractures in coarser portions.

Unique DDH#: 10636 DDH#: 18974 P295 File #: DH2951-346

Comments: Greenish argillite (Virginia Formation presumably) over variably graphitic argillite (with variable carbonate also). Minor calcite veins. Minor pyrite disseminations. Fissility or other fabric weakly developed if at all. Coarser arenitic laminae with rare(?) slump(?) folds. More graphitic downwards(?). More carbonate toward top(?).

Unique DDH#: 10638 DDH#: 3796 P295 File #: DH2951-347

Comments: Generally argillitic and sideritic rock with minor chert and variable graphite. May contain dark iron (or Mn?) oxides. Chert is recrystallized and appears to contain crystal casts (from pyrite??? or evaporites????). Minor calcite and quartz(?) veinlets.

Unique DDH#: 10640 DDH#: 4072 P295 File #: DH2951-348

Comments: Largely variably graphitic argillite with carbonate and sulfide chemical sediment and minor chert. Local melanterite surface oxidation locally. Minor goethitic (and magnetite?) iron formation at the very top of the core.

Unique DDH#: 10637 DDH#: 3795 P295 File #: DH2951-349

Comments: Variably graphitic argillite with chert, carbonate and sulfide chemical sediment over orthoquartzite with local pyrite. Local melanterite surface oxidation locally. Most graphitic and argillitic stuff is within 360-522'. Cherty and quartzite (and carbonate?) rock is locally fragmental and/or pelletoidal(?) with quartz cement. Stylolites often have associated pyrite. Dark laminae within carbonate and chert (within 462-472') may contain pleochroic tourmaline(???????) or hornblende(????????). Very fine-grained. Interesting textures.

Unique DDH#: 10639 DDH#: 3987 P295 File #: DH2951-350

Comments: Orthoquartzite with minor red hematite and limonite staining.

Unique DDH#: 10635 DDH#: 18972 P295 File #: DH2951-351

Comments: Ninety plus feet of good overburden core over kaolinitic regolith developed from variably graphitic fissile argillite-shale. At base of overburden above the kaolin is a fragment of argillite which may be some glacially overthrust material. Some of this sediment above the kaolin could be Cretaceous, but the fissile graphitic argillite is Virginia Formation. Fissility is relatively prominent, but is still less than a typical slate or phyllite.

Unique DDH#: 14563 DDH#: LV-2A P295 File #: DH2951-352

Comments: Dark green, very fine-grained silicate with lesser oxide and carbonate iron formation. Contains chert or quartz arenite with silica cement. Chalcedony also replacing iron formation, perhaps associated with fragmental (pelletoidal?) iron formation. Fragments may be intraclasts or remnants from silicification(?).

Unique DDH#: 14562 DDH#: LV-1 P295 File #: DH2951-353

Comments: Quartz feldspar gneiss with hornblende, epidote and chlorite. Local neosome or local remelting. Minor veinlets with red hematite, quartz, or epidote.

Unique DDH#: 11909 DDH#: 18695 P295 File #: DH2951-354

Comments: Argillite with variable graphite (generally minor), and minor carbonate laminae. Rock contains soft(?) sediment slumps, with variable bedding angles. Minor disseminated pyrite and carbonate veinlets.

Unique DDH#: 10631 DDH#: TL-5 P295 File #: DH2951-355

Comments: Argillite with variable graphite (generally minor). Rock contains soft(?) sediment slumps, small folds, bedding angles at about 45 degrees to core axis..

Unique DDH#: 10628 DDH#: TL-1 P295 File #: DH2951-356

Comments: Variable graphitic argillite (generally little graphite). Upper portion of samples are kaolinitic (regolith), with the upper 10' being graphitic (Cretaceous lignite??). Minor soft sediment slumping in argillite, which is probably Virginia Formation. Minor limonite and bluish staining within 320-325'.

Unique DDH#: 10629 DDH#: TL-2 P295 File #: DH2951-357

Comments: Variable graphitic argillite (generally little graphite). Upper portion of samples are Cretaceous (some lignite??), below which is kaolinitic material. Minor soft sediment slumping in argillite, which is probably Virginia Formation. Kaolinitic weathering of Virginia Formation decreases with depth.

Unique DDH#: 10630 DDH#: TL-3 P295 File #: DH2951-358

Comments: Variable graphitic argillite (generally little graphite). Upper portion of samples are Cretaceous (some lignite??), below which is kaolinitic material. Minor soft sediment slumping in argillite, which is probably Virginia Formation. Kaolinitic weathering of Virginia Formation decreases with depth.

Unique DDH#: 10632 DDH#: TL-4 P295 File #: DH2951-359

Comments: Other TL holes are borderline phyllitic, with variable bedding angles and soft sediment deformation. This is the only one of the series with minor chert and slightly magnetic iron silicate oxide chemical sediments (relatively minor, and predominantly toward the top). Toward base is quartz K-feldspar carbonate pyrite chlorite vein which may contain sphalerite, iron carbonate or barite. Interesting - this is stuck out in the middle of the Virginia Formation. Unit is very carbonaceous locally.

Unique DDH#: 10633 DDH#: 18971 P295 File #: DH2951-360

Comments: Laminated Virginia Formation. Minor soft sediment deformation. Gentle dips. Minor carbonate and disseminated pyrite. Kaolinitic at the top with local graphitic-lignite(?) fragments (glacial sediment?).

Unique DDH#: 10634 DDH#: 18973 P295 File #: DH2951-361

Comments: Greenish-reddish (more purple) argillite over variably graphitic argillite with minor sulfides. Upper part may be oxidized equivalent of the other. Upper part contains several brecciated portions. Very graphitic locally. Virginia Formation.

Unique DDH#: 12756 DDH#: MLCH-8 P295 File #: DH2951-362

Comments: Generally quartz biotite chlorite muscovite garnet schist, lesser coarser-grained quartz hornblende (and plagioclase) diorite or gneiss, and minor marble. Probably metasediment or metavolcanics (generally intermediate to felsic?). Occasional minor folds. Minor sulfide associated with veins or segregations. Quartz veins locally have plagioclase, mica or hornblende. Rock may be more siliceous-felsic with depth.

Unique DDH#: 12771 DDH#: ML-49C P295 File #: DH2951-363

Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is altered-weathered (clayey, kaolinitic?). Schist becomes graphitic toward the contact with the marble (some sulfides). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Marble is more(?) calcareous upward, with local stylolites. Schist locally brecciated(?). Rift sediment unconformity not as calcareous-dolomitic as some other cores.

Unique DDH#: 12768 DDH#: ML-43C P295 File #: DH2951-364

Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is altered-weathered (clayey, kaolinitic?). Schist doesn't become as graphitic toward the contact with the marble (some sulfides) as ML-49c, but otherwise pretty similar. Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Rift sediment unconformity not as calcareous-dolomitic as some other cores.

Unique DDH#: 12772 DDH#: ML-50C P295 File #: DH2951-365

Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is altered-weathered (clayey, kaolinitic?). Pretty similar to previous cores. Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Rift sediment unconformity not as calcareous-dolomitic as some other cores. Schist with chlorite (more than other cores?, some dark greyish?) may contain cordierite(?). Minor veinlets in marble with vugs and disseminated sulfides.

Unique DDH#: 12773 DDH#: ML-51C P295 File #: DH2951-366

Comments: Keweenawan Rift sediment over recrystallized siliceous marble (same as in DRP-1 etc.). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Much of this appears brecciated and recrystallized. Rift sediment unconformity not as calcareous-dolomitic as some other cores. Minor veinlets in marble with vugs and disseminated sulfides.

Unique DDH#: 12749 DDH#: T-4 P295 File #: DH2951-367
Comments: Cross laminated, poorly cemented quartz arenite with limonite (and minor red hematitic) staining. Looks like Cambrian.

Unique DDH#: 10517 DDH#: T-5 P295 File #: DH2951-368
Comments: Fine-grained tuffaceous chloritic carbonate schist with graphitic clasts and minor pyrite

Unique DDH#: 10518 DDH#: T-6 P295 File #: DH2951-369
Comments: Fine-grained tuffaceous graphitic chloritic carbonate(?) phyllite-schist with minor pyrite. Local folds and quartz pyrite veins.

Unique DDH#: 10614 DDH#: T-3 P295 File #: DH2951-370
Comments: Laminated to finely bedded (graded) tuffaceous phyllite with chlorite, sericite and graphite. May contain minor sulfide chemical sediment (now porphyroblastic that is oxidizing to limonite).

Unique DDH#: 14495 DDH#: AB-10 P295 File #: DH2951-371
Comments: Mylonitic plagioclase, K-feldspar, quartz, biotite, muscovite, chlorite schist and gneiss. Chlorite, muscovite and red hematite are strictly alteration products. Disseminated pyrite occurs throughout.

Unique DDH#: 14597 DDH#: AB-24A P295 File #: DH2951-372
Comments: Graphite sulfide phyllite, with minor siderite, and quartz pyrite veins. Local fold closures and strain slip cleavage. Some pyrite porphyroblastic.

Unique DDH#: 12776 DDH#: ML-54C P295 File #: DH2951-373
Comments: Keweenawan Rift sediment over mica quartz schist with brecciated pillow basalt over recrystallized siliceous marble (similar to in DRP-1 etc.). Mica schist is altered-weathered (clayey, kaolinitic?, hematitic). Lower part of unit with schist is brecciated basalt (pillowed) which may be the protolith of the schist. Schist and marble contact is laminated (from shearing?). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Rift sediment unconformity not as calcareous-dolomitic as some other cores.

Unique DDH#: 12270 DDH#: ML-45C P295 File #: DH2951-374
Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is somewhat altered-weathered (clayey, kaolinitic?, hematitic?). Schist becomes graphitic and sulfide bearing toward the contact with the marble. This includes minor covellite and chalcopyrite. This is the "most" copper bearing of any holes in this sequence so far. Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Schist locally brecciated(?). Rift sediment unconformity not as calcareous-dolomitic as some other cores. Phyllite (tectonic sliver?) in marble not as deformed schistose as the schist. Hairline veins with pyrite crystals more common than normal in the marble.

Unique DDH#: 12775 DDH#: ML-53C P295 File #: DH2951-375
Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is altered-weathered (clayey, kaolinitic?, hematitic?). Schist becomes graphitic toward the contact with the marble (some sulfides, including bornite). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Schist locally appears fragmental (brecciated?). Local quartz K-feldspar may be recrystallized felsic tuff(?). Schist marble contact area has some skarn-like veining-alteration. Rift sediment unconformity not as calcareous-dolomitic as some other cores. Minor disseminated sulfides along fractures in marble.

Unique DDH#: 12769 DDH#: ML-44C P295 File #: DH2951-376

Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is somewhat altered-weathered (clayey, kaolinitic?, hematitic?). Schist becomes graphitic toward the contact with the marble (some sulfides). Marble layers and skarn calc silicates near schist marble contact also. Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Schist locally appears fragmental (brecciated?). Local quartz K-feldspar may be recrystallized felsic tuff(?). Marble has disseminated sulfides along veinlets. Rift sediment unconformity not as calcareous-dolomitic as some other cores.

Unique DDH#: 12777 DDH#: ML-56C P295 File #: DH2951-377

Comments: Keweenawan Rift sediment over mica quartz schist over recrystallized siliceous marble (same as in DRP-1 etc.). Mica schist is somewhat altered-weathered (clayey, kaolinitic?, hematitic?). Schist becomes graphitic toward the contact with the marble (some sulfides). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Schist locally appears fragmental (brecciated?). Schist marble contact is sheared and brecciated, with numerous stylolites nearby. Marble has disseminated sulfides along veinlets, including minor bornite. Rift sediment unconformity not as calcareous-dolomitic as some other cores.

Unique DDH#: 12778 DDH#: MLCH-10 P295 File #: DH2951-378

Comments: Keweenawan Rift sediment over recrystallized siliceous marble (same as in DRP-1 etc.). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Rift sediment unconformity not as calcareous-dolomitic as some other cores. Insoluble accumulations or sediment fills in fractures in siliceous marble down to 303'. Some stylolites.

Unique DDH#: 12774 DDH#: ML-52C P295 File #: DH2951-379

Comments: Probably glacially reworked Keweenawan Rift fill and perhaps Cambrian sandstone over weathered schist(?) or schist cobble(?) at base. Strange.

Unique DDH#: 12780 DDH#: KRCH-1 P295 File #: DH2951-380

Comments: Chlorite garnet quartz carbonate amphibole biotite muscovite schist. This contains quartz rich layers-patches with coarse hornblende, minor carbonate and local plagioclase. These could be from variations in the protolithology such as carbonate content (iron carbonate concretions??), or perhaps veins or intrusives although these are very irregular. Other later (cross cutting) veins or segregations of quartz, chlorite, carbonate (and plagioclase?) also occur. Minor disseminated and vein associated pyrite-chalcopyrite occurs locally. Laminated nature of materials probably indicates a tuff or sediment protolith.

Unique DDH#: 12779 DDH#: MLCH-6 P295 File #: DH2951-381

Comments: Mica quartz schist (possibly? with brecciated pillow basalt) over recrystallized siliceous marble (similar to in DRP-1 etc.). Mica schist is variably hematitic. "Brecciated basalt (pillowed)" is well deformed so interpretation is problematical. Schist and marble contact is less gradational than usual (sheared?). Quartz "clasts" vary from pebble like to irregular (void filling? or breccia fragments). Probably tectonic. Unit locally very siliceous.

Unique DDH#: 12781 DDH#: D-1 P295 File #: DH2951-382

Comments: Chlorite garnet quartz carbonate amphibole biotite muscovite schist. This contains quartz rich layers-patches with coarse hornblende, minor carbonate and local plagioclase(?). These could be from variations in the protolithology such as carbonate content (iron carbonate concretions??), or perhaps veins or intrusives although these are very irregular. Other later (cross cutting) veins or segregations of quartz, biotite, chlorite, carbonate (and plagioclase?) also occur. Minor disseminated and vein associated pyrite occurs locally. Laminated nature of materials probably indicates a tuff or sediment protolith. Vague textural remnants of coarser clasts-fragmentals are locally preserved (260-270'?).

Unique DDH#: 12782 DDH#: D-2 P295 File #: DH2951-383

Comments: Chlorite garnet quartz carbonate amphibole biotite muscovite schist cut by a magnetic basalt dike (Keweenawan?). Schist contains quartz rich layers-patches with coarse hornblende, minor carbonate and local plagioclase(?). These could be from variations in the protolithology such as carbonate content (iron carbonate concretions??), or perhaps veins or intrusives although these are very irregular. Other later (cross cutting) veins or segregations of quartz, biotite, chlorite, carbonate (and plagioclase?) also occur. Minor shears-veins in basalt contain calcite and chlorite. Minor disseminated and vein associated pyrite occurs locally. Laminated nature of materials probably indicates a tuff or sediment protolith. Vague textural remnants of coarser clasts-fragmentals are locally preserved(?).

Unique DDH#: 10764 DDH#: 682 P295 File #: DH2951-384

Comments: Cuttings. Soft clayey phyllite (weathered?), with minor blebs of red hematite. Soft enough to be Cretaceous, but larger fragments look phyllitic.

Unique DDH#: 10765 DDH#: 686 P295 File #: DH2951-385

Comments: Cuttings. Soft clayey phyllite (weathered?), with minor blebs of red hematite, and minor greenish chert. Little more iron stained than previous hole (from sulfides??). Soft enough to be Cretaceous, but larger fragments look phyllitic.

Unique DDH#: 15513 DDH#: S-1-55 P295 File #: DH2951-386

Comments: Laminated hematite chert iron formation, with minor porphyroblastic magnetite. Minor hairline veins with red hematite. At least one slip surface (soft sediment??) with beds offset.

Unique DDH#: 15514 DDH#: S503 P295 File #: DH2951-387

Comments: Tuffaceous(?) sericitic phyllite which gets more hematitic before changing to goethite chert iron formation. Red hematitic portion has local limonitic alteration.

Unique DDH#: 15864 DDH#: S505 P295 File #: DH2951-388

Comments: Goethite chert iron formation. Goethite has fine vugs.

Unique DDH#: 15865 DDH#: S506 P295 File #: DH2951-389

Comments: Chert goethite hematite iron formation. Goethite associated with brecciation and carbonate veining.

Unique DDH#: 15866 DDH#: S507 P295 File #: DH2951-390

Comments: Chert goethite iron formation. Goethite is generally disseminated within chert. Local red hematite (alteration? or layers?).

Unique DDH#: 15867 DDH#: S509 P295 File #: DH2951-391

Comments: Chert goethite (and hematite toward base) iron formation with local brecciation and veining with carbonate magnetite alteration and veining.

Unique DDH#: 15868 DDH#: S511 P295 File #: DH2951-392

Comments: Chert grey hematite goethite iron formation. May contain iron silicates an/or Mn oxides(?). Chert contains brittle fractures-veins of oxides.

Unique DDH#: 15905 DDH#: S501 P295 File #: DH2951-393

Comments: Sericitic phyllite (tuffaceous?) that gets red hematitic with depth (and local veinlets with quartz and dark oxides (Mn?)).

Unique DDH#: 15906 DDH#: S502 P295 File #: DH2951-394

Comments: Recrystallized chert with local hematite (and goethite?) with vugs (alteration?).

Unique DDH#: 15976 DDH#: H2 P295 File #: DH2951-395

Comments: Chert goethite iron formation with local chert goethite hematite iron formation. Chert goethite locally brecciated near 70-80' (?). Crushed core below 135' had minimal recognizable rock fragments. Crushed core colors are 5R 4/2 (63-68'), 10R 3/6 (68-70, 72-80, 101-110, 130-135, 162-165'), 10R 4/4 (70-72'), 10R 3/4 (80-85, 140-145, 165-177'), 5R 4/4 (85-90, 110-115, 145-150'), 5R 3/6 (90-101'), 5R 3/4 (115-124'), 10R 4/6 (124-130'), 10R 5/2 (135-140'), 5R 5/2 (150-153'), 10R 4/2 (153-160') and 10R 3/2 (160-162').

Unique DDH#: 15977 DDH#: H3 P295 File #: DH2951-396

Comments: Chert goethite hematite iron formation. Minor local brecciation and veinlets with dark hematite or Mn oxides(?). Fragments in crushed core (cuttings?) indicate similar mineralogy, although material is more siliceous/aluminous and less iron rich above 95'. Crushed core colors are 10R 4/2 (66-70, 80-85, 155-160'), 5R 5/2 (70-75, 107-110'), 10R 5/2 (75-80, 160-165'), 10R 4/4 (85-90, 110-120, 145-150'),5R 5/4 (90-95'), 5R 3/6 (95-100, 120-135'), 5R 4/4 (100-107'), and 10R 3/4 (135-145, 150-155').

Unique DDH#: 15978 DDH#: H4 P295 File #: DH2951-397

Comments: Phyllite with local laminae-thin layers of goethite, chert, hematite, and limonite; over chert goethite limonite hematite iron formation. Oxides replace chert and phyllite locally. Crushed core colors are 10R 3/4 (55-60, 80-85, 131-135'), 5R 5/2 (60-65, 75-80, 85-90, 95-100, 120-125'), 5R 6/2 (65-75'), 10R 5/2 (90-95, 145-150'), 5R 3/4 (100-105, 115-120, 130-131'), 5R 3/6 (105-110'), 5R 2/4 (110-115, 125-130, 135-140'), and 10R 3/6 (140-145').

Unique DDH#: 15979 DDH#: H5 P295 File #: DH2951-398

Comments: Chert goethite hematite iron formation. Local brecciation-fragmentation. All crushed core appears to be fairly iron rich. Crushed core colors are 5R 2/4 (59-65, 85-88'), 5R 3/6 (65-70'), 5R 3/4 (70-80'), 5R 4/4 (80-85'), 10R 3/6 (88-90'), and 10R 4/4 (90-95').

Unique DDH#: 15980 DDH#: H6 P295 File #: DH2951-399

Comments: Chert goethite hematite limonite iron formation with minor phyllite. Local brecciation-fragmentation. Oxide alteration-remobilization is locally calcareous. Uppermost crushed core is less iron rich with some phyllite fragments. Crushed core colors are 5R 6/4 (53-60'), 10R 3/6 (60-65'), 5R 3/4 (65-70, 85-90, 100-110, 115-120'), 10R 4/2 (70-75'), 10R 4/4 (75-80'), 10R 3/4 (80-85, 120-125'), 5R 3/6 (90-100'), and 10R 2/4 (110-115').

Unique DDH#: 15981 DDH#: H12 P295 File #: DH2951-400

Comments: Sericitic phyllite, over the same with grey hematite predominating iron formation, over tuffaceous phyllite with chert (flattened pebbles or attenuated laminae) and goethite. Upper phyllite is kaolinitic(?). Tuffaceous component is intermediate to felsic(?). Only fragments in crushed core above 190'. Crushed core colors are 5R 7/2 (72-90'), 10R 2/4 (90-95, 120-125'), 5R 5/2 (95-100, 155-160, 165-175, 185-190'), 5R 4/2 (100-105'), 5R 3/4 (105-110, 125-130'), 5R 3/2 (110-115'), 10R 3/2 (115-120, 135-140, 150-155, 160-165'), 10R 3/4 (130-135, 140-145'), 10R 4/2 (145-150, 180-185, 190-195'), and 10R 5/2 (175-180'). Variability in crushed core iron content is at least partially due to phyllite and chert. Some Mn oxides and siliceous siltstone or fine sandstone may also be present.

Unique DDH#: 15982 DDH#: H15 P295 File #: DH2951-401

Comments: Phyllite becoming intermixed with chert grey hematite iron formation, with brecciation and quartz veins, which becomes more goethitic with depth. Siliceous siltstone or leached chert is the more prevalent diluter of iron oxides with depth (rather than phyllite). Minor carbonate associated with quartz and hematite alteration. Crushed core colors are 5R 7/2 (77-85, 100-105, 180-185'), 10R 6/2 (85-90'), 5R 6/2 (90-100, 105-110'), 5R 5/4 (110-120'), 5R 4/4 (120-125, 140-150'), 5R 5/2 (125-140, 167-170'), 5R 4/2 (150-155'), 10R 5/2 (155-165, 175-180, 190-195'), 5R 8/2 (170-175'), 10YR 5/2 (185-190'), 10R 4/2 (195-200'), and 5YR 6/2 (200-210'). Core only within 120-130'.

Unique DDH#: 15983 DDH#: H17 P295 File #: DH2951-402

Comments: Chert, hematite, goethite iron formation with local phyllite. Phyllite varies from being hematitic to somewhat graphitic (150-155'). Minor carbonate associated with quartz and oxide alteration. Brecciation variable, and may be locally mylonitic. Crushed core colors are 10R 3/2 (78-80, 90-92'), 5YR 3/4 (80-84'), 5R 4/4 (84-90'), 10R 3/4 (92-95, 100-102'), 10R 4/4 (95-100, 124-130'), 5R 3/4 (102-105'), 10R 4/2 (105-110, 120-124'), 10R 3/6 (110-120, 145-150'), 5R 5/2 (130-135'), 10R 4/6 (135-140'), 5R 4/2 (140-145'), and 5R 3/6 (150-155').

Unique DDH#: 15984 DDH#: H18 P295 File #: DH2951-403

Comments: Chert, hematite, goethite, limonite iron formation. Alteration may include carbonate, chlorite(?), and quartz along with oxide alteration. Brecciation variable, and may be locally mylonitic. Fractured quartz vein at 145.2'(?) contains a small bleb of native copper (unoxidized surface). Quartz-chert may be locally leached(?). Crushed core colors are 5R 4/4 (73-80, 95-100'), 10R 3/4 (80-85, 90-95, 100-105, 140-145, 150-155'), 5R 3/6 (85-90'), 10R 2/4 (105-115'), 5R 2/4 (115-125, 130-135), 5R 3/4 (125-130, 135-140') and 10R 4/2 (145-150').

Unique DDH#: 15985 DDH#: H19 P295 File #: DH2951-404

Comments: Argillitic chert goethite hematite iron formation. Chert is well fractured to pseudobrecciated with infilling goethite or red hematite. Crushed core colors are 5R 3/4 (60-75'), 10R 3/4 (75-81'), and 5YR 4/4 (81-90').

Unique DDH#: 15986 DDH#: H20 P295 File #: DH2951-405

Comments: Chert goethite hematite iron formation with local minor magnetite. Pyrite cubes are associated with hematitic portions within 75-82'. Crushed core colors are 10R 3/4 (71-75, 154-160'), 10R 3/6 (75-80, 140-145'), 5R 3/4 (82-85'), 10R 4/2 (85-90, 130-140, 150-154'), 10R 4/6 (90-95, 105-110'), 10R 5/2 (95-100, 115-130'), 10YR 7/2 (100-105'), 10R 5/4 (110-115'), and 5R 3/6 (145-150').

Unique DDH#: 15987 DDH#: H21 P295 File #: DH2951-406

Comments: Chert goethite hematite iron formation with local minor limonite over phyllite. Chert is well fractured to brecciated (locally mylonitic?). Phyllite is sericitic to clayey. Carbonate is also present with quartz and iron oxides as alteration. Quartz veins fragments within the crushed core of 70-75'. Crushed core colors are 5YR 3/4 (70-75, 97-100'), 5YR 5/4 (75-80, 91-95'), 10R 3/4 (80-91'), 10R 4/4 (100-105, 110-115, 120-138'), 5R 3/6 (105-110'), 5R 3/4 (115-120'), 10R 4/6 (138-140'), and 10R 5/2 (140-150').

Unique DDH#: 10150 DDH#: PS-2 P295 File #: DH2951-407

Comments: Carbonate, chlorite, quartz, biotite, muscovite phyllitic schist with minor local sulfide graphite chemical sediment in central portion. Contains local sulfide clasts also within 144-203'. Several intrusives cut schists. Previous analyses of the lower one (293-310') indicates an ultramafic (komatiitic) composition. Upper porphyritic one (203-207') may be of similar parentage or perhaps lamprophyric(?). Schist is probably mafic to intermediate volcanics and sediments. Fragmental textures locally visible, and perhaps some pillow rims(?).

Unique DDH#: 10187 DDH#: 56 P295 File #: DH2951-408

Comments: Graphite sulfide phyllite with sulfide veining (marcasite?). Crushed core colors are 5YR 3/4 (103-110'), 10R 3/2 (110-115'), 10YR 3/2 (115-120', N 2 (120-125'), and N 3 (125-130'). The interval 103-110' appears to be goethitic iron formation from crushed core (few fragments).

Unique DDH#: 10351 DDH#: 60 P295 File #: DH2951-409

Comments: The interval 96-99' or so is a quartz feldspar intrusive rock. Could be glacial boulder, but I don't think so. It is quartz plagioclase with a later quartz K-feldspar phase intruding. Core piece with graphite and a small vein with carbonate within intrusive may be out of place. Adjacent iron formation may be recrystallized. Small quartz (and kaolin? from feldspar alteration??) occurs at about 104'. Is intrusive a rare earth contributor(??). Hydrothermal(?) alteration of oxides decreases downward.

Unique DDH#: 10352 DDH#: 61 P295 File #: DH2951-410
Comments: Magnetite silicate carbonate(?) iron formation. Magnetite variably recrystallized as are greenish silicate blebs (some almost look epidotitic(?).

Unique DDH#: 10401 DDH#: 62 P295 File #: DH2951-411
Comments: Magnetite silicate carbonate(?) iron formation. Magnetite variably recrystallized as are greenish silicate blebs (some almost look epidotitic(?). Local white quartz and kaolin or carbonate veinlets.

Unique DDH#: 14513 DDH#: AB-22 P295 File #: DH2951-412
Comments: Very fine-grained to aphanitic greenish metabasalt. It is slightly schistose or phyllitic. Has minor brittle fractures veins with minor quartz, carbonate, pyrite, magnetite(?), grey hematite(?) and iron staining. Local thin mylonitic zones (1 cm) with adjacent rock relatively undeformed.

Unique DDH#: 14514 DDH#: AB-23A P295 File #: DH2951-413
Comments: Red hematite, sericite, quartz mylonitic schist. Most of rock is reddish, with local limonitic alteration. Rock is locally very clayey and locally brecciated. Local quartz veins are fractured to brecciated. Original rock type is problematic.

Unique DDH#: 16271 DDH#: S1020 P295 File #: DH2951-414
Comments: Little core. Chert goethite iron formation with much quartz veining and brecciation(?). Original bedding destroyed by tectonism or hydrothermal activity.

Unique DDH#: 16272 DDH#: S1021 P295 File #: DH2951-415
Comments: Folded to brecciated carbonate silicate magnetite iron formation with local veins with goethite , quartz, grey hematite(?), carbonate(?), and pyrite.

Unique DDH#: 16273 DDH#: S1022 P295 File #: DH2951-416
Comments: Chert goethite grey hematite magnetite iron formation. Minor grey hematite towards top and magnetite toward base (both late replacement). Minor structures and quartz veinlets locally.

Unique DDH#: 16274 DDH#: S1023 P295 File #: DH2951-417
Comments: Chert oxide iron formation with magnetite predominating over other oxides (fairly magnetic). Contains folds and scattered shears with slickensides and minor brecciation.

Unique DDH#: 16275 DDH#: S1024 P295 File #: DH2951-418
Comments: Chert oxide iron formation with goethite predominating over other oxides (locally somewhat magnetic). Contains folds and scattered shears with slickensides. Local quartz veins may be internally brecciated.

Unique DDH#: 16276 DDH#: S1025 P295 File #: DH2951-419
Comments: Chert oxide iron formation with grey hematite predominating over minor red hematite alteration(?). Rock is essentially nonmagnetic.

Unique DDH#: 16277 DDH#: S1026 P295 File #: DH2951-420
Comments: Fractured to brecciated chert and goethite iron formation with quartz veining. More goethitic-less cherty toward base.

Unique DDH#: 16278 DDH#: S1027 P295 File #: DH2951-421
Comments: Chert oxide iron formation with goethite predominating over other oxides (locally somewhat magnetic). Contains scattered shears and brecciation.

Unique DDH#: 16279 DDH#: S1028 P295 File #: DH2951-422
Comments: Predominantly oxide chert, variably argillitic iron formation over phyllitic-schistose siltstone. Rock is primarily goethite with lesser hematite and magnetite(?). Rock is calcareous locally, with local shears, folds, brecciation and veinlets. Basal siltstone rock appears to be clastic, but may also contain dolomite.

Unique DDH#: 16280 DDH#: S1030 P295 File #: DH2951-423
Comments: Argillitic chert oxide iron formation. Oxides vary from goethitic-limonitic to magnetitic-hematitic. Local shears, folds, brecciation and carbonate veinlets. Mn(?) oxides may be hydrothermally replacing the rock locally below 63'.

Unique DDH#: 16281 DDH#: S1031 P295 File #: DH2951-424
Comments: Predominantly chert grey hematite iron formation with minor calcite quartz veins.

Unique DDH#: 16282 DDH#: S1032 P295 File #: DH2951-425
Comments: Carbonate silicate magnetite iron formation with chert (sheared?) at the top and local alteration-oxidation to other iron oxides.

Unique DDH#: 10400 DDH#: S213 P295 File #: DH2951-426
Comments: Very little remaining core. Contains local vugs with drusy quartz.

Unique DDH#: 16114 DDH#: E1001 P295 File #: DH2951-427
Comments: Only crushed core/cuttings samples. Oxide iron formation with relatively little chert. Few fragments in cuttings/crushed core. All samples appear relatively iron rich, with goethite and hematite predominating and minor magnetite. Descriptions are problematic due to sample quality. Crushed core colors are 10R 3/4 (3-20, 25-40, 50-65, 70-75'), 5YR 2/4 (20-25'), 5YR 4/6 (40-45'), 10R 4/4 (45-50'), 10R 3/6 (65-70'), and 10R 2/4 (75-80').

Unique DDH#: 16115 DDH#: E1002 P295 File #: DH2951-428
Comments: Only crushed core/cuttings samples. Relatively iron rich oxide chert iron formation with some phyllite and vein quartz. Upper portion of samples are more goethitic, while the lower portion is more hematitic. Magnetite is scattered. Phyllite may be more prevalent higher up, with vein quartz lower down. Descriptions are problematic due to sample quality. Crushed core colors are 5YR 3/4 (62-70', 80-85, 95-105, 130-140, 150-155'), 10R 4/2 (70-75, 85-90'), 5YR 4/4 (75-80, 90-95'), 10R 3/2 (105-115, 170-175'), 5YR 3/2 (115-120'), 5YR 2/4 (120-130'), 5YR 4/6 (140-145'), 10R 3/4 (145-150, 155-160, 180-190, 195-200'), 5R 3/4 (160-170, 175-180'), and 10R 4/4 (190-195').

Unique DDH#: 16116 DDH#: E1003 P295 File #: DH2951-429
Comments: Only crushed core/cuttings. Samples are generally iron rich oxide iron formation. Upper portion is more magnetite, grey hematite and goethite (with chert?); with the lower portion with less goethite and more hematite. Descriptions are problematic due to sample quality. Crushed core colors are 10R 3/4 (6-15, 130-140, 155-160, 170-180'), 5YR 3/4 (15-40, 45-65, 70-80, 85-95, 115-130, 160-165'), 5YR 2/4 (40-45, 65-70, 80-85, 95-100, 105-110, 165-170'), 5YR 3/2 (100-105, 110-115'), 10R 3/6 (140-145'), 10R 3/2 (145-150'), and 10R 5/6 (150-155').

Unique DDH#: 16113 DDH#: E1000 P295 File #: DH2951-430
Comments: Oxide iron formation with minor chert (predominantly goethite hematite with minor magnetite). Recognizable rock fragments are generally toward the base. Upper thirty feet shows color variation probably due to weathering, with 62-70 and 80-85' being limonitic; 70-80' is hematitic, and 85-90' is a purplish hematite. The interval 95-100' contains quartz vein fragments, some with slickensides. Descriptions are problematic due to the quality of the samples. Crushed core colors are 5YR 4/4 (62-70'), 10R 3/6 (70-75'), 10R 3/4 (75-80, 90-95, 100-105, 155-160'), 5YR 4/6 (80-85'), 5RP 3/2 (85-90'), 10R 4/4 (95-100'), 10R 3/2 (105-110'), 5YR 3/6 (110-150'), and 10R 2/4 (150-155').

Unique DDH#: 16117 DDH#: E1004 P295 File #: DH2951-431
Comments: Only crushed core/cuttings. Oxide chert iron formation (generally iron rich). Predominantly hematite and goethite with minor magnetite. Quartz vein fragments noticeable within 68-75'. Descriptions are problematic due to sample quality. Crushed core colors are 5YR 3/4 (68-75'), 5YR 2/4 (75-85'), 5YR 4/4 (85-95, 110-115'), 10R 3/4 (95-110, 115-150'), and 10R 2/4 (150-155').

Unique DDH#: 16585 DDH#: S256 P295 File #: DH2951-432
Comments: Core only in central portion, but recognizable fragments indicate continuation into areas with crushed core. Chert carbonate silicate goethite hematite iron formation. Unit is disrupted, leached, brecciated with irregular textures. Carbonate is fairly abundant. Rock probably results from hydrothermal activity with little indication of the protolith. Crushed core colors are 10R 5/6 (54-60, 90-95'), 10R 5/4 (60-70'), 10R 6/4 (70-75'), 10R 4/6 (75-80'), 10R 4/4 (80-85, 95-100, 155-163'), 10R 5/2 (85-90, 130-135, 144-150'), 5YR 5/4 (100-105, 140-144, 150-155'), 10R 3/6 (105-107'), 5YR 3/6 (107-110, 120-130'), 5YR 3/4 (110-120'), and 5YR 6/2 (135-140'). Material should be extensively sampled. Oxidized pyrite cubes within 80-85'.

Unique DDH#: 16586 DDH#: S257 P295 File #: DH2951-433
Comments: Laminated magnetite, sericitic phyllitic schist, and schistose greywacke (tuffaceous?). Interesting.

Unique DDH#: 16587 DDH#: S258 P295 File #: DH2951-434
Comments: Chert grey hematite goethite iron formation with a trace of carbonate. Chert contains some vugs and leaching. Fe oxides may be replacing chert locally. "Chert" may be silicified clastic rock, with oxides being clasts (see Unique 16588). Recrystallization makes identification difficult.

Unique DDH#: 16588 DDH#: S260 P295 File #: DH2951-435
Comments: Quartz sericite goethite red hematite schist over chert goethite hematite iron formation or silicified greywacke with oxide clasts (hematite-goethite). Larger oxide clasts are present near the base. Siliceous grains are locally observable in the "chert". Uppermost schist may be mylonitic or tuffaceous.

Unique DDH#: 16589 DDH#: S261 P295 File #: DH2951-436
Comments: Little core remains. Chert goethite hematite iron formation or silicified greywacke with oxide clasts (hematite-goethite). Siliceous grains are locally observable in the "chert". Recrystallization makes quartz relationships difficult to determine.

Unique DDH#: 16590 DDH#: S263 P295 File #: DH2951-437
Comments: Chert goethite hematite iron formation or silicified greywacke with oxide clasts (hematite-goethite). Siliceous grains are locally observable in the "chert". Recrystallization makes quartz relationships difficult to determine. Later limonitic-goethitic alteration also occurs.

Unique DDH#: 16591 DDH#: S266 P295 File #: DH2951-438
Comments: Carbonate biotite quartz plagioclase goethite schist. Probably igneous and be tuffaceous. Contains local deformed plagioclase(?) phenocrysts(?).

Unique DDH#: 16634 DDH#: S327 P295 File #: DH2951-439
Comments: Carbonate, silicate, magnetite iron formation with minor chert and sulfide chemical sediment. Predominantly iron silicates. Most pyrite is associated with cross-cutting veins-shears, as is carbonate and hematite. Unit gets vuggy toward base. Local minor clay - epidote alteration.

Unique DDH#: 16635 DDH#: S328 P295 File #: DH2951-440
Comments: Oxide chert iron formation. Oxide is predominantly goethite and grey hematite. Unit with much brecciation and replacement of chert by oxides. Brecciation may be from collapse (karst), hydrothermal alteration, or tectonism.

Unique DDH#: 16641 DDH#: S331 P295 File #: DH2951-441
Comments: Oxide "chert" iron formation. Oxide is predominantly goethite and grey hematite. Unit with replacement of "chert" by oxides. Chert may be silicified quartz clastic rock (greywacke or arenite??).

Unique DDH#: 16643 DDH#: S332 P295 File #: DH2951-442
Comments: Oxide "chert" iron formation. Oxide is predominantly goethite and grey hematite. Unit with replacement of "chert" by oxides. Chert may be silicified quartz clastic rock (greywacke or arenite??).

Unique DDH#: 16645 DDH#: S333 P295 File #: DH2951-443
Comments: Oxide chert iron formation. Oxide is predominantly goethite. Contains very little chert. Local brecciation may be tectonic or related to alteration or solution collapse.

Unique DDH#: 16647 DDH#: S334 P295 File #: DH2951-444
Comments: Oxide chert silicate(?) iron formation. Oxide is predominantly goethite with lesser grey hematite and magnetite. Contains relatively little chert. Dark color makes iron silicates difficult to discern, but density indicates rock is not that oxide rich locally.

Unique DDH#: 15648 DDH#: E1006 P295 File #: DH2951-445
Comments: Only crushed core samples. Oxide chert iron formation, with all samples relatively iron rich although there are some density differences. Oxides appear to be largely goethite and grey hematite with minor magnetite. Crushed core colors are 10R 3/4 (2-20, 25-30, 50-55, 145-150, 165-175, 185-190, 195-200'), 5R 3/4 (20-25'), 10R 3/6 (30-50, 55-90, 105-120, 125-145, 150-160, 175-180'), 10R 4/4 (90-105, 120-125'), 5YR 3/4 (160-165'), 10R 3/2 (180-185') and 5YR 4/4 (190-195').

Unique DDH#: 15644 DDH#: E1005 P295 File #: DH2951-446
Comments: Only crushed core samples. Oxide chert iron formation with predominantly goethite grey hematite. There is some density variation however (could be related to size of crushing(?). Crushed core colors are 5YR 3/4 (3-10, 30-40, 55-60, 65-70, 85-95, 115-120'), 5YR 4/2 (10-20'), 5YR 4/4 (20-30, 100-105, 110-115'), 5YR 3/6 (45-55'), 5YR 2/4 (60-65, 70-85'), 10R 3/2 (135-145'), and 10R 3/4 (145-150').

Unique DDH#: 16621 DDH#: S313 P295 File #: DH2951-447
Comments: Goethite chert iron formation. No bedding with either brecciation or thorough replacement (by goethite) and solution collapse of chert.

Unique DDH#: 16622 DDH#: S315 P295 File #: DH2951-448
Comments: Carbonate silicate magnetite sulfide iron formation. Local melanterite alteration of sulfides. Local goethite and grey hematite of magnetite locally. Contains just a trace of chert. Compared with other iron formations of this type, the carbonate component predominates.

Unique DDH#: 16623 DDH#: S316 P295 File #: DH2951-449
Comments: Chert goethite hematite iron formation. Local disruption or hydrothermal brecciation as oxides replace chert. Locally has carbonate and is vuggy.

Unique DDH#: 16624 DDH#: S317 P295 File #: DH2951-450
Comments: Core may be partially scrambled with unique 16625. Goethite chert hematite iron formation over carbonate silicate magnetite iron formation with hematitic or goethitic intervals (alteration??). Upper goethitic portion may be from weathering. Local epidote, chlorite or light green amphibole alteration, usually associated with local fragmentation.

Unique DDH#: 16625 DDH#: S318 P295 File #: DH2951-451
Comments: Core may be partially scrambled with unique 16624. Locally brecciated (with goethite alteration) chert hematite magnetite iron formation over goethite limonite chert iron formation over magnetite silicate carbonate iron formation with pyrite veinlets. Pyrite veinlets also contain iron carbonate, quartz and grey hematite or magnetite.

Unique DDH#: 16702 DDH#: S368 P295 File #: DH2951-452
Comments: Chert goethite hematite iron formation. Oxides with calcite replace the chert (good textural relationships). Small hematitic interval may be argillitic. "Chert" within 120-125' may be a silicified tuff. Appears to contain some sericite. Recrystallization makes identity uncertain.

Unique DDH#: 16703 DDH#: S369 P295 File #: DH2951-453
Comments: Magnetite chert iron formation over goethite chert iron formation. Goethite replacing magnetite(?).

Unique DDH#: 16706 DDH#: S370 P295 File #: DH2951-454
Comments: Believed to be predominantly silicate iron formation that is altered and cut by veins. Local accumulations (vein associated or more primary??) with grey hematite, graphite and Mn oxides. This includes an extremely brecciated quartz vein or chert bed within 170-175'. Core is topped by a goethitic unit (due to surficial weathering). Definitely analyze.

Unique DDH#: 16707 DDH#: S371 P295 File #: DH2951-455
Comments: Laminated magnetite chert iron formation with alternating alteration to goethite or hematite. Rock is calcareous, but whether this is related to alteration, or is more primary is uncertain.

Unique DDH#: 16708 DDH#: S372 P295 File #: DH2951-456
Comments: Chert hematite goethite iron formation, with oxides replacing fragmental chert. Local limonitic altered more argillaceous portions.

Unique DDH#: 16709 DDH#: S374 P295 File #: DH2951-457
Comments: Chert goethite iron formation with minor carbonate veinlets.

Unique DDH#: 16343 DDH#: S1000 P295 File #: DH2951-458
Comments: Carbonate silicate magnetite iron formation with scattered veinlets with quartz carbonate goethite and grey hematite or magnetite.

Unique DDH#: 16344 DDH#: S1001 P295 File #: DH2951-459
Comments: Laminated chert magnetite iron formation with local brecciation of chert. Minor alteration to hematite occurs locally.

Unique DDH#: 16346 DDH#: S1002 P295 File #: DH2951-460
Comments: Laminated chert magnetite iron formation with local brecciation of chert. Alteration to goethite and hematite occurs locally, especially near the top. More goethitic portions often have secondary magnetite developed.

Unique DDH#: 16348 DDH#: S1003 P295 File #: DH2951-461
Comments: Goethite chert over laminated chert magnetite iron formation with local brecciation of chert. Alteration to goethite and hematite occurs locally to magnetite. Upper goethitic portion is probably from surficial weathering. More goethitic portions often have secondary magnetite developed.

Unique DDH#: 16350 DDH#: S1004 P295 File #: DH2951-462
Comments: Chert silicate carbonate magnetite iron formation. Chert is folded and brecciated (mylonitic?). Unit contains little magnetite.

Unique DDH#: 16351 DDH#: S1005 P295 File #: DH2951-463
Comments: Chert with goethitic and hematitic alteration.

Unique DDH#: 15653 DDH#: S1007 P295 File #: DH2951-464
Comments: Chert goethite hematite magnetite iron formation. Relatively little magnetite left. Generally more hematitic and less goethitic downhole.

Unique DDH#: 15656 DDH#: S1008 P295 File #: DH2951-465
Comments: Goethite chert iron formation over red hematitic phyllitic iron formation over chert. Vugs in goethite occasionally have kaolin. Hematitic phyllite presumed fault related.

Unique DDH#: 15659 DDH#: S1009 P295 File #: DH2951-466
Comments: Chert goethite limonite iron formation with vugs. Looks hydrothermally(?) altered.

Unique DDH#: 16357 DDH#: S1011 P295 File #: DH2951-467
Comments: Chert magnetite iron formation with variable goethitic alteration. Locally argillitic and mylonitic(?).

Unique DDH#: 15669 DDH#: S1013 P295 File #: DH2951-468
Comments: Chert magnetite iron formation with brecciation and large (several feet) quartz veins with associated goethite alteration. Veins have minor vugs with grey hematite crystals.

Unique DDH#: 15673 DDH#: S1014 P295 File #: DH2951-469
Comments: Carbonate silicate sulfide magnetite iron formation. Locally deformed to brecciated. Minor quartz veining or recrystallized chert. Definitely sample.

Unique DDH#: 16359 DDH#: S1012 P295 File #: DH2951-470
Comments: Goethite iron formation over phyllitic hematite goethite (mylonitic) and chert. Latter part may also have silicate iron formation. Little core remains.

Unique DDH#: 16361 DDH#: S1015 P295 File #: DH2951-471
Comments: Chert goethite iron formation with local brecciation.

Unique DDH#: 16363 DDH#: S1016 P295 File #: DH2951-472
Comments: Laminated chert magnetite iron formation over goethitic iron formation. Magnetite portion locally altered to grey hematite. Goethite has carbonate veinlets.

Unique DDH#: 16365 DDH#: S1017 P295 File #: DH2951-473
Comments: Chert goethite iron formation with brecciation, vugs, and carbonate. Quartz veinlets have scattered pyrite cubes.

Unique DDH#: 16368 DDH#: S1019 P295 File #: DH2951-474
Comments: Chert brecciated and replaced by goethite, limonite and lesser hematite. Nor core in central portion.

Unique DDH#: 14499 DDH#: AB-25 P295 File #: DH2951-475
Comments: Grey, slightly graphitic phyllite. No sulfides except for disseminated chalcopyrite (trace). Small fault zone with brecciation and gouge.

Unique DDH#: 14498 DDH#: AB-8 P295 File #: DH2951-476
Comments: Chloritic sericitic phyllitic schist with local quartz veins (some brecciated during the continuing deformation?). Flattened clasts (volcaniclasts?) occur locally. Local smeared out pyrite may have been primary.

Unique DDH#: 14504 DDH#: AB-2 P295 File #: DH2951-477
Comments: Black-dark grey graphitic sulfide phyllite (schist?). Some pyrite is stratiform, while other pyrite is more secondary (remobilized?). Some pyrite is very pale colored.

Unique DDH#: 16404 DDH#: S1036 P295 File #: DH2951-478
Comments: Relatively massive magnetite and grey hematite(?) iron formation. Minor thin veinlets with quartz or calcite. Some of this quartz could be thin recrystallized chert laminae.

Unique DDH#: 16406 DDH#: S1037 P295 File #: DH2951-479
Comments: Chert goethite iron formation (brecciated or pseudobrecciated); over limonitic iron formation; over goethite(?) silicate iron formation with Mn oxides(?), and a trace of malachite along fractures; over vuggy goethitic iron formation; over siliceous fine sandstone or siltstone undergoing replacement by goethite. Definitely sample.

Unique DDH#: 16408 DDH#: S1038 P295 File #: DH2951-480
Comments: Carbonate chert silicate magnetite iron formation. Perhaps slightly higher metamorphic grade than normal, with needles of several varieties of amphibole and abundant porphyroblastic (secondary) magnetite. Good strain slip cleavage present locally. Local shearing.

Unique DDH#: 16410 DDH#: S1039 P295 File #: DH2951-481
Comments: Carbonate silicate magnetite iron formation. Perhaps slightly higher metamorphic grade than normal, with needles of several varieties of amphibole. Porphyroblastic (secondary) magnetite is lacking is not as ubiquitous as in unique 16408. Local shearing.

Unique DDH#: 16417 DDH#: S1041 P295 File #: DH2951-482
Comments: Little core remaining. Goethitic silicate iron formation probably derived from carbonate silicate magnetite(?) iron formation.

Unique DDH#: 16418 DDH#: S1042 P295 File #: DH2951-483
Comments: Little core remaining. Carbonate silicate iron formation. Shear at 206' contain actinolite(?), pyrite, and goethitic alteration (with carbonate).

Unique DDH#: 16419 DDH#: S1043 P295 File #: DH2951-484
Comments: Chert hematite iron formation with local brecciation and Mn oxide(?) veining. Some "chert" is probably clastic siliceous sediment.

Unique DDH#: 16109 DDH#: S1044 P295 File #: DH2951-485
Comments: Chert hematite magnetite silicate iron formation with local brecciation and flattening of fragments. Some "chert" is probably clastic siliceous sediment.

Appendix 295-H: Analytical Sample List

Appendix 295-H: Analytical Sample List

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000006	RD2951-004					X		46	29	2	SE-NE-SW
2951000010	RD2951-005					X		46	29	3	NE-NE-SW
2951000015	RD2951-005					X		46	29	3	NE-NE-SW
2951000016	RD2951-006					X		46	29	17	NW-SW-SW
2951000018	RD2951-006					X		46	29	17	NW-SW-SW
2951000021	RD2951-006					X		46	29	17	NW-SW-SW
2951000031	OTC2951-010					X		46	25	10	SE-SW-NW
2951000035	GP2951-012					X		47	25	34	SE-NE-SW
2951000037	RD2951-013					X		41	31	20	NE-SE-SE
2951000039	OTC2951-014					X		41	31	36	NW-SW-SW
2951000041	RD2951-015					X		46	29	9	SW-SW-SW
2951000043	RD2951-015					X		46	29	9	SW-SW-SW
2951000045	RD2951-015					X		46	29	9	SW-SW-SW
2951000047	RD2951-016					X		46	29	9	NW-SW-SW
2951000049	RD2951-016					X		46	29	9	NW-SW-SW
2951000053	RD2951-016					X		46	29	9	NW-SW-SW
2951000054	RD2951-017					X		46	29	9	NW-NE-SE
2951000058	RD2951-017					X		46	29	9	NW-NE-SE
2951000059	RD2951-017					X		46	29	9	NW-NE-SE
2951000060	RD2951-018					X		46	29	9	NW-NE-SE
2951000062	RD2951-019					X		46	29	9	NW-SE-NE
2951000065	RD2951-019					X		46	29	9	NW-SE-NE
2951000066	RD2951-020					X		46	29	9	NW-NE-SW
2951000068	RD2951-020					X		46	29	9	NW-NE-SW
2951000070	RD2951-020					X		46	29	9	NW-NE-SW
2951000071	RD2951-021					X		46	29	9	SW-NW-NE
2951000073	RD2951-021					X		46	29	9	SW-NW-NE
2951000075	RD2951-022					X		46	29	3	SE-NW-SW
2951000077	RD2951-022					X		46	29	3	SE-NW-SW
2951000079	RD2951-022					X		46	29	3	SE-NW-SW
2951000080	RD2951-022					X		46	29	3	SE-NW-SW
2951000081	RD2951-022					X		46	29	3	SE-NW-SW
2951000082	OTC2951-023					X		46	29	4	N 1/2
2951000086	OTC2951-023					X		46	29	4	N 1/2
2951000088	OTC2951-024					X		46	29	4	N 1/2
2951000090	OTC2951-025					X		46	29	4	N 1/2
2951000092	OTC2951-026					X		46	29	10	W 1/2
2951000094	OTC2951-027					X		46	29	10	W 1/2
2951000096	OTC2951-028					X		46	29	6	N 1/2-SE
2951000098	OTC2951-029					X		46	29	6	N 1/2-SE
2951000100	OTC2951-030					X		46	29	6	N 1/2-SE
2951000102	OTC2951-031					X		46	29	9	NE-SE
2951000104	OTC2951-032					X		46	29	9	E 1/2-NE
2951000106	OTC2951-033					X		46	29	9	PARTN1/2
2951000108	OTC2951-034					X		46	29	9	PARTN1/2
2951000110	DH2951-035	306	15464	44.0	50.0	X		46	29	9	LOT 1

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000112	DH2951-036	307	15465	55.0	65.0	X		46	29	9	LOT 1
2951000115	DH2951-038	309	15467	58.0	60.0	X		46	29	4	LOT 10
2951000118	DH2951-036	307	15465	48.0	55.0		X	46	29	9	LOT 1
2951000120	DH2951-037	308	15466	49.0	55.0		X	46	29	9	LOT 1
2951000121	DH2951-038	309	15467	58.0	60.0		X	46	29	4	LOT 10
2951000122	DH2951-039	310	15468	45.0	50.0		X	46	29	9	LOT 1
2951000123	DH2951-039	310	15468	58.0	65.0	X		46	29	9	LOT 1
2951000124	DH2951-039	310	15468	65.0	70.0	X		46	29	9	LOT 1
2951000126	DH2951-039	310	15468	70.0	75.0	X		46	29	9	LOT 1
2951000128	DH2951-039	310	15468	75.0	80.0	X		46	29	9	LOT 1
2951000130	DH2951-039	310	15468	80.0	85.0	X		46	29	9	LOT 1
2951000132	DH2951-039	310	15468	85.0	90.0	X		46	29	9	LOT 1
2951000134	DH2951-039	310	15468	90.0	95.0	X		46	29	9	LOT 1
2951000136	DH2951-039	310	15468	95.0	100.0		X	46	29	9	LOT 1
2951000138	DH2951-039	310	15468	100.0	105.0		X	46	29	9	LOT 1
2951000140	DH2951-039	310	15468	105.0	110.0		X	46	29	9	LOT 1
2951000141	DH2951-039	310	15468	110.0	115.0	X		46	29	9	LOT 1
2951000142	DH2951-039	310	15468	115.0	120.0	X		46	29	9	LOT 1
2951000144	DH2951-039	310	15468	120.0	125.0	X		46	29	9	LOT 1
2951000146	DH2951-039	310	15468	125.0	130.0		X	46	29	9	LOT 1
2951000147	DH2951-039	310	15468	130.0	135.0	X		46	29	9	LOT 1
2951000149	DH2951-039	310	15468	135.0	140.0	X		46	29	9	LOT 1
2951000151	DH2951-039	310	15468	140.0	145.0	X		46	29	9	LOT 1
2951000153	DH2951-039	310	15468	145.0	150.0	X		46	29	9	LOT 1
2951000155	DH2951-039	310	15468	150.0	155.0	X		46	29	9	LOT 1
2951000157	DH2951-039	310	15468	155.0	160.0		X	46	29	9	LOT 1
2951000159	DH2951-039	310	15468	160.0	165.0		X	46	29	9	LOT 1
2951000161	DH2951-039	310	15468	165.0	170.0	X		46	29	9	LOT 1
2951000163	DH2951-039	310	15468	170.0	175.0		X	46	29	9	LOT 1
2951000165	DH2951-039	310	15468	175.0	180.0		X	46	29	9	LOT 1
2951000167	DH2951-039	310	15468	180.0	185.0	X		46	29	9	LOT 1
2951000171	DH2951-040	18135	10753	245.0	255.0	X		45	28	17	NW-NE
2951000177	DH2951-041	18138	10754	270.0	290.0	X		45	28	17	NW-NE
2951000178	DH2951-041	18138	10754	300.0	310.0	X		45	28	17	NW-NE
2951000179	DH2951-041	18138	10754	330.0	345.0	X		45	28	17	NW-NE
2951000185	DH2951-042	18144	10755	250.0	260.0	X		45	28	17	NW-NE
2951000186	DH2951-042	18144	10755	290.0	300.0	X		45	28	17	NW-NE
2951000188	DH2951-043	S118	15469	114.0	124.0	X		47	29	33	NE-SW
2951000194	DH2951-044	S124	15470	120.0	125.0		X	47	29	33	NE-SW
2951000195	DH2951-044	S124	15470	125.0	130.0		X	47	29	33	NE-SW
2951000196	DH2951-044	S124	15470	130.0	135.0		X	47	29	33	NE-SW
2951000197	DH2951-044	S124	15470	135.0	140.0		X	47	29	33	NE-SW
2951000198	DH2951-044	S124	15470	155.0	160.0		X	47	29	33	NE-SW
2951000199	DH2951-044	S124	15470	170.0	175.0	X		47	29	33	NE-SW
2951000200	DH2951-044	S124	15470	175.0	180.0		X	47	29	33	NE-SW
2951000203	DH2951-044	S124	15470	227.0	237.0	X		47	29	33	NE-SW

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000204	DH2951-044	S124	15470	245.0	255.0	X		47	29	33	NE-SW
2951000205	DH2951-049	306	10963	49.0	54.0	X		46	29	9	SE-SW
2951000208	DH2951-045	S126	15471	90.0	95.0		X	47	29	33	SE-SW
2951000209	DH2951-045	S126	15471	95.0	100.0		X	47	29	33	SE-SW
2951000210	DH2951-045	S126	15471	100.0	105.0		X	47	29	33	SE-SW
2951000211	DH2951-045	S126	15471	105.0	110.0		X	47	29	33	SE-SW
2951000212	DH2951-045	S126	15471	110.0	115.0		X	47	29	33	SE-SW
2951000213	DH2951-045	S126	15471	115.0	120.0	X		47	29	33	SE-SW
2951000214	DH2951-045	S126	15471	120.0	125.0		X	47	29	33	SE-SW
2951000215	DH2951-045	S126	15471	125.0	130.0		X	47	29	33	SE-SW
2951000216	DH2951-045	S126	15471	130.0	135.0	X		47	29	33	SE-SW
2951000218STD	STANDARD	CANMET MA2-A				X					
2951000219STD	STANDARD	DNR GREENSTONE				X					
2951000220STD	STANDARD	CANMET FER3				X					
2951000221STD	STANDARD	DNR GREENSTONE				X					
2951000222STD	STANDARD	CANMET FER1				X					
2951000223STD	STANDARD	GREENSTONE				X					
2951000224STD	STANDARD	CANMET FER-2				X					
2951000225STD	STANDARD	GREENSTONE				X					
2951000226STD	STANDARD	CANMET FER3					X				
2951000227STD	STANDARD	DNR GREENSTONE					X				
2951000228	DH2951-050	18145	10756	345.0	350.0	X		45	28	17	NW-NE
2951000230	DH2951-046	S1042	15472	175.0	186.0		x	46	29	10	SW-NW
2951000231	DH2951-046	S1042	15472	255.0	260.0		x	46	29	10	SW-NW
2951000232	DH2951-046	S1042	15472	310.0	315.0	x		46	29	10	SW-NW
2951000233	DH2951-046	S1042	15472	325.0	330.0		x	46	29	10	SW-NW
2951000234	DH2951-046	S1042	15472	345.0	350.0		x	46	29	10	SW-NW
2951000235	DH2951-047	S1043	15473	25.0	30.0		x	46	29	10	SW-NW
2951000236	DH2951-047	S1043	15473	95.0	100.0		X	46	29	10	SW-NW
2951000237	DH2951-048	S1044	15474	10.0	15.0	X		46	29	10	SE-NW
2951000247	DH2951-051	18226	10761	200.0	225.0		X	45	28	19	NE-NW
2951000248	DH2951-051	18226	10761	230.0	235.0	X		45	28	19	NE-NW
2951000249	DH2951-051	18226	10761	275.0	290.0	X		45	28	19	NE-NW
2951000250	DH2951-051	18226	10761	290.0	295.0	X		45	28	19	NE-NW
2951000251	DH2951-062	S1	15475	62.0	65.0		X	46	29	5	
2951000252	DH2951-062	S1	15475	65.0	70.0		X	46	29	5	
2951000253	DH2951-062	S1	15475	70.0	75.0		X	46	29	5	
2951000254	DH2951-062	S1	15475	75.0	80.0		X	46	29	5	
2951000255	DH2951-062	S1	15475	80.0	85.0		X	46	29	5	
2951000256	DH2951-062	S1	15475	85.0	90.0		X	46	29	5	
2951000257	DH2951-062	S1	15475	90.0	95.0		X	46	29	5	
2951000258	DH2951-062	S1	15475	95.0	100.0		X	46	29	5	
2951000259	DH2951-062	S1	15475	100.0	105.0	X		46	29	5	
2951000260	DH2951-063	S8	15476	56.0	60.0		X	46	29	5	
2951000261	DH2951-063	S8	15476	60.0	65.0		X	46	29	5	
2951000262	DH2951-063	S8	15476	65.0	70.0		X	46	29	5	

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000263	DH2951-063	S8	15476	70.0	75.0		X	46	29	5	
2951000264	DH2951-063	S8	15476	75.0	80.0		X	46	29	5	
2951000265	DH2951-063	S8	15476	80.0	85.0	X		46	29	5	
2951000269	DH2951-059	18221	10759	247.0	259.0	X		45	28	17	NW-NE
2951000270	DH2951-059	18221	10759	280.0	285.0	X		45	28	17	NW-NE
2951000290	DH2951-052	18132	10752	177.0	186.0		X	45	28	17	NW-NE
2951000291	DH2951-052	18132	10752	186.0	199.5		X	45	28	17	NW-NE
2951000292	DH2951-052	18132	10752	199.5	220.0		X	45	28	17	NW-NE
2951000293	DH2951-052	18132	10752	220.0	255.0	X		45	28	17	NW-NE
2951000294	DH2951-052	18132	10752	255.0	270.0	X		45	28	17	NW-NE
2951000295	DH2951-052	18132	10752	270.0	295.0	X		45	28	17	NW-NE
2951000296	DH2951-052	18132	10752	295.0	301.0	X		45	28	17	NW-NE
2951000297	DH2951-052	18132	10752	301.0	310.0		X	45	28	17	NW-NE
2951000300	DH2951-053	18427	10749	225.0	235.0		X	45	28	9	SW-NW
2951000301	DH2951-053	18427	10749	235.0	245.0	X		45	28	9	SW-NW
2951000302	DH2951-053	18427	10749	245.0	269.0	X		45	28	9	SW-NW
2951000303	DH2951-053	18427	10749	269.0	280.0	X		45	28	9	SW-NW
2951000304	DH2951-053	18427	10749	280.0	293.0		X	45	28	9	SW-NW
2951000305	DH2951-053	18427	10749	293.0	309.0		X	45	28	9	SW-NW
2951000306	DH2951-053	18427	10749	309.0	319.0		X	45	28	9	SW-NW
2951000307	DH2951-055	18228	10762	240.0	243.0		X	45	28	19	NE-NW
2951000308	DH2951-055	18228	10762	290.0	296.0	X		45	28	19	NE-NW
2951000309	DH2951-056	18435	10751	250.0	275.0		X	45	28	9	SW-NW
2951000310	DH2951-056	18435	10751	275.0	285.0	X		45	28	9	SW-NW
2951000311	DH2951-056	18435	10751	285.0	312.0	X		45	28	9	SW-NW
2951000312	DH2951-056	18435	10751	312.0	324.0		X	45	28	9	SW-NW
2951000313	DH2951-056	18435	10751	330.0	343.0	X		45	28	9	SW-NW
2951000314	DH2951-056	18435	10751	365.0	375.0		X	45	28	9	SW-NW
2951000315	DH2951-056	18435	10751	390.0	400.0		X	45	28	9	SW-NW
2951000316STD	STANDARD	CANMET MA-2A				X					
2951000317STD	STANDARD	DNR GREENSTONE				X					
2951000318STD	STANDARD	CANMET FER-3					X				
2951000319STD	STANDARD	DNR GREENSTONE					X				
2951000320	DH2951-071	S1045	15484	24.0	29.0		X	46	29	10	SE-NW
2951000321	DH2951-071	S1045	15484	35.0	40.0		X	46	29	10	SE-NW
2951000322	DH2951-071	S1045	15484	45.0	50.0		X	46	29	10	SE-NW
2951000323	DH2951-072	S1046	15485	30.0	35.0		X	46	29	10	SE-NW
2951000324	DH2951-073	S1047	15486	6.0	10.0		X	46	29	10	SE-NW
2951000325	DH2951-073	S1047	15486	25.0	29.0		X	46	29	10	SE-NW
2951000326	DH2951-064	S1131	15477	97.0	103.0		X	46	29	2	SE-SE
2951000327	DH2951-065	S1006	15478	32.0	54.0		X	46	29	11	NE-NW
2951000328	DH2951-065	S1006	15478	69.0	74.0		X	46	29	11	NE-NW
2951000329	DH2951-075	S1050	15488	45.0	50.0		X	46	29	11	NW-NE
2951000330	DH2951-075	S1050	15488	50.0	56.0		X	46	29	11	NW-NE
2951000331	DH2951-075	S1050	15488	56.0	60.0		X	46	29	11	NW-NE
2951000332	DH2951-076	S361	15634	111.0	125.0		X	46	29	1	NW-SW

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SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000333	DH2951-077	18600	11639	145.0	155.0		X	136	26	30	SW-NW
2951000334	DH2951-077	18600	11639	160.0	175.0		X	136	26	30	SW-NW
2951000335	DH2951-077	18600	11639	175.0	188.0		X	136	26	30	SW-NW
2951000336	DH2951-077	18600	11639	190.0	195.0		X	136	26	30	SW-NW
2951000337	DH2951-077	18600	11639	195.0	205.0		X	136	26	30	SW-NW
2951000338	DH2951-077	18600	11639	205.0	216.0		X	136	26	30	SW-NW
2951000341	DH2951-079	MR-5	11641	170.0	180.0		X	136	26	35	NW
2951000342	DH2951-079	MR-5	11641	190.0	200.0		X	136	26	35	NW
2951000343	DH2951-080	S1020	15489	27.0	32.0		X	46	29	10	SE-NW
2951000344	DH2951-080	S1020	15489	93.0	103.0		X	46	29	10	SE-NW
2951000345	DH2951-080	S1020	15489	108.0	133.0		X	46	29	10	SE-NW
2951000346	DH2951-080	S1020	15489	230.0	240.0		X	46	29	10	SE-NW
2951000347	DH2951-080	S1020	15489	245.0	255.0		X	46	29	10	SE-NW
2951000348	DH2951-080	S1020	15489	255.0	265.0		X	46	29	10	SE-NW
2951000349	DH2951-081	280	15490	45.0	50.0		X	46	29	2	SE-SE
2951000350	DH2951-081	280	15490	50.0	60.0		X	46	29	2	SE-SE
2951000351	DH2951-081	280	15490	70.0	85.0		X	46	29	2	SE-SE
2951000352	DH2951-081	280	15490	118.0	124.0		X	46	29	2	SE-SE
2951000353	DH2951-081	280	15490	124.0	131.0		X	46	29	2	SE-SE
2951000354	DH2951-081	280	15490	138.0	145.0		X	46	29	2	SE-SE
2951000355	DH2951-081	280	15490	145.0	155.0		X	46	29	2	SE-SE
2951000356	DH2951-081	280	15490	160.0	170.0		X	46	29	2	SE-SE
2951000357	DH2951-081	280	15490	190.0	200.0		X	46	29	2	SE-SE
2951000358	DH2951-081	280	15490	235.0	250.0		X	46	29	2	SE-SE
2951000359	DH2951-082	107	12626	60.0	65.0		X	130	30	6	
2951000360	DH2951-082	107	12626	75.0	80.0		X	130	30	6	
2951000361	DH2951-082	107	12626	110.0	115.0		X	130	30	6	
2951000362	DH2951-082	107	12626	130.0	135.0		X	130	30	6	
2951000363	DH2951-082	107	12626	155.0	160.0		X	130	30	6	
2951000364	DH2951-082	107	12626	215.0	220.0		X	130	30	6	
2951000365	DH2951-083	BM-11	10007	186.0	196.0		X	46	25	14	NW-SW
2951000366	DH2951-084	18131	14380	330.0	340.0		X	46	25	19	SW-SE
2951000374	DH2951-092	G-3	15492	100.0	109.0		X	46	25	18	SW-SE
2951000375	DH2951-093	G-2	15493	115.0	130.0		X	46	25	1	SW-NE
2951000376	DH2951-093	G-2	15493	151.0	160.0		X	46	25	1	SW-NE
2951000388	DH2951-101	85	10023	35.0	44.0		X	46	25	22	SW-SW
2951000389	DH2951-101	85	10023	120.0	125.0		X	46	25	22	SW-SW
2951000396	DH2951-104	86	10096	90.0	100.0		X	46	25	29	SE-NE
2951000397	DH2951-105	BM-6	10016	200.0	210.0		X	46	25	15	SE-NW
2951000398	DH2951-106	N-1	15495	110.0	120.0		X	46	26	24	NE-NW
2951000399	DH2951-107	N-3	15496	160.0	175.0		X	46	26	35	SE-SW
2951000400	DH2951-108	N-2	15497	132.0	142.0		X	46	26	25	NW-NW
2951000401	DH2951-110	83	15499	90.0	107.0		X	46	25	29	NW-SE
2951000402	DH2951-111	S129	10251	225.0	239.0		X	47	26	4	NW-SE
2951000403	DH2951-115	DL-1	10121	55.0	80.0		X	47	25	34	SE-NE
2951000404	DH2951-116	DL-2	10122	75.0	90.0		X	47	25	34	SE-NE

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SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000405	DH2951-117	DL-3	10118	50.0	65.0		X	47	25	34	SE-NE
2951000406	DH2951-118	DL-4	10119	65.0	80.0		X	47	25	34	NE-NE
2951000407	DH2951-119	DL-5	10120	100.0	122.0		X	47	25	26	NW-SE
2951000408	DH2951-120	236	15501	109.0	120.0		X	47	26	3	LOT 11
2951000409	DH2951-223	S238	15502	137.0	150.0		X	48	25	31	NW-NW
2951000410	DH2951-122	240	10302	237.0	247.0		X	47	26	18	SW-NE
2951000411	DH2951-123	S138	10218	120.0	130.0		X	47	26	4	LOT 11
2951000412	DH2951-124	S30	10291	120.0	140.0		X	47	26	4	LOT 11
2951000413STD	STANDARD	GREENSTONE DNR					X				
2951000414STD	STANDARD	B7 AUSTRALIAN					X				
2951000415STD	STANDARD	GREENSTONE DNR					X				
2951000416STD	STANDARD	A9 AUSTRALIAN					X				
2951000417STD	STANDARD	GREENSTONE DNR					X				
2951000418STD	STANDARD	B7 AUSTRALIAN					X				
2951000419STD	STANDARD	GREENSTONE DNR					X				
2951000420STD	STANDARD	A9 AUSTRALIAN					X				
2951000421	DH2951-126	S46	10347	225.0	257.0		X	48	26	35	SE-SW
2951000422	DH2951-128	S48	10348	223.0	238.0		X	48	26	35	SW-SW
2951000423	DH2951-128	48	10348	268.0	278.0		X	48	26	35	SW-SW
2951000424	DH2951-129	S49	10293	170.0	185.0		X	47	26	4	NE-SW
2951000425	DH2951-130	S50	10213	130.0	145.0		X	47	26	3	LOT 2
2951000426	DH2951-131	AB-28	14497	141.0	154.5		X	46	26	9	SE-SE
2951000427	DH2951-134	206	10172	112.0	122.0		X	47	26	3	LOT 2
2951000428	DH2951-136	208	15503	247.0	257.0		X	47	26	17	NW-NW
2951000429	DH2951-136	S208	15503	257.0	282.0		X	47	26	17	NW-NW
2951000430	DH2951-138	S211	10399	103.0	110.0		X	48	26	36	SW-NE
2951000431	DH2951-141	S228	10314	129.0	140.0		X	48	25	31	SW-NW
2951000432	DH2951-144	S241	10176	98.0	104.0		X	47	26	3	NW-NE
2951000433	DH2951-145	S242	10177	103.0	108.0		X	47	26	3	
2951000434	DH2951-148	247	10303	194.0	200.0		X	47	26	18	SW-NW
2951000435	DH2951-150	S250	10178	116.0	126.0		X	47	26	3	LOT 1
2951000436	DH2951-151	S251	10322	110.0	125.0		X	48	25	31	NW-NW
2951000437	DH2951-153	S256	10179	203.0	223.0		X	47	26	3	LOT 1
2951000438	DH2951-154	S257	10301	246.0	251.0		X	47	26	18	
2951000439	DH2951-156	S261	10325	113.0	118.0		X	48	25	31	NW-NW
2951000440	DH2951-160	270	10182	97.0	107.0		X	47	26	3	LOT 8
2951000441	DH2951-164	276	10124	115.0	125.0		X	47	26	2	LOT 4
2951000442	DH2951-165	S279	10331	101.0	116.0		X	48	25	31	NW-NW
2951000443	DH2951-166	281	10183	210.0	225.0		X	47	26	3	LOT 2
2951000444	DH2951-167	S15	10190	140.0	150.0		X	47	26	3	NW-NE
2951000445	DH2951-170	292	10345	134.0	144.0		X	48	26	35	SE
2951000446	DH2951-171	S118	10379	107.0	117.0		X	48	26	36	SW-NE
2951000447	DH2951-178	S324	10217	137.0	152.0		X	47	26	4	NE-SW
2951000448	DH2951-179	S325	10257	113.0	118.0		X	47	26	4	SE-SW
2951000449	DH2951-182	S29	10289	150.0	165.0		X	47	26	4	LOT 4
2951000450	DH2951-182	S29	10289	165.0	175.0		X	47	26	4	LOT 4

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SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000451	DH2951-185	S330	15504	102.0	115.0		X	47	26	4	SE-SW
2951000452	DH2951-185	S330	15504	155.0	160.0		X	47	26	4	SE-SW
2951000453	DH2951-185	S330	15504	215.0	225.0		X	47	26	4	SE-SW
2951000454	DH2951-185	S330	15504	200.0	210.0		X	47	26	4	SE-SW
2951000455	DH2951-174	S128	10382	125.0	130.0		X	48	26	36	SW-NE
2951000456	DH2951-175	S316	10253	119.0	124.0		X	47	26	4	NE-SE
2951000457	DH2951-186	S36	10361	200.0	220.0		X	48	26	35	SW-SW
2951000458	DH2951-186	S36	10361	330.0	340.0		X	48	26	35	SW-SW
2951000459	DH2951-188	S38	10264	145.0	160.0		X	47	26	4	
2951000460	DH2951-189	S39	10265	130.0	142.0		X	47	26	4	NW-SE
2951000461	DH2951-190	S40	10185	109.0	120.0		X	47	26	3	LOT 2
2951000462STD	STANDARD	GREENSTONE DNR					X				
2951000463STD	STANDARD	B7 AUSTRALIAN					X				
2951000464STD	STANDARD	GREENSTONE DNR					X				
2951000465STD	STANDARD	A9 AUSTRALIAN					X				
2951000466	DH2951-196	S43	10346	210.0	225.0		X	48	26	35	SE-SW
2951000467	DH2951-196	S43	10346	225.0	235.0		X	48	26	35	SE-SW
2951000468	DH2951-196	S43	10346	240.0	250.0		X	48	26	35	SE-SW
2951000469	DH2951-197	BM-2	11444	241.0	254.0		X	47	29	20	SE-SE
2951000470	DH2951-197	BM-2	11444	291.8	298.0		X	47	29	20	SE-SE
2951000471	DH2951-197	BM-2	11444	345.0	354.0		X	47	29	20	SE-SE
2951000472	DH2951-198	101	15505	125.0	135.0		X	43	32	1	
2951000473	DH2951-198	101	15505	140.0	160.0		X	43	32	1	
2951000474	DH2951-198	101	15505	185.0	195.0		X	43	32	1	
2951000475	DH2951-198	101	15505	240.0	250.0		X	43	32	1	
2951000476	DH2951-198	101	15505	260.0	275.0		X	43	32	1	
2951000477	DH2951-199	102	15506	210.0	220.0		X	43	32	1	
2951000478	DH2951-199	102	15506	210.0	220.0		X	43	32	1	
2951000479	DH2951-199	102	15506	310.0	327.0		X	43	32	1	
2951000480	DH2951-199	102	15506	270.0	290.0		X	43	32	1	
2951000481	DH2951-200	103	15507	210.0	220.0		X	43	32	1	
2951000482	DH2951-201	104	15508	209.0	230.0		X	43	32	1	
2951000483	DH2951-201	104	15508	270.0	280.0		X	43	32	1	
2951000484	DH2951-202	S3	10290	191.0	201.0		X	47	26	4	LOT 11
2951000485	DH2951-203	S4	10292	122.0	129.5		X	47	26	4	LOT 11
2951000486	DH2951-203	S4	10292	129.5	135.0		X	47	26	4	LOT 11
2951000487	DH2951-204	S8	10295	111.0	116.0		X	47	26	4	LOT 11
2951000488	DH2951-205	S9	10197	135.0	140.0		X	47	26	3	SW-NW
2951000489	DH2951-208	S12	10188	130.0	143.0		X	47	26	3	NW-NE
2951000490	DH2951-209	S13	10282	110.0	120.0		X	47	26	4	NW-SE
2951000491	DH2951-210	S14	10189	130.0	138.0		X	47	26	3	SW-NW
2951000492	DH2951-210	S14	10189	138.0	142.0		X	47	26	3	SW-NW
2951000493	DH2951-210	S14	10189	190.0	200.0		X	47	26	3	SW-NW
2951000494	DH2951-211	S21	10202	155.0	160.0		X	47	26	3	LOT 3
2951000495	DH2951-211	S21	10202	237.0	250.0		X	47	26	3	LOT 3
2951000496	DH2951-191	S41	10266	220.0	230.0		X	47	26	4	NW-SE

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SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000497	DH2951-193	S5	10195	191.0	201.0		X	47	26	3	SW-NW
2951000498	DH2951-213	S20	10288	130.0	140.0		X	47	26	4	LOT 11
2951000499	DH2951-213	S20	10288	170.0	180.0		X	47	26	4	LOT 11
2951000500	DH2951-216	S25	10206	205.0	210.0		X	47	26	3	LOT 3
2951000501	DH2951-217	S27	10194	112.0	123.0		X	47	26	3	LOT 2
2951000502	DH2951-221	R-1	12617	158.9	163.6		X	40	28	36	SE-SW
2951000503	DH2951-222	PR-1	12750	336.3	344.0		X	44	21	1	SE-SW
2951000504	DH2951-222	PR-1	12750	392.0	397.9		X	44	21	1	SE-SW
2951000505	DH2951-222	PR-1	12750	414.0	420.0		X	44	21	1	SE-SW
2951000506	DH2951-118	DL-4	10119	55.0	65.0		X	47	25	34	NE-NE
2951000507	DH2951-158	265	10181	93.0	103.0		X	47	26	3	NW-NW
2951000508	DH2951-223	201	15502	170.0	180.0		X	43	32	12	NE-SW
2951000509	DH2951-223	201	15502	190.0	200.0		X	43	32	12	NE-SW
2951000510	DH2951-224	S253	10148	96.0	106.0		X	47	26	3	LOT 1
2951000511	DH2951-225	S130	10263	210.0	220.0		X	47	26	4	NE-SE
2951000512	DH2951-225	S130	10263	220.0	230.0		X	47	26	4	NE-SE
2951000513	DH2951-229	S140	10219	98.0	108.0		X	47	26	4	LOT 11
2951000514	DH2951-233	S146	10405	104.0	114.0		X	48	26	36	SE-NE
2951000515	DH2951-237	S151	10388	116.0	121.0		X	48	26	36	SE-NE
2951000516	DH2951-238	S152	10223	119.0	129.0		X	47	26	4	LOT 11
2951000517	DH2951-239	S154	10389	108.0	118.0		X	48	26	36	SE-NE
2951000518	DH2951-241	S156	10161	106.0	116.0		X	47	26	3	SW-NW
2951000519	DH2951-242	158	10162	121.0	125.0		X	47	26	3	NW-SW
2951000520	DH2951-246	168	10165	104.0	109.0		X	47	26	3	SW-NW
2951000521	DH2951-245	S166	10304	123.0	128.0		X	48	26	36	SW-NE
2951000522	DH2951-246	168	10165	109.0	119.0		X	47	26	3	SW-NW
2951000523	DH2951-249	179	10392	125.0	130.0		X	48	26	36	SW-NE
2951000524	DH2951-250	182	10167	108.0	113.0		X	47	26	3	SW-NW
2951000525	DH2951-248	S173	10391	123.0	133.0		X	48	26	36	SW-NE
2951000526	DH2951-257	S201	10396	125.0	135.0		X	48	26	36	SW-NE
2951000527	DH2951-258	RS-2	12752	218.0	224.7		X	44	21	10	SW-SW
2951000528	DH2951-258	RS-2	12752	224.7	232.3		X	44	21	10	SW-SW
2951000529	DH2951-258	RS-2	12752	238.3	245.0		X	44	21	10	SW-SW
2951000530	DH2951-258	RS-2	12752	245.0	252.0		X	44	21	10	SW-SW
2951000531STD	STANDARD	DNR GREENSTONE					X				
2951000532STD	STANDARD	A9 AUSTRALIAN					X				
2951000533STD	STANDARD	B7 AUSTRALIAN					X				
2951000534STD	STANDARD	A9 AUSTRALIAN					X				
2951000535STD	STANDARD	B7 AUSTRALIAN					X				
2951000536STD	STANDARD	A9 AUSTRALIAN					X				
2951000537STD	STANDARD	B7 AUSTRALIAN					X				
2951000538	DH2951-251	S183	10393	101.0	111.0		X	48	26	36	SW-NE
2951000539	DH2951-253	S187	10394	105.0	115.0		X	48	26	36	SW-NE
2951000540	DH2951-255	193	10395	108.0	115.0		X	48	26	36	SW-NE
2951000541	DH2951-259	S331	10133	118.0	128.0		X	47	26	4	SE-SW
2951000542	DH2951-259	S331	10133	133.0	143.0		X	47	26	4	SE-SW

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000543	DH2951-259	S331	10133	148.0	158.0		X	47	26	4	SE-SW
2951000544	DH2951-260	265-1/1	12618	165.0	176.5		X	40	31	8	SW-SW
2951000545	DH2951-263	DRP-1	12759	71.0	78.0		X	45	20	19	SW-SW
2951000546	DH2951-263	DRP-1	12759	107.0	116.0		X	45	20	19	SW-SW
2951000546DUP	DH2951-263	DRP-1	12759	107.0	116.0		X	45	20	19	SW-SW
2951000547	DH2951-263	DRP-1	12759	211.0	222.0		X	45	20	19	SW-SW
2951000548	DH2951-263	DRP-1	12759	301.0	311.0		X	45	20	19	SW-SW
2951000549STD	STANDARD	A9 AUSTRALIAN					X				
2951000550	DH2951-263	DRP-1	12759	371.0	383.0		X	45	20	19	SW-SW
2951000551	DH2951-263	DRP-1	12759	383.0	410.0		X	45	20	19	SW-SW
2951000552	DH2951-263	DRP-1	12759	410.0	426.0		X	45	20	19	SW-SW
2951000553	DH2951-263	DRP-1	12759	456.0	470.0		X	45	20	19	SW-SW
2951000554	DH2951-263	DRP-1	12759	470.0	492.0		X	45	20	19	SW-SW
2951000555	DH2951-263	DRP-1	12759	492.0	506.0		X	45	20	19	SW-SW
2951000556	DH2951-264	DRP-2	12760	185.0	204.0		X	45	20	19	SW-SW
2951000557	DH2951-264	DRP-2	12760	364.0	384.0		X	45	20	19	SW-SW
2951000558	DH2951-264	DRP-2	12760	384.0	404.0		X	45	20	19	SW-SW
2951000559	DH2951-264	DRP-2	12760	554.0	564.0		X	45	20	19	SW-SW
2951000560	DH2951-264	DRP-2	12760	564.0	574.0		X	45	20	19	SW-SW
2951000561	DH2951-265	JW-1	12758	134.0	144.0		X	45	20	10	NW-NW
2951000562	DH2951-266	RS-1	12751	186.0	191.0		X	44	21	10	NE-SW
2951000563	DH2951-266	RS-1	12751	210.5	215.0		X	44	21	10	NE-SW
2951000564	DH2951-266	RS-1	12751	254.0	264.0		X	44	21	10	NE-SW
2951000565	DH2951-266	RS-1	12751	314.0	324.0		X	44	21	10	NE-SW
2951000566	DH2951-273	KRCH-8	12755	217.5	225.0		X	45	20	4	SW-SE
2951000567	DH2951-273	KRCH-8	12755	245.0	252.0		X	45	20	4	SW-SE
2951000567DUP	DH2951-273	KRCH-8	12755	245.0	252.0		X	45	20	4	SW-SE
2951000568	DH2951-273	KRCH-8	12755	351.0	355.0		X	45	20	4	SW-SE
2951000569	DH2951-273	KRCH-8	12755	401.0	405.0		X	45	20	4	SW-SE
2951000570	DH2951-272	MLCH13	12753	2429.0	2434.0		X	45	19	11	NW-NW
2951000571	DH2951-272	MLCH13	12753	2456.0	2461.0		X	45	19	11	NW-NW
2951000572	DH2951-272	MLCH13	12753	2461.0	2474.0		X	45	19	11	NW-NW
2951000573	DH2951-272	MLCH13	12753	2485.0	2494.0		X	45	19	11	NW-NW
2951000574	DH2951-274	286 6/1	10513	260.0	280.0		X	37	29	17	NE-SE
2951000575	DH2951-275	ML-42C	12762	167.0	171.5		X	45	20	20	SE-SW-SW
2951000576	DH2951-275	ML-42C	12762	186.0	196.0		X	45	20	20	SE-SW-SW
2951000577	DH2951-275	ML-42C	12762	206.0	210.0		X	45	20	20	SE-SW-SW
2951000578	DH2951-275	ML-42C	12762	246.0	256.0		X	45	20	20	SE-SW-SW
2951000579	DH2951-275	ML-42C	12762	296.0	306.0		X	45	20	20	SE-SW-SW
2951000580	DH2951-276	203	10137	170.0	180.0		X	43	32	12	NE-SW
2951000581	DH2951-276	203	10137	230.0	240.0		X	43	32	12	NE-SW
2951000582	DH2951-276	203	10137	295.0	305.0		X	43	32	12	NE-SW
2951000583	DH2951-277	208	10142	155.0	165.0		X	43	32	12	NW-SW
2951000584	DH2951-277	208	10142	165.0	175.0		X	43	32	12	NW-SW
2951000585	DH2951-277	208	10142	235.0	245.0		X	43	32	12	NW-SW
2951000586	DH2951-278	ML-22	12761	485.0	495.0		X	45	20	20	SW-SE-SE

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000587	DH2951-279	ML-55CA	12763	279.0	286.0		X	45	20	28	SW-NW-NW
2951000587DUP	DH2951-279	ML-55CA	12763	279.0	286.0		X	45	20	28	SW-NW-NW
2951000588	DH2951-279	ML-55CA	12763	344.0	349.8		X	45	20	28	SW-NW-NW
2951000589	DH2951-279	ML-55CA	12763	444.0	454.0		X	45	20	28	SW-NW-NW
2951000590	DH2951-280	BM-3	11445	249.5	254.0		X	47	29	20	SE-SW
2951000591	DH2951-280	BM-3	11445	374.0	384.0		X	47	29	20	SE-SW
2951000592	DH2951-280	BM-3	11445	394.0	401.0		X	47	29	20	SE-SW
2951000593	DH2951-280	BM-3	11445	409.0	415.0		X	47	29	20	SE-SW
2951000594	DH2951-281	KR-2	12754	215.0	225.0		X	45	20	3	NW-NW
2951000595	DH2951-281	KR-2	12754	335.0	345.0		X	45	20	3	NW-NW
2951000596	DH2951-282	207	10152	165.0	175.0		X	43	32	12	NW-SW
2951000597	DH2951-282	207	10152	285.0	295.0		X	43	32	12	NW-SW
2951000598	DH2951-282	207	10152	305.0	315.0		X	43	32	12	NW-SW
2951000599	DH2951-283	S1033	10154	70.0	79.0		X	46	29	10	NW-SW
2951000600	DH2951-283	S1033	10154	107.0	112.0		X	46	29	10	NW-SW
2951000601	DH2951-284	S1034	10157	91.0	101.0		X	46	29	10	SW-NW
2951000602	DH2951-284	S1034	10157	116.0	121.0		X	46	29	10	SW-NW
2951000603	DH2951-288	S1022	10130	185.0	190.0		X	46	29	10	SW-NW
2951000604	DH2951-289	S1031	10212	125.0	130.0		X	46	29	10	SE-NW
2951000605	DH2951-286	S20	15509	40.0	45.0		X	46	29	4	LOT 1
2951000606	DH2951-287	S21	10337	22.0	30.0		X	46	29	4	LOT 9
2951000607	DH2951-290	S1029	10363	90.0	100.0		X	46	29	10	NW-SW
2951000607DUP	DH2951-290	S1029	10363	90.0	100.0		X	46	29	10	NW-SW
2951000608	DH2951-291	S1030	10357	100.0	110.0		X	46	29	10	SE-NW
2951000609	DH2951-292	S222	10214	155.0	165.0		X	46	29	9	NE-SE
2951000610	DH2951-292	S222	10214	0.0	10.0		X	46	29	9	NE-SE
2951000611	DH2951-293	S223	10215	40.0	55.0		X	46	29	9	NE-SE
2951000612	DH2951-294	S224	10368	190.0	200.0		X	46	29	9	NE-SE
2951000613	DH2951-254	192	10169	99.0	184.0		X	47	26	3	LOT 2
2951000614	DH2951-256	S195	10170	99.0	114.0		X	47	26	3	SW-NW
2951000615	DH2951-270	53	10186	125.0	135.0		X	47	26	3	LOT 2
2951000616	DH2951-268	1018	10135	115.0	130.0		X	46	29	10	SE-NW
2951000617	DH2951-267	1016	10171	65.0	70.0		X	46	29	10	SE-NW
2951000618	DH2951-267	1016	10171	55.0	65.0		X	46	29	10	SE-NW
2951000619	DH2951-269	1019	10136	35.0	45.0		X	46	29	10	SE-NW
2951000620	DH2951-269	1019	10136	213.0	223.0		X	46	29	10	SE-NW
2951000621	DH2951-269	1019	10136	238.0	243.0		X	46	29	10	SE-NW
2951000622	DH2951-269	1019	10136	248.0	258.0		X	46	29	10	SE-NW
2951000623	DH2951-295	S1036	10370	73.0	78.0		X	46	29	11	NE-NW
2951000624	DH2951-296	S1040	10034	28.0	34.0		X	46	29	11	NW-NE
2951000625	DH2951-285	S15	10159	90.0	95.0		X	46	29	4	LOT 9
2951000626	DH2951-296	S1040	10034	48.0	58.0		X	46	29	11	NW-NE
2951000627	DH2951-297	S1046	10198	61.0	65.0		X	46	29	11	NW-NE
2951000627DUP	DH2951-297	S1046	10198	61.0	65.0		X	46	29	11	NW-NE
2951000628	DH2951-298	S1033	10199	15.0	25.0		X	46	29	11	
2951000629	DH2951-301	S-2-55	10317	35.0	40.0		X	46	29	3	SE-SW

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000630	DH2951-301	S-2-55	10317	45.0	55.0		X	46	29	3	SE-SW
2951000631	DH2951-252	186	10168	91.0	97.0		X	47	26	3	SW-NE
2951000632	DH2951-252	186	10168	97.0	106.0		X	47	26	3	SW-NE
2951000633	DH2951-302	10	11065	140.0	150.0		X	46	29	11	NE-NW
2951000634	DH2951-302	10	11065	200.0	210.0		X	46	29	11	NE-NW
2951000635	DH2951-302	10	11065	220.0	230.0		X	46	29	11	NE-NW
2951000636	DH2951-303	204	10205	160.0	170.0		X	43	32	12	NE-SW
2951000637	DH2951-303	204	10205	270.0	280.0		X	43	32	12	NE-SW
2951000638	DH2951-303	204	10205	285.0	295.0		X	43	32	12	NE-SW
2951000639	DH2951-304	206	10143	200.0	210.0		X	43	32	12	SE-NW
2951000640	DH2951-304	206	10143	225.0	235.0		X	43	32	12	SE-NW
2951000641	DH2951-304	206	10143	230.0	240.0		X	43	32	12	SE-NW
2951000642	DH2951-304	206	10143	310.0	320.0		X	43	32	12	SE-NW
2951000643	DH2951-305	205	10144	205.0	215.0		X	43	32	12	NE-SW
2951000644	DH2951-306	202	10146	180.0	185.0		X	43	32	12	NE-SW
2951000645	DH2951-306	202	10146	185.0	195.0		X	43	32	12	NE-SW
2951000646	DH2951-309	G-5	10003	79.0	88.0		X	46	25	11	NW-NW
2951000647	DH2951-310	G-8	10005	70.0	79.0		X	46	25	11	SW-SW
2951000647DUP	DH2951-310	G-8	10005	70.0	79.0		X	46	25	11	SW-SW
2951000648	DH2951-310	G-8	10005	102.0	113.0		X	46	25	11	SW-SW
2951000649	DH2951-310	G-8	10005	50.0	60.0		X	46	25	11	SW-SW
2951000650	DH2951-110	83	15499	65.0	75.0		X	46	25	29	NW-SE
2951000651	DH2951-190	S40	10185	109.0	115.0		X	47	26	3	LOT 2
2951000652	DH2951-190	S40	10185	135.0	140.0		X	47	26	3	LOT 2
2951000653	DH2951-311	BM-12F	10009	40.9	45.9		X	46	25	14	SW-NW
2951000654	DH2951-311	BM-12F	10009	45.9	49.7		X	46	25	14	SW-NW
2951000655	DH2951-311	BM-12F	10009	59.6	62.5		X	46	25	14	SW-NW
2951000656	DH2951-312	BM-4	10014	28.0	29.5		X	46	25	15	SE-NW
2951000657	DH2951-312	BM-4	10014	42.0	46.0		X	46	25	15	SE-NW
2951000658	DH2951-312	BM-4	10014	149.5	156.5		X	46	25	15	SE-NW
2951000659	DH2951-313	BM-2	10012	62.0	67.0		X	46	25	15	SW-NW
2951000660	DH2951-313	BM-2	10012	90.8	96.0		X	46	25	15	SW-NW
2951000661	DH2951-313	BM-2	10012	134.4	139.3		X	46	25	15	SW-NW
2951000662	DH2951-314	87	10097	100.0	108.0		X	46	25	29	NE-SE
2951000663	DH2951-315	79	10031	45.0	54.0		X	46	25	28	SW-NW
2951000664	DH2951-315	79	10031	81.0	92.0		X	46	25	28	SW-NW
2951000665	DH2951-315	79	10031	146.0	156.0		X	46	25	28	SW-NW
2951000666	DH2951-316	78	10030	55.0	60.0		X	46	25	28	SW-NW
2951000667	DH2951-316	78	10030	64.0	74.0		X	46	25	28	SW-NW
2951000667DUP	DH2951-316	78	10030	64.0	74.0		X	46	25	28	SW-NW
2951000668	DH2951-316	78	10030	86.0	95.0		X	46	25	28	SW-NW
2951000669	DH2951-317	73	10029	45.0	55.0		X	46	25	28	SW-NW
2951000670	DH2951-317	73	10029	85.0	95.0		X	46	25	28	SW-NW
2951000671	DH2951-317	73	10029	133.0	143.0		X	46	25	28	SW-NW
2951000672STD	STANDARD	A9 AUSTRALIAN					X				
2951000673STD	STANDARD	B7 AUSTRALIAN					X				

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SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000674STD	STANDARD	A9 AUSTRALIAN					X				
2951000675STD	STANDARD	B7 AUSTRALIAN					X				
2951000676STD	STANDARD	A9 AUSTRALIAN					X				
2951000677STD	STANDARD	B7 AUSTRALIAN					X				
2951000678STD	STANDARD	A9 AUSTRALIAN					X				
2951000679STD	STANDARD	B7 AUSTRALIAN					X				
2951000680STD	STANDARD	A9 AUSTRALIAN					X				
2951000681STD	STANDARD	B7 AUSTRALIAN					X				
2951000682STD	STANDARD	A9 AUSTRALIAN					X				
2951000683STD	STANDARD	B7 AUSTRALIAN					X				
2951000684STD	STANDARD	A9 AUSTRALIAN					X				
2951000685STD	STANDARD	B7 AUSTRALIAN					X				
2951000686	DH2951-320	SR-1	15510	67.0	75.0		X	46	21	19	SW-SE
2951000687	DH2951-320	SR-1	15510	111.0	116.0		X	46	21	19	SW-SE
2951000688	DH2951-321	SR-3	15511	45.0	51.0		X	46	21	19	SW-SE
2951000689	DH2951-321	SR-3	15511	53.7	61.0		X	46	21	19	NW-SE
2951000690	DH2951-321	SR-3	15511	79.0	87.0		X	46	21	19	NW-SE
2951000691	DH2951-322	SR-2	15512	37.0	39.5		X	46	21	19	SW-SE
2951000692	DH2951-322	SR-2	15512	39.5	45.0		X	46	21	19	SW-SE
2951000693	DH2951-323	SL-1	10556	73.0	83.0		X	46	21	6	NE-NW
2951000694	DH2951-323	SL-1	10556	119.0	127.0		X	46	21	6	NE-NW
2951000695	DH2951-323	SL-1	10556	127.0	136.0		X	46	21	6	NE-NW
2951000696	DH2951-323	SL-1	10556	183.0	190.3		X	46	21	6	NE-NW
2951000697	DH2951-324	CK-1	10560	475.0	485.0		X	46	21	22	SW-SW
2951000698	DH2951-326	CK-3	10562	95.0	189.0		X	46	21	22	SW-SW
2951000699	DH2951-328	CK-5	10564	200.0	270.0		X	46	21	22	SW-SW
2951000700	DH2951-329	HM-1	10565	190.0	210.0		X	46	21	26	SW-NW
2951000701	DH2951-330	MM-1	10544	163.0	173.0		X	46	20	18	NW-SE-SE
2951000702	DH2951-323	SL-1	10556	190.3	198.5		X	46	21	6	NE-NW
2951000703	DH2951-323	SL-1	10556	198.5	203.0		X	46	21	6	NE-NW
2951000704	DH2951-299	276	10285	60.0	65.0		X	46	29	2	SE-SE
2951000705	DH2951-299	276	10285	70.0	80.0		X	46	29	2	SE-SE
2951000706	DH2951-299	276	10285	85.0	93.0		X	46	29	2	SE-SE
2951000707	DH2951-299	276	10285	100.0	110.0		X	46	29	2	SE-SE
2951000708	DH2951-299	276	10285	130.0	140.0		X	46	29	2	SE-SE
2951000709	DH2951-300	S720	10203	5.0	10.0		X	46	29	3	LOT 6
2951000710	DH2951-300	S720	10203	20.0	25.0		X	46	29	3	LOT 6
2951000711	DH2951-300	S720	10203	40.0	45.0		X	46	29	3	LOT 6
2951000712	DH2951-300	S720	10203	55.0	60.0		X	46	29	3	LOT 6
2951000713	DH2951-308	G-6	10004	70.0	90.0		X	46	25	11	NW-NW
2951000714	DH2951-308	G-6	10004	95.0	100.0		X	46	25	11	NW-NW
2951000715	DH2951-331	MM-2	10545	100.0	110.0		X	46	20	18	NW-SE-SE
2951000716	DH2951-331	MM-2	10545	140.0	145.0		X	46	20	18	NW-SE-SE
2951000717	DH2951-332	EF-1	10553	300.0	332.0		X	46	20	33	NE-NW
2951000718	DH2951-333	MG-2	10558	124.0	134.0		X	46	21	22	SW-SW
2951000719	DH2951-333	MG-2	10558	194.0	204.0		X	46	21	22	SW-SW

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000720	DH2951-333	MG-2	10558	254.0	264.0		X	46	21	22	SW-SW
2951000721	DH2951-333	MG-2	10558	184.0	194.0		X	46	21	22	SW-SW
2951000722	DH2951-333	MG-2	10558	304.0	314.0		X	46	21	22	SW-SW
2951000722	DH2951-333	MG-2	10558	324.0	334.0		X	46	21	22	SW-SW
2951000724	DH2951-334	MG-1	10557	184.0	194.0		X	46	21	22	SE-SW
2951000725	DH2951-334	MG-1	10557	208.0	214.0		X	46	21	22	SE-SW
2951000726	DH2951-334	MG-1	10557	214.0	219.7		X	46	21	22	SE-SW
2951000727	DH2951-334	MG-1	10557	219.7	224.0		X	46	21	22	SE-SW
2951000728	DH2951-334	MG-1	10557	274.0	284.0		X	46	21	22	SE-SW
2951000729	DH2951-334	MG-1	10557	284.0	294.0		X	46	21	22	SE-SW
2951000730	DH2951-334	MG-1	10557	308.0	314.0		X	46	21	22	SE-SW
2951000731	DH2951-334	MG-1	10557	324.0	334.0		X	46	21	22	SE-SW
2951000732	DH2951-334	MG-1	10557	394.0	404.0		X	46	21	22	SE-SW
2951000733	DH2951-334	MG-1	10557	414.0	424.0		X	46	21	22	SE-SW
2951000734	DH2951-334	MG-1	10557	434.0	438.0		X	46	21	22	SE-SW
2951000735	DH2951-335	MG-4	10559	289.5	294.0		X	46	21	22	SW-SW
2951000736	DH2951-335	MG-4	10559	326.0	334.0		X	46	21	22	SW-SW
2951000737	DH2951-335	MG-4	10559	383.0	389.5		X	46	21	22	SW-SW
2951000738	DH2951-335	MG-4	10559	418.0	428.0		X	46	21	22	SW-SW
2951000739	DH2951-336	MG-3	10566	74.0	84.0		X	46	21	28	NE-NW
2951000740	DH2951-336	MG-3	10566	184.0	194.0		X	46	21	28	NE-NW
2951000741	DH2951-336	MG-3	10566	204.0	214.0		X	46	21	28	NE-NW
2951000742	DH2951-336	MG-3	10566	284.0	294.0		X	46	21	28	NE-NW
2951000743	DH2951-336	MG-3	10566	324.0	334.0		X	46	21	28	NE-NW
2951000744	DH2951-336	MG-3	10566	354.0	369.0		X	46	21	28	NE-NW
2951000745	DH2951-336	MG-3	10566	382.0	394.0		X	46	21	28	NE-NW
2951000746	DH2951-336	MG-3	10566	394.0	398.0		X	46	21	28	NE-NW
2951000747	DH2951-336	MG-3	10566	424.0	434.0		X	46	21	28	NE-NW
2951000748	DH2951-337	ML-27	12757	30.0	40.0		X	45	20	8	NW-NW
2951000749	DH2951-337	ML-27	12757	180.0	190.0		X	45	20	8	NW-NW
2951000750	DH2951-337	ML-27	12757	215.0	225.0		X	45	20	8	NW-NW
2951000751	DH2951-338	KRCH-6	10554	85.0	93.0		X	46	21	4	SW-SE
2951000752	DH2951-338	KRCH-6	10554	175.0	185.0		X	46	21	4	SW-SE
2951000753	DH2951-338	KRCH-6	10554	241.0	249.0		X	46	21	4	SW-SE
2951000754	DH2951-338	KRCH-6	10554	337.0	341.0		X	46	21	4	SW-SE
2951000755	DH2951-338	KRCH-6	10554	432.0	437.0		X	46	21	4	SW-SE
2951000756	DH2951-339	KRCH-7	10555	145.0	151.0		X	46	21	4	SW-NE
2951000757	DH2951-339	KRCH-7	10555	178.0	179.0		X	46	21	4	SW-NE
2951000758	DH2951-339	KRCH-7	10555	705.0	710.0		X	46	21	4	SW-NE
2951000759	DH2951-340	P-11	14524	140.0	143.5		X	42	29	3	SE-SW-SE
2951000760	DH2951-342	PX-1	14734	167.0	177.0		X	44	21	32	NW-NW
2951000761	DH2951-342	PX-1	14734	191.0	197.0		X	44	21	32	NW-NW
2951000762	DH2951-342	PX-1	14734	247.0	255.0		X	44	21	32	NW-NW
2951000763	DH2951-343	P-9	14525	229.0	234.0		X	42	30	1	NE-NE-NE
2951000764	DH2951-343	P-9	14525	234.0	238.8		X	42	30	1	NE-NE-NE
2951000765	DH2951-344	264-7/2R1	14492	189.0	199.0		X	41	30	26	NE-NW-NW

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000766	DH2951-345	285-25/2R1	15049	63.5	73.5		X	42	25	26	NE-SW
2951000767	DH2951-346	18974	10636	451.0	457.5		X	141	25	17	NW-SW
2951000768	DH2951-346	18974	10636	469.0	479.0		X	141	25	17	NW-SW
2951000769	DH2951-346	18974	10636	549.0	553.0		X	141	25	17	NW-SW
2951000770	DH2951-347	3796	10638	279.0	290.0		X	142	25	13	S1/2-SE
2951000771	DH2951-347	3796	10638	392.0	397.0		X	142	25	13	S1/2-SE
2951000772	DH2951-348	4072	10640	265.0	285.0		X	142	25	13	NE-SW
2951000773	DH2951-348	4072	10640	335.0	345.0		X	142	25	13	NE-SW
2951000774	DH2951-348	4072	10640	469.0	475.0		X	142	25	13	NE-SW
2951000775	DH2951-348	4072	10640	515.0	525.0		X	142	25	13	NE-SW
2951000776	DH2951-349	3795	10637	300.0	312.0		X	142	25	13	NE-NE
2951000777	DH2951-349	3795	10637	462.0	472.0		X	142	25	13	NE-NE
2951000778	DH2951-349	3795	10637	522.0	533.0		X	142	25	13	NE-NE
2951000779	DH2951-349	3795	10637	550.0	561.0		X	142	25	13	NE-NE
2951000780	DH2951-349	3795	10637	561.0	570.0		X	142	25	13	NE-NE
2951000781	DH2951-351	18972	10635	444.0	449.0		X	141	27	35	SE-SE
2951000782	DH2951-351	18972	10635	504.0	506.0		X	141	27	35	SE-SE
2951000783	DH2951-352	LV-2A	14563	675.0	677.0		X	140	27	14	NW-NE-NE
2951000784	DH2951-352	LV-2A	14563	684.0	685.7		X	140	27	14	NW-NE-NE
2951000785	DH2951-354	18695	11909	365.0	370.0		X	140	26	14	NE-SW
2951000786	DH2951-354	18695	11909	348.0	350.0		X	140	26	14	NE-SW
2951000787	DH2951-355	TL-5	10631	375.0	385.0		X	140	26	23	SE-SW
2951000788	DH2951-356	TL-1	10628	320.0	325.0		X	140	25	10	SW-SW
2951000789	DH2951-356	TL-1	10628	370.0	380.0		X	140	25	10	SW-SW
2951000790	DH2951-357	TL-2	10629	300.0	305.0		X	140	25	10	NW-SW
2951000791	DH2951-357	TL-2	10629	570.0	573.0		X	140	25	10	NW-SW
2951000792	DH2951-357	TL-2	10629	510.0	520.0		X	140	25	10	NW-SW
2951000793	DH2951-358	TL-3	10630	430.0	433.0		X	140	25	9	SE-SW
2951000794	DH2951-359	TL-4	10632	341.0	355.0		X	140	26	26	SW-NE
2951000795	DH2951-359	TL-4	10632	355.0	365.0		X	140	26	26	SW-NE
2951000796	DH2951-359	TL-4	10632	375.0	385.0		X	140	26	26	SW-NE
2951000797	DH2951-359	TL-4	10632	385.0	395.0		X	140	26	26	SW-NE
2951000798	DH2951-359	TL-4	10632	395.0	400.0		X	140	26	26	SW-NE
2951000799	DH2951-360	18971	10633	422.0	426.0		X	140	27	1	NE-SW
2951000800	DH2951-360	18971	10633	438.0	442.0		X	140	27	1	NE-SW
2951000801	DH2951-360	18971	10633	454.0	459.0		X	140	27	1	NE-SW
2951000802	DH2951-361	18973	10634	460.0	464.0		X	140	27	11	SW-SE
2951000803	DH2951-361	18973	10634	480.0	484.0		X	140	27	11	SW-SE
2951000804	DH2951-361	18973	10634	564.0	567.0		X	140	27	11	SW-SE
2951000805	DH2951-361	18973	10634	519.0	521.0		X	140	27	11	SW-SE
2951000806	DH2951-362	MLCH-8	12756	64.0	68.0		X	45	20	7	SE-NE
2951000807	DH2951-362	MLCH-8	12756	76.0	82.0		X	45	20	7	SE-NE
2951000808	DH2951-362	MLCH-8	12756	100.0	104.0		X	45	20	7	SE-NE
2951000809	DH2951-362	MLCH-8	12756	199.0	202.0		X	45	20	7	SE-NE
2951000810	DH2951-363	ML-49C	12771	294.0	298.0		X	45	20	29	NE-NE
2951000811	DH2951-363	ML-49C	12771	332.0	335.2		X	45	20	29	NE-NE

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000812	DH2951-363	ML-49C	12771	335.2	341.0		X	45	20	29	NE-NE
2951000813	DH2951-363	ML-49C	12771	364.0	369.0		X	45	20	29	NE-NE
2951000814	DH2951-363	ML-49C	12771	374.0	378.0		X	45	20	29	NE-NE
2951000815	DH2951-363	ML-49C	12771	380.0	384.0		X	45	20	29	NE-NE
2951000816	DH2951-363	ML-49C	12771	394.0	398.0		X	45	20	29	NE-NE
2951000817	DH2951-363	ML-49C	12771	404.0	406.5		X	45	20	29	NE-NE
2951000818	DH2951-363	ML-49C	12771	406.5	410.0		X	45	20	29	NE-NE
2951000819	DH2951-363	ML-49C	12771	426.0	432.0		X	45	20	29	NE-NE
2951000820	DH2951-365	ML-50C	12772	334.0	337.0		X	45	20	29	NE-NE
2951000821	DH2951-365	ML-50C	12772	392.0	396.0		X	45	20	29	NE-NE
2951000822	DH2951-365	ML-50C	12772	398.5	401.0		X	45	20	29	NE-NE
2951000823	DH2951-365	ML-50C	12772	401.5	405.0		X	45	20	29	NE-NE
2951000824	DH2951-365	ML-50C	12772	420.0	424.0		X	45	20	29	NE-NE
2951000825	DH2951-365	ML-50C	12772	443.0	448.0		X	45	20	29	NE-NE
2951000826	DH2951-364	ML-43C	12768	272.0	276.0		X	45	20	29	NE-NE-NE
2951000827	DH2951-364	ML-43C	12768	320.0	321.6		X	45	20	29	NE-NE-NE
2951000828	DH2951-364	ML-43C	12768	328.0	332.0		X	45	20	29	NE-NE-NE
2951000829	DH2951-364	ML-43C	12768	340.0	344.0		X	45	20	29	NE-NE-NE
2951000830	DH2951-364	ML-43C	12768	374.0	378.0		X	45	20	29	NE-NE-NE
2951000831	DH2951-364	ML-43C	12768	392.0	396.0		X	45	20	29	NE-NE-NE
2951000832	DH2951-364	ML-43C	12768	442.0	446.0		X	45	20	29	NE-NE-NE
2951000833	DH2951-366	ML-51C	12773	287.0	291.0		X	45	20	29	NE-NE
2951000834	DH2951-366	ML-51C	12773	328.0	331.3		X	45	20	29	NE-NE
2951000835	DH2951-366	ML-51C	12773	331.3	336.0		X	45	20	29	NE-NE
2951000836	DH2951-366	ML-51C	12773	394.0	398.0		X	45	20	29	NE-NE
2951000837	DH2951-368	T-5	10517	34.0	44.0		X	45	17	20	
2951000838	DH2951-369	T-6	10518	25.0	33.2		X	45	17	20	
2951000839	DH2951-370	T-3	10614	15.0	20.0		X	49	16	30	
2951000840	DH2951-371	AB-10	14495	80.0	84.0		X	44	22	5	SE-SW-NE
2951000841	DH2951-372	AB-24A	14597	415.0	418.0		X	45	28	2	NW-SE-SW
2951000842STD	STANDARD	A9 AUSTRALIAN					X				
2951000843STD	STANDARD	B7 AUSTRALIAN					X				
2951000844STD	STANDARD	A9 AUSTRALIAN					X				
2951000845STD	STANDARD	B7 AUSTRALIAN					X				
2951000846STD	STANDARD	A9 AUSTRALIAN					X				
2951000847STD	STANDARD	B7 AUSTRALIAN					X				
2951000848STD	STANDARD	A9 AUSTRALIAN					X				
2951000849STD	STANDARD	B7 AUSTRALIAN					X				
2951000850STD	STANDARD	A9 AUSTRALIAN					X				
2951000851STD	STANDARD	B7 AUSTRALIAN					X				
2951000852STD	STANDARD	A9 AUSTRALIAN					X				
2951000853STD	STANDARD	B7 AUSTRALIAN					X				
2951000854STD	STANDARD	A9 AUSTRALIAN					X				
2951000855STD	STANDARD	B7 AUSTRALIAN					X				
2951000856STD	STANDARD	A9 AUSTRALIAN					X				
2951000857STD	STANDARD	B7 AUSTRALIAN					X				

APPENDIX 295-H: ANALYTICAL SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	TOP FOOTAGE	BOTTOM FOOTAGE	COMPLETE ANALYSES	PARTIAL ANALYSES	TOWNSHIP	RANGE	SECTION	FORTY
2951000858	DH2951-373	ML-54C	12776	339.0	343.3		X	45	20	29	NE-NE
2951000859	DH2951-373	ML-54C	12776	350.0	354.0		X	45	20	29	NE-NE
2951000860	DH2951-373	ML-54C	12776	354.0	359.5		X	45	20	29	NE-NE

Appendix 295-I: Analytical Results

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Cl %	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %
2951000006	0.02	41.9	0.31	1.13	53.89	0.03
2951000010	0.01	66.74	0.02	0.9	13.15	11.76
2951000015	< 0.01	4.9	0.04	1.37	43.65	38.07
2951000016	< 0.01	55.19	0.61	18.43	13.12	0.21
2951000018	0.02	67.43	0.5	16.94	4.38	0.1
2951000021	0.02	20.52	0.59	14.75	48.46	0.43
2951000031	< 0.01	49.49	0.94	17.07	8.7	0.16
2951000035	< 0.01	52.19	1.12	10.87	9.7	0.13
2951000037	0.01	52.57	1.21	17.23	10.04	0.15
2951000039	< 0.01	50.89	1.57	18.24	10.14	0.14
2951000041	0.01	61.62	3.46	22.38	1.88	0.01
2951000043	0.02	28.14	2.04	11.91	52.19	0.04
2951000045	< 0.01	74.34	2.02	14.65	1.38	0.01
2951000047	< 0.01	56.2	3.63	22.92	4.91	0.02
2951000049	< 0.01	34.99	0.09	2.51	53.88	0.66
2951000053	0.02	7.98	0.14	3.54	52.93	13.12
2951000054	0.02	40.31	0.04	0.99	17.19	32.24
2951000058	< 0.01	93.27	< 0.01	0.47	5.68	0.16
2951000059	< 0.01	42.76	0.11	3.53	44.51	0.7
2951000059DUP	< 0.01	43.56	0.12	3.56	44.61	0.74
2951000218STD	0.02	60.35	0.45	14.91	4.43	0.09
2951000219STD	0.02	50.1	1.54	14.06	13.84	0.22
2951000060	0.02	97.97	0.02	0.39	1.54	0.03
2951000062	0.01	20.5	0.11	2.52	66.8	0.29
2951000065	0.01	2.68	0.06	1.68	79.72	4.1
2951000066	< 0.01	36.52	4.45	27.4	6.82	0.04
2951000068	< 0.01	47.43	3.16	21.25	17.25	0.02
2951000070	< 0.01	52.22	0.2	3.64	39.35	0.16
2951000071	< 0.01	59.6	0.1	2.56	35.81	0.11
2951000073	< 0.01	86.73	0.14	4.21	5.43	0.03
2951000075	0.02	1.42	0.08	0.33	66.02	5.76
2951000077	0.03	45.31	0.01	0.67	23.17	5.39
2951000079	< 0.01	7.12	0.02	0.2	59.05	17.72
2951000080	0.02	29.6	0.12	1.15	53.87	4.03
2951000081	0.02	59.1	0.07	0.32	20.93	6.48
2951000082	0.02	48.17	4.02	23.75	3.23	0.02
2951000086	0.03	48.28	2.64	18.74	18.69	0.08
2951000088	0.02	76.43	0.52	12.6	2.89	0.02
2951000090	0.02	95.62	0.05	1.58	1.42	0.05
2951000092	0.03	33.27	1.93	16.82	33.11	0.07
2951000094	0.02	35.1	1.81	15.55	27.36	0.06
2951000096	0.02	89.18	0.08	5.88	2.42	0.05

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Cl %	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %
2951000098	0.02	71.85	0.41	13.34	6.87	0.02
2951000100	0.02	50.75	1.29	23.84	6.9	0.05
2951000100DUP	0.02	50.26	1.27	23.64	6.83	0.05
2951000220STD	< 0.01	53.99	< 0.01	0.1	44.47	0.08
2951000221STD	< 0.01	50.1	1.5	14.22	13.96	0.21
2951000102	< 0.01	51.41	1.71	17.1	12.22	0.07
2951000104	< 0.01	26.04	0.08	2.5	31.8	10.96
2951000106	< 0.01	64.96	0.65	19.81	3.77	0.05
2951000108	< 0.01	48.26	0.37	5.84	26.7	2.94
2951000110	< 0.01	27.56	0.12	3.21	35.08	9.04
2951000112	< 0.01	31.66	0.1	2.53	37.39	6.1
2951000115	0.03	60.34	1.69	15.95	9.69	0.06
2951000123	< 0.01	41.65	0.13	3.07	33.78	2.37
2951000124	< 0.01	53.49	0.08	1.42	38.8	0.47
2951000126	0.01	26.15	0.08	2.02	67.03	0.22
2951000128	< 0.01	56.86	0.13	2.44	37.79	0.78
2951000130	< 0.01	60.26	0.1	2.41	25.27	5.77
2951000132	< 0.01	45.81	0.15	4.29	24.05	16.11
2951000134	< 0.01	17.01	0.17	3.92	50.31	16.34
2951000141	< 0.01	29.4	0.12	2.91	47.4	9.5
2951000142	< 0.01	22.82	0.12	2.7	43.03	19.88
2951000144	< 0.01	19.42	0.12	2.38	54.68	12.83
2951000147	0.01	33.97	0.14	2.73	41.4	11.97
2951000149	< 0.01	35.57	0.17	2.98	38.95	14.72
2951000149DUP	0.02	34.94	0.17	2.91	38.06	14.37
2951000222STD	0.02	17.14	0.02	0.57	76.37	0.24
2951000223STD	0.02	50.37	1.48	14.13	13.87	0.21
2951000151	0.02	27.8	0.13	2.26	39.24	18.72
2951000153	0.02	45.28	0.09	2.08	34.83	11.55
2951000155	0.02	22.21	0.16	2.75	50.2	14.28
2951000161	0.03	15.94	2.69	6.3	64.43	2.42
2951000167	0.02	31.47	1.68	5.29	51.87	3.55
2951000171	0.02	44.94	1.82	16.21	13.63	0.21
2951000177	0.03	28.16	0.07	1.86	54.92	2.51
2951000178	0.02	40.26	0.07	1.31	47.83	1.26
2951000179	0.02	32.64	0.12	3.1	45.95	2.19
2951000185	0.01	45.68	1.89	16.21	13.87	0.21
2951000186	0.02	46.35	2.05	16.16	13.83	0.18
2951000188	0.02	93.17	0.06	3.42	1.29	0.05
2951000199	0.02	38.82	0.02	0.62	51.51	0.46
2951000203	< 0.01	23.94	0.03	0.92	55.29	1.73
2951000204	< 0.01	55.91	0.03	0.85	35.73	0.53

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Cl %	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %
2951000205	0.01	48.97	1.76	17.17	8.28	0.03
2951000213	0.02	5.12	0.05	1.41	75.82	1.09
2951000216	< 0.01	6.89	0.06	1.62	71.63	1.1
2951000216DUP	< 0.01	6.31	0.05	1.46	71.97	1.07
2951000224STD	< 0.01	48.53	0.19	5.59	38.94	0.13
2951000225STD	< 0.01	50.18	1.48	14.1	13.87	0.21
2951000228	0.02	43.41	2.13	16.08	13.08	0.17
2951000232	0.01	6.13	0.11	2.97	77.81	0.77
2951000237	0.02	25.22	0.08	2.15	62.53	0.47
2951000248	0.01	10.15	0.27	3.57	58.22	0.41
2951000249	0.02	32.65	0.1	2.27	46.94	2.62
2951000250	0.02	35.27	0.16	3.88	44.77	1.88
2951000259	0.01	66.29	1.67	13.86	6.81	0.02
2951000265	0.01	42.95	4.23	20.75	16.73	0.03
2951000269	0.01	44.3	1.81	14.17	19.54	0.4
2951000270	0.02	48.94	1.88	15.52	15.58	0.16
2951000293	0.02	53.66	1.35	9.88	20.26	0.65
2951000294	0.02	68.61	0.16	4.11	18.21	0.12
2951000295	0.02	74.83	0.03	1.15	18.33	0.05
2951000296	0.02	36.6	0.05	1.02	54.21	0.55
2951000301	0.01	48.11	0.45	11.82	18.77	< 0.01
2951000302	< 0.01	47.27	0.51	12.27	17.4	0.01
2951000303	< 0.01	53.86	0.06	1.67	38.62	0.05
2951000308	0.01	58.05	2.3	13.93	10.32	0.08
2951000310	0.02	26.87	0.12	4.63	54.99	0.57
2951000310 DUP	0.02	26.36	0.11	4.41	55.2	0.6
2951000316 STD	0.01	61.25	0.43	14.24	4.28	0.08
2951000317 STD	< 0.01	51.47	1.51	13.69	14.13	0.21
2951000311	< 0.01	24.46	0.08	1.43	64.16	0.22
2951000313	< 0.01	30.64	0.09	1.98	48.02	2.61

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	MgO %	CaO %	Na2O %	K2O %	P2O5 %	LOI %	Total %
2951000006	0.42	0.49	0.22	< 0.01	< 0.01	2.06	100.47
2951000010	0.18	3.23	0.03	< 0.01	< 0.01	3.9	99.92
2951000015	0.2	0.83	0.03	< 0.01	< 0.01	10.68	99.79
2951000016	4.54	0.18	0.04	3.6	< 0.01	4.71	100.64
2951000018	1.56	0.15	0.07	5.55	0.07	3.18	99.95
2951000021	6.7	0.32	0.05	0.36	< 0.01	7.53	99.74
2951000031	5.79	12.9	3.03	0.13	0.14	1.68	100.04
2951000035	11.16	7.56	2.28	1.97	0.4	1.22	98.67
2951000037	5.26	5.99	4.21	2.39	0.37	1.05	100.49
2951000039	4.15	7.07	4.26	2.34	0.68	1.08	100.57
2951000041	0.8	0.2	0.06	3.75	0.38	5.93	100.48
2951000043	0.35	0.21	0.03	1.54	0.35	3.88	100.69
2951000045	0.46	0.63	0.04	2.1	0.75	4.02	100.41
2951000047	0.9	0.82	0.08	4.16	1.02	6.14	100.81
2951000049	0.85	0.34	0.04	< 0.01	0.16	6.69	100.22
2951000053	4.95	1.3	< 0.01	< 0.01	0.29	16.46	100.73
2951000054	0.14	0.81	0.01	< 0.01	< 0.01	8.72	100.48
2951000058	0.03	0.08	< 0.01	< 0.01	0.05	0.67	100.43
2951000059	0.13	0.22	< 0.01	0.02	0.19	7.1	99.3
2951000059DUP	0.15	0.25	0.01	< 0.01	0.22	7.17	100.38
2951000218STD	2.73	3.89	4.46	3.72	0.26	5.1	100.39
2951000219STD	7.07	6.05	2.59	1.8	0.19	2.98	100.45
2951000060	0.13	0.14	0.05	< 0.01	0.03	0.24	100.58
2951000062	0.18	0.21	< 0.01	0.01	< 0.01	9.99	100.62
2951000065	0.18	0.2	0.01	< 0.01	0.2	11.59	100.44
2951000066	1.05	0.76	0.11	6.42	2.13	13.8	99.52
2951000068	0.7	0.2	0.07	3.59	0.48	5.95	100.11
2951000070	0.06	0.1	0.01	< 0.01	0.18	4.52	100.46
2951000071	0.04	0.14	0.02	< 0.01	< 0.01	1.61	99.99
2951000073	0.05	0.16	0.03	< 0.01	0.06	2.14	98.99
2951000075	3.91	8.62	0.03	< 0.01	< 0.01	13.86	100.04
2951000077	3.92	7.87	0.01	< 0.01	< 0.01	13.83	100.2
2951000079	0.91	1.7	0.02	< 0.01	< 0.01	12.79	99.55
2951000080	1.25	3.8	0.02	0.4	< 0.01	6.38	100.64
2951000081	1.8	3.24	0.01	< 0.01	< 0.01	8.41	100.39
2951000082	1.14	0.62	0.15	6.3	1.8	11.24	100.46
2951000086	1.08	0.23	0.09	4.94	0.56	4.66	100.02
2951000088	0.87	0.09	0.04	3.66	0.06	2.83	100.02
2951000090	0.05	0.09	0.03	0.08	0.05	0.63	99.69
2951000092	4.1	0.43	0.03	0.36	0.31	8.49	98.92
2951000094	11.53	0.57	0.06	< 0.01	0.23	7.62	99.9
2951000096	0.14	0.07	< 0.01	0.13	0.04	2.43	100.45

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	MgO %	CaO %	Na2O %	K2O %	P2O5 %	LOI %	Total %
2951000098	0.74	0.12	0.03	2.74	0.02	3.6	99.76
2951000100	2.59	0.16	0.15	11.25	0.12	3.84	100.94
2951000100DUP	2.55	0.17	0.16	10.95	0.18	3.88	99.95
2951000220STD	1.06	0.8	< 0.01	< 0.01	< 0.01	< 0.05	100.51
2951000221STD	7.14	5.84	2.49	1.65	0.21	2.85	100.18
2951000102	9.66	0.64	0.04	1.8	0.41	4.86	99.94
2951000104	4.14	2.32	0.02	0.38	0.88	21.7	100.81
2951000106	1.18	0.08	0.06	6.65	0.04	3.21	100.48
2951000108	1.16	2.85	0.86	1.47	0.17	8.62	99.26
2951000110	4.43	3.2	0.05	0.3	0.04	17.17	100.22
2951000112	3.36	3.74	0.25	0.52	0.07	13.14	98.88
2951000115	2.2	0.32	0.05	5.11	0.12	3.65	99.2
2951000123	0.34	7.59	0.03	< 0.01	0.01	9.68	98.66
2951000124	0.1	1	< 0.01	0.04	< 0.01	3.65	99.1
2951000126	0.06	0.26	< 0.01	< 0.01	< 0.01	2.7	98.53
2951000128	0.08	0.42	0.01	< 0.01	< 0.01	1.91	100.45
2951000130	0.16	0.7	< 0.01	< 0.01	< 0.01	3.83	98.53
2951000132	0.45	0.84	< 0.01	0.16	< 0.01	7.56	99.45
2951000134	0.29	0.94	0.01	0.32	0.12	10.02	99.47
2951000141	0.19	0.77	< 0.01	0.09	0.27	9.19	99.85
2951000142	0.2	1.01	0.03	0.27	0.24	10.11	100.43
2951000144	0.21	0.91	0.06	0.28	0.21	9.4	100.5
2951000147	0.13	0.58	0.04	0.45	0.07	7.9	99.38
2951000149	0.16	0.87	0.02	0.39	0.04	6.82	100.69
2951000149DUP	0.16	0.85	0.03	0.36	0.07	6.82	98.75
2951000222STD	0.31	3.11	< 0.01	< 0.01	2.05	< 0.05	99.82
2951000223STD	7.09	5.8	2.48	1.65	0.16	3.02	100.27
2951000151	0.17	0.76	0.04	0.57	0.02	8.59	98.31
2951000153	0.21	0.58	0.04	0.45	0.09	4.92	100.14
2951000155	0.36	0.53	0.03	0.41	< 0.01	8.68	99.63
2951000161	0.4	0.51	0.03	0.23	0.04	5.96	98.97
2951000167	0.55	0.45	0.02	0.45	< 0.01	5.17	100.51
2951000171	6.47	7.83	2.6	0.92	0.41	3.47	98.52
2951000177	1.48	1.27	0.1	0.35	0.58	9.86	101.17
2951000178	0.84	1.45	0.14	0.24	0.9	5.99	100.29
2951000179	2.28	1.36	0.41	0.77	0.67	9.15	98.66
2951000185	6.75	8.62	3.11	0.17	0.35	3.29	100.18
2951000186	6.28	7.64	3.29	0.34	0.48	3.55	100.16
2951000188	0.26	0.23	0.07	0.62	0.07	0.96	100.23
2951000199	0.21	0.26	< 0.01	< 0.01	< 0.01	8.01	99.93
2951000203	0.53	0.93	0.03	< 0.01	< 0.01	15.44	98.84
2951000204	0.21	0.35	< 0.01	< 0.01	< 0.01	6.62	100.24

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	MgO %	CaO %	Na2O %	K2O %	P2O5 %	LOI %	Total %
2951000205	1.01	0.32	0.1	5.13	0.41	17.64	100.84
2951000213	1.36	1.47	0.03	< 0.01	< 0.01	14.48	100.85
2951000216	1.63	1.57	0.09	0.03	< 0.01	16.07	100.7
2951000216DUP	1.56	1.47	0.04	0.15	< 0.01	15.82	99.92
2951000224STD	2.29	2.14	0.48	1.18	0.09	< 0.05	99.56
2951000225STD	7.07	5.78	2.48	1.63	0.24	3.05	100.1
2951000228	5.76	7.43	1.67	1.59	0.59	6.94	98.89
2951000232	0.23	0.71	0.07	0.29	0.59	10.05	99.73
2951000237	0.15	0.47	0.02	0.23	0.49	7.74	99.56
2951000248	0.36	10.65	0.23	0.35	7.45	8.74	100.42
2951000249	1.63	1.27	0.3	0.73	0.56	10.24	99.31
2951000250	2.24	1.79	0.48	1.15	0.92	8.41	100.95
2951000259	1.24	0.18	0.09	4.78	0.44	4.36	99.76
2951000265	1.29	0.24	0.07	6.03	0.43	5.87	98.65
2951000269	5.08	1.02	1.09	1.85	0.48	8.72	98.47
2951000270	6.63	0.72	2.71	1.26	0.35	5.22	98.97
2951000293	3.75	0.91	0.07	1.84	0.31	8.09	100.79
2951000294	1.64	1.12	0.01	0.27	0.77	5.81	100.85
2951000295	0.5	0.61	0.02	0.17	0.35	3.82	99.89
2951000296	0.48	1.12	0.07	0.34	0.5	5.67	100.64
2951000301	0.71	0.08	0.07	1.76	0.02	16.8	98.62
2951000302	0.66	0.13	0.08	1.74	0.04	18.15	98.3
2951000303	0.28	0.1	0.02	0.32	0.3	5.52	100.81
2951000308	2.05	2.89	4.86	1.52	0.8	4.05	100.85
2951000310	1.74	0.48	0.08	1.86	0.34	8.11	99.81
2951000310 DUP	1.62	0.46	0.06	1.91	0.36	8.18	99.27
2951000316 STD	2.52	3.81	4.02	4.07	0.29	4.31	99.32
2951000317 STD	6.89	6.11	2.38	1.96	0.2	2.82	101.4
2951000311	0.34	0.28	0.04	0.27	0.4	7.16	98.86
2951000313	2.14	1.69	0.25	0.76	0.82	11.16	100.16

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	S Tot %	Li ppm	C Tot %	Be ppm	Sc ppm	V ppm	Cr ppm	Co ppm
2951000006	1.93	3	0.19	< 0.5	< 5	30	65	11
2951000010	0.02	5	0.68	< 0.5	< 5	18	84	11
2951000015	0.02	5	0.24	< 0.5	< 5	45	100	14
2951000016	0.03	41	0.12	< 0.5	< 5	22	57	13
2951000018	0.02	8	0.1	< 0.5	< 5	8	77	7
2951000021	< 0.02	172	0.14	< 0.5	9	69	190	87
2951000031	< 0.02	8	0.17	< 0.5	< 5	35	53	27
2951000035	< 0.02	26	0.09	< 0.5	< 5	76	287	27
2951000037	0.08	36	0.14	< 0.5	6	111	79	22
2951000039	0.13	17	0.11	< 0.5	< 5	149	40	24
2951000041	< 0.02	4	0.12	< 0.5	< 5	15	18	2
2951000043	< 0.02	3	0.09	< 0.5	11	444	7	24
2951000045	< 0.02	3	0.09	< 0.5	< 5	14	82	1
2951000047	0.06	5	0.09	< 0.5	< 5	79	27	2
2951000049	< 0.02	12	0.16	< 0.5	< 5	44	36	19
2951000053	< 0.02	59	2.34	< 0.5	< 5	63	49	67
2951000054	< 0.02	5	0.4	< 0.5	< 5	27	135	72
2951000058	< 0.02	< 1	0.1	< 0.5	< 5	5	127	3
2951000059	< 0.02	7	0.16	< 0.5	< 5	51	32	42
2951000059DUP	< 0.02	7	0.16	< 0.5	< 5	47	28	41
2951000218STD	0.18	12	1.27	< 0.5	< 5	33	54	13
2951000219STD	0.05	13	0.09	< 0.5	< 5	118	90	32
2951000060	< 0.02	< 1	0.07	< 0.5	< 5	2	196	2
2951000062	< 0.02	2	0.17	< 0.5	< 5	45	32	22
2951000065	< 0.02	4	0.1	< 0.5	< 5	46	9	42
2951000066	1.74	6	2.62	< 0.5	< 5	80	28	< 1
2951000068	0.02	4	0.1	< 0.5	8	349	18	7
2951000070	< 0.02	4	0.09	< 0.5	< 5	67	68	18
2951000071	< 0.02	2	0.13	< 0.5	< 5	49	60	11
2951000073	< 0.02	< 1	0.08	< 0.5	< 5	26	97	2
2951000075	< 0.02	< 1	4.23	< 0.5	< 5	33	49	25
2951000077	< 0.02	1	4.05	< 0.5	< 5	13	95	19
2951000079	< 0.02	2	3.88	< 0.5	< 5	29	95	56
2951000080	< 0.02	1	1.95	< 0.5	< 5	19	79	23
2951000081	< 0.02	1	2.59	< 0.5	< 5	14	127	18
2951000082	2.13	5	0.16	< 0.5	< 5	28	25	3
2951000086	0.09	7	0.2	< 0.5	< 5	129	59	6
2951000088	0.02	11	0.12	< 0.5	< 5	9	109	2
2951000090	0.02	1	0.12	< 0.5	< 5	3	138	< 1
2951000092	< 0.02	25	0.14	< 0.5	25	322	65	169
2951000094	< 0.02	12	0.11	< 0.5	25	321	56	66
2951000096	< 0.02	3	0.1	< 0.5	< 5	5	113	5

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	S Tot %	Li ppm	C Tot %	Be ppm	Sc ppm	V ppm	Cr ppm	Co ppm
2951000098	< 0.02	11	0.13	< 0.5	< 5	19	129	8
2951000100	< 0.02	53	0.11	1.1	< 5	34	13	15
2951000100DUP	< 0.02	56	0.11	1.2	< 5	36	13	14
2951000220STD	0.08	< 1	0.4	< 0.5	< 5	16	1	< 1
2951000221STD	0.05	12	0.1	< 0.5	< 5	111	86	30
2951000102	< 0.02	78	0.11	< 0.5	< 5	131	116	52
2951000104	< 0.02	2	5.91	< 0.5	< 5	29	38	27
2951000106	0.02	4	0.16	< 0.5	< 5	4	22	13
2951000108	0.02	7	0.85	< 0.5	< 5	38	97	24
2951000110	< 0.02	4	4.55	< 0.5	< 5	34	50	24
2951000112	< 0.02	2	3.59	< 0.5	< 5	37	44	10
2951000115	< 0.02	31	0.23	< 0.5	5	64	92	25
2951000123	< 0.02	4	2.11	< 0.5	< 5	53	59	62
2951000124	< 0.02	2	0.39	< 0.5	< 5	45	94	29
2951000126	< 0.02	4	0.15	< 0.5	< 5	66	25	50
2951000128	< 0.02	7	0.24	< 0.5	< 5	33	72	43
2951000130	< 0.02	34	0.48	< 0.5	< 5	50	133	63
2951000132	0.05	1145	0.42	< 0.5	< 5	44	115	523
2951000134	0.02	477	0.41	< 0.5	< 5	67	72	389
2951000141	< 0.02	15	0.41	< 0.5	< 5	49	45	69
2951000142	< 0.02	34	0.43	< 0.5	< 5	57	69	109
2951000144	0.06	13	0.41	< 0.5	< 5	52	62	80
2951000147	0.02	12	0.3	< 0.5	< 5	52	66	57
2951000149	< 0.02	13	0.38	< 0.5	< 5	54	63	50
2951000149DUP	< 0.02	12	0.39	< 0.5	< 5	52	65	52
2951000222STD	0.28	4	0.48	< 0.5	< 5	92	< 1	9
2951000223STD	0.06	13	0.09	< 0.5	< 5	123	96	34
2951000151	< 0.02	16	0.32	< 0.5	< 5	63	82	65
2951000153	0.02	5	0.25	< 0.5	< 5	58	57	52
2951000155	< 0.02	7	0.19	< 0.5	< 5	43	68	56
2951000161	< 0.02	125	0.34	< 0.5	< 5	83	33	56
2951000167	< 0.02	28	0.15	< 0.5	< 5	74	32	45
2951000171	< 0.02	21	0.1	< 0.5	< 5	76	60	40
2951000177	0.49	9	2.36	< 0.5	< 5	40	47	29
2951000178	0.06	7	1.05	< 0.5	< 5	39	69	7
2951000179	0.14	2	2.12	< 0.5	< 5	48	41	34
2951000185	0.05	18	0.14	< 0.5	< 5	85	60	39
2951000186	< 0.02	25	0.09	< 0.5	5	115	69	42
2951000188	< 0.02	9	0.12	< 0.5	< 5	5	152	2
2951000199	< 0.02	3	0.74	< 0.5	< 5	58	120	8
2951000203	< 0.02	3	3.29	< 0.5	< 5	63	32	16
2951000204	< 0.02	2	1.25	< 0.5	< 5	52	70	7

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	S Tot %	Li ppm	C Tot %	Be ppm	Sc ppm	V ppm	Cr ppm	Co ppm
2951000205	3.14	10	6.39	< 0.5	< 5	128	266	19
2951000213	0.38	5	2.25	< 0.5	16	87	12	20
2951000216	0.17	4	2.58	< 0.5	13	63	14	14
2951000216DUP	0.16	3	2.65	< 0.5	13	64	13	14
2951000224STD	0.17	22	0.13	< 0.5	< 5	39	31	6
2951000225STD	0.05	13	0.11	< 0.5	< 5	126	90	32
2951000228	< 0.02	25	0.11	4.8	13	111	220	47
2951000232	< 0.02	8	0.12	27.4	< 5	85	15	39
2951000237	< 0.02	5	0.16	22	< 5	67	34	40
2951000248	< 0.02	3	0.35	14.3	< 5	204	38	81
2951000249	0.22	< 1	2.5	6.3	< 5	43	37	36
2951000250	< 0.02	1	1.5	7.2	< 5	59	27	36
2951000259	0.38	19	0.16	2.7	6	74	85	17
2951000265	0.08	18	0.19	4.4	< 5	70	31	9
2951000269	< 0.02	38	0.09	5.5	20	265	84	42
2951000270	< 0.02	38	0.06	4.7	21	273	98	44
2951000293	1.27	16	0.57	6	12	169	171	85
2951000294	2.78	5	1.19	4.4	< 5	220	93	16
2951000295	1.57	< 1	0.4	3.2	< 5	44	134	12
2951000296	0.27	< 1	0.74	6.1	< 5	62	79	14
2951000301	10.12	3	1.57	3.9	< 5	87	100	34
2951000302	10.9	3	2.33	3.4	< 5	95	98	33
2951000303	0.16	1	0.32	7.7	< 5	71	61	4
2951000308	< 0.02	15	0.07	3.6	13	125	18	19
2951000310	0.03	2	0.83	13.5	< 5	44	27	40
2951000310 DUP	0.03	2	0.83	10.6	< 5	44	29	35
2951000316 STD	0.2	13	1.4	2.6	< 5	35	57	13
2951000317 STD	0.11	13	0.06	1.3	5	135	89	30
2951000311	< 0.02	< 1	0.3	11.6	< 5	34	36	8
2951000313	0.12	< 1	3.36	11.9	< 5	53	40	18

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Ni ppm	Cu ppm	Zn ppm	Ga ppm	As ppm	Rb ppm	Sr ppm	Y ppm
2951000006	8	65	6	< 2	107	< 5	8	1
2951000010	14	< 1	7	18	15	< 5	59	6
2951000015	34	86	23	< 2	65	< 5	49	12
2951000016	37	7	75	9	< 5	150	8	1
2951000018	18	3	18	< 2	< 5	220	9	2
2951000021	58	8	90	8	< 5	34	21	1
2951000031	24	124	22	6	< 5	< 5	60	2
2951000035	198	85	47	13	< 5	78	53	8
2951000037	29	22	75	12	< 5	130	52	15
2951000039	20	29	74	11	< 5	92	97	12
2951000041	3	5	4	2	< 5	39	48	4
2951000043	35	11	29	2	43	15	23	2
2951000045	4	6	4	4	< 5	29	158	6
2951000047	5	8	6	4	< 5	57	257	7
2951000049	22	8	43	< 2	60	< 5	11	6
2951000053	92	31	106	< 2	97	< 5	15	15
2951000054	59	182	45	< 2	56	< 5	32	3
2951000058	4	5	4	< 2	< 5	< 5	7	3
2951000059	31	12	46	7	41	< 5	8	4
2951000059DUP	27	12	41	5	38	< 5	8	4
2951000218STD	39	32	51	10	< 5	170	1139	9
2951000219STD	19	81	92	15	< 5	27	33	16
2951000060	6	4	3	< 2	< 5	< 5	2	< 1
2951000062	15	3	33	< 2	12	< 10	15	9
2951000065	16	8	22	< 2	30	11	19	13
2951000066	3	4	4	3	< 5	120	421	4
2951000068	13	12	13	< 2	11	50	32	3
2951000070	31	5	21	< 2	35	< 5	26	6
2951000071	8	5	< 1	7	22	< 5	13	9
2951000073	3	3	2	< 2	< 5	5	4	5
2951000075	15	3	36	< 2	< 5	< 5	21	7
2951000077	9	< 1	30	< 2	< 5	< 5	15	5
2951000079	26	< 1	67	< 2	16	< 5	17	6
2951000080	17	< 1	23	< 2	< 5	< 5	110	5
2951000081	11	2	42	< 2	< 5	< 5	10	4
2951000082	7	22	8	< 2	< 5	110	158	7
2951000086	4	8	11	< 2	9	110	96	4
2951000088	5	5	9	< 2	< 5	120	14	1
2951000090	3	5	7	< 2	< 5	7	13	1
2951000092	244	36	241	15	< 5	90	23	7
2951000094	74	39	102	21	< 5	13	16	4
2951000096	9	8	6	< 2	< 5	< 5	6	1

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Ni ppm	Cu ppm	Zn ppm	Ga ppm	As ppm	Rb ppm	Sr ppm	Y ppm
2951000098	14	9	20	3	< 5	99	5	4
2951000100	16	15	48	6	< 5	519	48	17
2951000100DUP	16	13	52	6	< 5	525	51	18
2951000220STD	10	3	17	< 2	< 5	< 5	32	1
2951000221STD	20	77	87	15	< 5	15	28	15
2951000102	72	15	78	17	< 5	45	22	5
2951000104	11	< 1	16	< 2	18	15	36	7
2951000106	16	42	13	< 2	< 5	210	5	3
2951000108	21	12	27	< 2	< 5	48	15	6
2951000110	10	< 1	25	< 2	< 5	< 5	38	6
2951000112	7	2	12	< 2	< 5	16	28	7
2951000115	51	20	61	8	< 5	150	14	4
2951000123	16	25	20	< 2	24	< 5	65	10
2951000124	9	12	12	< 2	24	< 5	16	6
2951000126	22	7	17	< 2	46	< 5	18	6
2951000128	10	16	13	< 2	26	< 5	11	5
2951000130	24	1622	30	< 2	17	8	26	6
2951000132	94	132	59	< 2	36	< 5	99	9
2951000134	88	186	68	< 2	68	< 5	164	16
2951000141	18	72	43	< 2	74	< 5	103	14
2951000142	37	109	59	< 2	68	< 5	214	16
2951000144	19	117	56	< 2	44	< 5	243	15
2951000147	32	53	74	< 2	29	< 5	249	12
2951000149	29	55	77	< 2	25	< 5	171	8
2951000149DUP	31	50	70	< 2	29	< 5	171	8
2951000222STD	8	86	2950	< 2	< 5	< 5	80	12
2951000223STD	22	83	103	18	< 5	22	32	17
2951000151	28	530	64	< 2	59	< 5	326	10
2951000153	37	88	48	< 2	40	10	205	10
2951000155	30	78	42	< 2	12	33	343	8
2951000161	14	20	53	< 2	< 5	50	48	10
2951000167	15	20	29	< 2	5	47	43	8
2951000171	47	25	48	13	< 5	31	61	6
2951000177	15	43	39	< 2	10	< 5	58	5
2951000178	6	8	27	< 2	< 5	< 5	48	7
2951000179	12	10	25	< 2	28	16	66	6
2951000185	53	42	43	14	< 5	< 5	57	6
2951000186	48	29	56	15	< 5	27	72	7
2951000188	4	5	4	5	< 5	28	4	< 1
2951000199	15	17	26	< 2	7	< 5	14	9
2951000203	24	13	23	< 2	10	< 5	100	70
2951000204	11	7	13	< 2	47	< 5	28	16

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Ni ppm	Cu ppm	Zn ppm	Ga ppm	As ppm	Rb ppm	Sr ppm	Y ppm
2951000205	28	99	7	4	< 5	110	132	4
2951000213	40	17	103	< 2	20	< 13	15	4
2951000216	28	26	54	< 2	< 5	12	14	4
2951000216DUP	28	23	54	< 2	< 5	11	14	4
2951000224STD	20	41	21	< 2	< 5	83	8	4
2951000225STD	19	79	85	19	< 5	32	35	17
2951000228	116	32	85	16	< 5	62	191	6
2951000232	61	351	85	< 2	85	< 20	69	7
2951000237	62	38	76	5	132	< 16	31	6
2951000248	11	32	172	10	29	< 19	239	204
2951000249	14	17	42	< 2	20	< 14	78	7
2951000250	15	2	39	5	40	< 18	104	9
2951000259	19	53	22	6	8	130	124	6
2951000265	15	12	16	4	16	190	150	6
2951000269	54	42	98	22	< 5	58	41	10
2951000270	64	28	110	24	< 5	35	36	9
2951000293	106	128	498	15	5	46	27	15
2951000294	48	84	248	12	9	10	35	10
2951000295	15	48	97	3	7	< 5	22	7
2951000296	27	59	831	< 2	11	< 15	44	10
2951000301	125	133	31	< 2	10	61	70	2
2951000302	122	152	45	< 2	15	71	89	3
2951000303	34	50	150	< 2	13	< 12	236	11
2951000308	< 1	2	78	25	< 5	57	92	19
2951000310	12	25	75	< 2	36	95	66	4
2951000310 DUP	13	21	71	< 2	30	130	61	4
2951000316 STD	41	38	57	16	< 5	160	1191	9
2951000317 STD	21	82	102	21	< 5	17	46	18
2951000311	11	9	64	< 2	39	< 21	29	4
2951000313	9	19	20	< 2	15	< 16	88	8

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Zr ppm	Nb ppm	Mo ppm	Ag ppm	Cd ppm	Sn ppm	Sb ppm	Te ppm	Ba ppm
2951000006	< 1	1	< 1	2.9	< 1	< 20	< 5	< 10	24
2951000010	14	21	< 1	< 0.2	4	< 20	< 5	< 10	65
2951000015	20	6	< 1	< 0.2	< 1	170	< 5	< 10	891
2951000016	12	2	< 1	0.5	< 1	< 20	< 5	< 10	69
2951000018	15	1	< 1	< 0.2	< 1	< 20	< 5	< 10	300
2951000021	15	3	< 1	2	< 1	< 20	< 5	< 10	127
2951000031	4	2	< 1	< 0.2	< 1	< 20	< 5	< 10	90
2951000035	10	3	< 1	0.2	< 1	< 20	< 5	< 10	383
2951000037	64	8	< 1	0.6	< 1	< 20	< 5	< 10	284
2951000039	17	12	< 1	0.8	< 1	< 20	< 5	< 10	396
2951000041	11	4	< 1	< 0.2	< 1	< 20	< 5	< 10	196
2951000043	22	17	2	3.4	< 1	< 20	< 5	< 10	132
2951000045	10	3	< 1	0.3	< 1	< 20	< 5	< 10	158
2951000047	16	4	< 1	0.4	< 1	< 20	< 5	< 10	279
2951000049	5	2	< 1	1.8	< 1	< 20	< 5	< 10	19
2951000053	14	15	< 1	< 0.2	< 1	< 20	< 5	< 10	19
2951000054	19	4	< 1	< 0.2	< 1	< 20	< 5	< 10	104
2951000058	< 1	< 1	< 1	0.3	< 1	< 20	< 5	< 10	10
2951000059	7	16	< 1	2	< 1	< 20	< 5	< 10	16
2951000059DUP	5	14	< 1	3.9	< 1	< 20	< 5	< 10	16
2951000218STD	48	4	9	0.6	< 1	< 20	11	< 10	1198
2951000219STD	16	2	8	0.5	< 1	< 20	< 5	< 10	16
2951000060	< 1	< 1	< 1	< 0.2	< 1	< 20	< 5	< 10	1
2951000062	6	12	< 1	3.5	< 1	57	< 5	< 10	24
2951000065	4	11	< 1	3.3	< 1	< 20	< 5	< 10	93
2951000066	16	2	1	0.3	< 1	< 20	< 5	< 10	151
2951000068	19	5	2	1	< 1	< 20	< 5	< 10	107
2951000070	8	13	< 1	2.5	< 1	< 20	< 5	< 10	22
2951000071	5	13	< 1	5	< 1	< 20	< 5	< 10	26
2951000073	3	2	< 1	0.5	< 1	< 20	< 5	< 10	4
2951000075	6	2	< 1	< 0.2	< 1	< 20	< 5	< 10	8
2951000077	6	1	< 1	< 0.2	0	< 20	16	< 10	10
2951000079	10	10	< 1	< 0.2	0	56	< 5	< 10	18
2951000080	3	3	< 1	< 0.2	< 1	< 20	< 5	< 10	14
2951000081	5	2	< 1	< 0.2	< 1	< 20	< 5	< 10	28
2951000082	44	3	< 1	0.2	< 1	< 20	< 5	< 10	92
2951000086	43	7	< 1	0.9	< 1	< 20	< 5	< 10	133
2951000088	12	2	< 1	< 0.2	0	< 20	< 5	< 10	54
2951000090	5	< 1	< 1	< 0.2	0	< 20	< 5	< 10	31
2951000092	9	3	< 1	1.7	< 1	< 20	< 5	< 10	47
2951000094	9	4	< 1	1.4	< 1	80	< 5	< 10	13
2951000096	4	< 1	< 1	< 0.2	< 1	< 20	< 5	< 10	25

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Zr ppm	Nb ppm	Mo ppm	Ag ppm	Cd ppm	Sn ppm	Sb ppm	Te ppm	Ba ppm
2951000098	11	< 1	< 1	0.4	< 1	< 20	< 5	< 10	94
2951000100	147	19	< 1	< 0.2	< 1	< 20	< 5	< 10	91
2951000100DUP	155	20	< 1	0.3	< 1	< 20	< 5	< 10	96
2951000220STD	< 1	3	< 1	2	< 1	< 20	< 5	< 10	8
2951000221STD	14	2	8	0.6	< 1	< 20	< 5	< 10	13
2951000102	8	4	< 1	0.6	< 1	48	< 5	< 10	78
2951000104	10	2	< 1	< 0.2	< 1	42	< 5	< 10	323
2951000106	14	1	< 1	0.2	< 1	< 20	< 5	< 10	70
2951000108	13	3	< 1	0.2	< 1	< 20	< 5	< 10	89
2951000110	11	2	< 1	< 0.2	< 1	< 20	< 5	< 10	24
2951000112	12	2	< 1	< 0.2	< 1	< 20	< 5	< 10	20
2951000115	35	3	< 1	0.6	< 1	< 20	< 5	< 10	169
2951000123	10	2	< 1	0.8	< 1	< 20	< 5	< 10	70
2951000124	5	11	< 1	1.8	< 1	< 20	< 5	< 10	78
2951000126	6	11	< 1	3.1	< 1	< 20	< 5	< 10	244
2951000128	8	12	< 1	2.7	< 1	< 20	< 5	< 10	184
2951000130	8	1	< 1	< 0.2	< 1	< 20	< 5	< 10	184
2951000132	15	8	< 1	< 0.2	< 1	32	< 5	< 10	> 2000
2951000134	14	8	< 1	< 0.2	< 1	< 20	< 5	< 10	> 2000
2951000141	10	< 1	< 1	< 0.2	< 1	37	< 5	< 10	873
2951000142	15	9	< 1	< 0.2	1	< 20	< 5	< 10	> 2000
2951000144	12	10	< 1	< 0.2	< 1	111	< 5	< 10	> 2000
2951000147	13	9	< 1	< 0.2	< 1	128	< 5	< 10	> 2000
2951000149	15	11	< 1	< 0.2	< 1	< 20	< 5	< 10	> 2000
2951000149DUP	14	8	< 1	< 0.2	< 1	< 20	< 5	< 10	> 2000
2951000222STD	< 1	3	< 1	7.3	< 1	< 20	< 5	< 10	607
2951000223STD	16	2	9	0.6	< 1	< 20	< 5	< 10	18
2951000151	19	7	< 1	< 0.2	< 1	81	< 5	< 10	> 2000
2951000153	15	8	< 1	< 0.2	< 1	< 20	< 5	< 10	> 2000
2951000155	11	10	< 1	< 0.2	0	< 20	< 5	< 10	> 2000
2951000161	51	8	< 1	1.3	< 1	< 20	< 5	< 10	583
2951000167	38	7	< 1	0.8	< 1	< 20	< 5	< 10	395
2951000171	15	6	< 1	0.6	< 1	< 20	< 5	< 10	92
2951000177	5	4	< 1	1	< 1	< 20	< 5	< 10	17
2951000178	5	5	< 1	1.4	< 1	< 20	< 5	< 10	17
2951000179	9	5	< 1	1.1	< 1	< 20	< 5	< 10	99
2951000185	18	6	< 1	0.6	< 1	36	< 5	< 10	67
2951000186	20	6	< 1	0.8	< 1	40	< 5	< 10	127
2951000188	5	2	< 1	< 0.2	< 1	< 20	< 5	< 10	53
2951000199	5	4	< 1	1.9	< 1	< 20	< 5	< 10	12
2951000203	7	5	< 1	1.6	< 1	40	< 5	< 10	284
2951000204	6	4	1	1.3	< 1	< 20	< 5	< 10	63

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Zr ppm	Nb ppm	Mo ppm	Ag ppm	Cd ppm	Sn ppm	Sb ppm	Te ppm	Ba ppm
2951000205	25	3	40	0.6	< 1	< 20	< 5	< 10	268
2951000213	17	6	< 1	2.6	< 1	38	< 5	< 10	28
2951000216	13	6	< 1	2.3	< 1	< 20	< 5	< 10	16
2951000216DUP	13	6	< 1	2.3	< 1	< 20	< 5	< 10	16
2951000224STD	3	5	< 1	1.5	< 1	< 20	< 5	< 10	190
2951000225STD	19	5	7	0.4	< 1	< 20	< 5	< 10	20
2951000228	18	7	< 1	0.2	< 1	< 20	19	< 10	232
2951000232	< 1	9	4	3.2	4	65	13	< 10	35
2951000237	< 1	11	6	1.6	< 1	< 20	< 5	< 10	33
2951000248	< 1	6	< 1	1.9	2	< 20	< 5	< 10	153
2951000249	< 1	1	< 1	0.8	4	< 20	< 5	< 10	16
2951000250	< 1	3	< 1	1.3	1	< 20	7	< 10	17
2951000259	10	1	7	0.4	< 1	< 20	5	< 10	137
2951000265	7	4	4	0.7	1	< 20	< 5	< 10	212
2951000269	3	6	< 1	0.8	< 1	< 20	17	< 10	77
2951000270	6	7	< 1	0.6	1	< 20	21	< 10	45
2951000293	12	5	1	1.2	3	< 20	14	< 10	49
2951000294	5	3	3	0.8	3	< 20	9	< 10	6
2951000295	< 1	2	< 1	0.7	1	< 20	< 5	< 10	43
2951000296	< 1	2	4	1.9	8	< 20	< 5	< 10	12
2951000301	13	< 1	20	1.1	2	< 20	< 5	< 10	26
2951000302	13	< 1	15	1.3	3	< 20	< 5	< 10	26
2951000303	< 1	< 1	< 1	1.5	2	< 20	< 5	< 10	45
2951000308	33	9	< 1	0.7	1	< 20	11	< 10	308
2951000310	< 1	2	< 1	1.7	1	< 20	< 5	< 10	47
2951000310 DUP	< 1	< 1	< 1	1.9	2	< 20	< 5	< 10	42
2951000316 STD	52	6	11	0.5	0	< 20	10	< 10	1244
2951000317 STD	17	3	8	0.4	0	< 20	16	< 10	20
2951000311	< 1	< 1	3	2.7	1	< 20	< 5	< 10	31
2951000313	< 1	2	< 1	0.9	3	< 20	< 5	< 10	46

DNR Sample #	La ppm	Ce ppm	Ta ppm	W ppm	Pb ppm	Bi ppm	B ppm	F ppm	As ppm
2951000006	< 1	< 5	< 10	< 20	18	< 5	39	69	100
2951000010	< 1	< 5	< 10	< 20	< 2	< 5	35	66	11
2951000015	< 1	< 5	< 10	< 20	< 2	< 5	29	31	19
2951000016	10	43	< 10	< 20	26	< 5	60	441	2
2951000018	19	73	< 10	< 20	9	< 5	87	403	1
2951000021	6	36	< 10	< 20	42	< 5	87	135	4
2951000031	3	23	< 10	< 20	8	< 5	46	269	8
2951000035	23	150	< 10	< 20	18	< 5	9	1347	< 1
2951000037	92	240	< 10	< 20	21	< 5	8	1257	< 1
2951000039	50	180	< 10	< 20	25	< 5	21	1330	< 1
2951000041	59	200	< 10	< 20	< 2	< 5	86	492	< 1
2951000043	< 1	84	< 10	< 20	31	< 5	81	397	17
2951000045	21	120	< 10	< 20	3	< 5	64	727	1
2951000047	38	200	< 10	< 20	6	< 5	103	957	3
2951000049	< 1	< 5	< 10	< 20	20	< 5	49	52	35
2951000053	< 1	20	< 10	< 20	48	< 5	68	66	40
2951000054	< 1	< 5	< 10	< 20	< 2	< 5	35	40	54
2951000058	< 1	< 5	< 10	< 20	5	< 5	31	< 20	3
2951000059	< 1	16	< 10	< 20	17	< 5	36	33	19
2951000059DUP	< 1	18	< 10	< 20	19	< 5	33	35	18
2951000218STD	30	100	< 10	< 20	31	< 5	30	600	3
2951000219STD	3	17	< 10	< 20	24	< 5	29	251	< 1
2951000060	< 1	< 5	< 10	< 20	3	< 5	23	< 20	1
2951000062	< 1	41	< 10	< 20	26	< 5	66	34	5
2951000065	< 1	< 5	< 10	< 20	32	< 5	49	46	8
2951000066	17	280	< 10	< 20	8	< 5	73	1798	8
2951000068	50	160	< 10	< 20	10	< 5	115	495	14
2951000070	< 1	< 5	< 10	< 20	4	< 5	59	51	18
2951000071	< 1	42	< 10	< 20	19	< 5	162	32	20
2951000073	21	70	< 10	< 20	4	< 5	21	47	2
2951000075	3	12	< 10	< 20	24	< 5	31	38	1
2951000077	13	40	< 10	< 20	10	< 5	71	42	1
2951000079	< 1	15	< 10	< 20	< 2	< 5	30	< 20	3
2951000080	5	< 5	< 10	< 20	19	< 5	67	36	1
2951000081	3	11	< 10	< 20	< 2	< 5	31	35	3
2951000082	25	568	< 10	< 20	3	< 5	91	1120	4
2951000086	21	230	< 10	< 20	14	< 5	136	645	10
2951000088	16	47	< 10	< 20	5	< 5	93	468	2
2951000090	4	24	< 10	< 20	2	< 5	39	65	1
2951000092	2	33	< 10	< 20	33	< 5	75	214	32
2951000094	7	< 5	< 10	< 20	41	< 5	23	630	37
2951000096	< 1	< 5	< 10	< 20	3	< 5	30	90	4

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	La ppm	Ce ppm	Ta ppm	W ppm	Pb ppm	Bi ppm	B ppm	F ppm	As ppm
2951000098	< 1	< 5	< 10	< 20	8	< 5	86	328	3
2951000100	276	600	< 10	< 20	13	< 5	57	1320	1
2951000100DUP	291	612	< 10	< 20	13	< 5	64	1417	1
2951000220STD	< 1	< 5	< 10	< 20	21	< 5	41	85	< 1
2951000221STD	2	< 5	< 10	< 20	23	< 5	22	237	< 1
2951000102	24	57	< 10	< 20	31	< 5	59	680	< 1
2951000104	14	67	< 10	< 20	6	< 5	10	675	24
2951000106	21	< 5	< 10	< 20	3	< 5	167	191	4
2951000108	< 1	18	< 10	< 20	15	< 5	30	525	5
2951000110	5	< 5	< 10	< 20	13	< 5	25	261	3
2951000112	10	21	< 10	< 20	11	< 5	29	266	3
2951000115	25	74	< 10	< 20	17	< 5	178	973	1
2951000123	< 1	< 5	< 10	< 20	19	< 5	215	62	34
2951000124	< 1	< 5	< 10	< 20	9	< 5	95	37	12
2951000126	< 1	< 5	< 10	< 20	34	< 5	183	43	7
2951000128	< 1	< 5	< 10	< 20	14	< 5	165	35	14
2951000130	< 1	< 5	< 10	< 20	6	< 5	79	151	17
2951000132	6	40	< 10	< 20	< 2	< 5	42	41	39
2951000134	< 1	21	< 10	< 20	< 2	< 5	51	36	85
2951000141	< 1	12	< 10	< 20	3	< 5	48	52	81
2951000142	< 1	12	< 10	< 20	< 2	< 5	47	65	75
2951000144	< 1	9	< 10	< 20	13	< 5	40	52	44
2951000147	< 1	14	< 10	< 20	< 2	< 5	44	44	42
2951000149	< 1	< 5	< 10	< 20	< 2	< 5	46	36	38
2951000149DUP	< 1	26	< 10	< 20	< 2	< 5	53	39	37
2951000222STD	< 1	< 5	< 10	< 20	3563	< 5	4	473	3
2951000223STD	2	16	< 10	< 20	33	< 5	15	235	< 1
2951000151	< 1	30	< 10	< 20	6	< 5	44	54	22
2951000153	< 1	19	< 10	< 20	< 2	< 5	44	69	20
2951000155	< 1	37	< 10	< 20	7	< 5	57	64	18
2951000161	25	130	< 10	< 20	18	< 5	100	106	10
2951000167	20	110	< 10	< 20	17	< 5	106	182	15
2951000171	10	69	< 10	< 20	31	< 5	25	655	< 1
2951000177	< 1	< 5	< 10	< 20	25	< 5	42	429	18
2951000178	< 1	< 5	< 10	< 20	24	< 5	29	620	6
2951000179	< 1	11	< 10	< 20	41	< 5	24	378	17
2951000185	14	71	< 10	< 20	31	< 5	12	700	< 1
2951000186	16	99	< 10	< 20	33	< 5	16	980	< 1
2951000188	3	11	< 10	< 20	24	< 5	37	152	< 1
2951000199	< 1	< 5	< 10	< 20	17	< 5	41	83	4
2951000203	< 1	13	< 10	< 20	22	< 5	66	54	8
2951000204	< 1	< 5	< 10	< 20	32	< 5	71	38	23

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	La ppm	Ce ppm	Ta ppm	W ppm	Pb ppm	Bi ppm	B ppm	F ppm	As ppm
2951000205	3	90	< 10	< 20	17	< 5	238	732	3
2951000213	< 1	18	< 10	< 20	22	< 5	53	68	12
2951000216	< 1	< 5	< 10	< 20	24	< 5	44	75	3
2951000216DUP	< 1	< 5	< 10	< 20	26	< 5	48	74	3
2951000224STD	< 1	< 5	< 10	< 20	28	< 5	67	304	1
2951000225STD	< 1	17	< 10	< 20	40	< 5	17	286	< 1
2951000228	28	110	< 10	< 20	36	8	38	1057	2
2951000232	< 1	< 5	< 10	< 20	67	6	78	326	16
2951000237	< 1	< 5	< 10	< 20	133	< 5	77	246	50
2951000248	42	140	< 10	< 20	44	< 5	73	2488	15
2951000249	7	< 5	< 10	< 20	37	< 5	21	465	16
2951000250	19	30	< 10	< 20	44	< 5	19	573	20
2951000259	8	97	< 10	< 20	17	< 5	209	1072	5
2951000265	41	220	< 10	< 20	18	< 5	107	785	10
2951000269	30	92	< 10	< 20	47	6	55	323	9
2951000270	31	110	< 10	< 20	48	7	16	474	3
2951000293	28	97	< 10	< 20	43	5	71	704	10
2951000294	7	25	< 10	< 20	33	< 5	62	674	3
2951000295	2	< 5	< 10	< 20	23	< 5	32	368	9
2951000296	8	< 5	< 10	< 20	45	< 5	34	472	4
2951000301	< 1	31	< 10	< 20	31	< 5	659	604	10
2951000302	2	63	< 10	< 20	32	< 5	537	583	7
2951000303	2	< 5	< 10	< 20	29	< 5	32	134	7
2951000308	58	230	< 10	< 20	26	< 5	18	1227	1
2951000310	5	50	< 10	< 20	41	< 5	62	84	14
2951000310 DUP	6	56	< 10	< 20	33	< 5	66	135	14
2951000316 STD	34	150	< 10	< 20	35	< 5	29	633	3
2951000317 STD	6	33	< 10	< 20	30	6	16	300	< 1
2951000311	< 1	< 5	25	< 20	27	< 5	52	83	6
2951000313	7	< 5	< 10	< 20	36	< 5	40	381	8

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Sb ppm	Hg ppb	Cr ppm	Se ppm	Ta ppm	Pd ppb	Pt ppb	Au ppb
2951000006	2.3	174	192	5	< 3	1	< 5	2
2951000010	0.1	6	128	2	17	2	8	1
2951000015	0.2	< 5	150	< 1	6	1	< 5	< 1
2951000016	< 0.1	< 5	134	7	4	< 1	< 5	< 1
2951000018	0.1	< 5	229	12	8	< 1	< 5	< 1
2951000021	0.1	< 5	287	2	8	1	< 5	1
2951000031	0.1	< 5	202	< 1	3	1	6	2
2951000035	< 0.1	< 5	622	< 1	< 3	4	7	< 1
2951000037	< 0.1	< 5	155	< 1	< 3	< 1	< 5	< 1
2951000039	< 0.1	< 5	74	< 1	< 3	1	6	1
2951000041	< 0.1	6	56	2	< 3	4	7	4
2951000043	0.3	< 5	56	2	14	1	6	< 1
2951000045	0.1	6	197	< 1	< 3	2	6	1
2951000047	0.1	< 5	86	< 1	< 3	2	5	1
2951000049	0.1	< 5	91	< 1	< 3	2	< 5	< 1
2951000053	0.2	< 5	105	< 1	< 3	2	6	< 1
2951000054	0.3	< 5	286	< 1	17	< 1	7	< 1
2951000058	0.2	< 5	234	4	17	< 1	< 5	< 1
2951000059	0.2	6	98	< 1	12	< 1	< 5	< 1
2951000059DUP	0.1	6	108	< 1	< 3	< 1	< 5	< 1
2951000218STD	0.7	60	124	< 1	6	< 1	30	1333
2951000219STD	0.1	9	140	< 1	4	8	14	5
2951000060	0.1	< 5	402	< 1	< 3	< 1	< 5	< 1
2951000062	0.2	27	111	< 1	18	< 1	< 5	1
2951000065	0.1	< 5	76	< 1	8	< 1	< 5	2
2951000066	0.2	42	137	< 1	10	12	15	5
2951000068	0.2	< 5	57	< 1	< 3	3	10	2
2951000070	0.2	< 5	147	< 1	7	3	< 5	2
2951000071	0.4	5	115	< 1	< 3	1	< 5	4
2951000073	0.2	< 5	214	< 1	< 3	3	< 5	6
2951000075	0.1	< 5	151	< 1	< 3	2	< 5	3
2951000077	0.1	< 5	226	< 1	< 3	2	< 5	3
2951000079	0.2	< 5	166	2	8	1	< 5	1
2951000080	0.2	< 5	201	< 1	< 3	1	< 5	1
2951000081	0.2	< 5	259	< 1	< 3	< 1	< 5	< 1
2951000082	0.2	12	205	< 1	23	3	< 5	1
2951000086	0.5	12	187	< 1	34	< 1	< 5	3
2951000088	0.1	< 5	259	< 1	< 3	< 1	< 5	1
2951000090	0.1	6	342	< 1	< 3	< 1	< 5	< 1
2951000092	0.2	9	118	< 1	< 3	3	7	3
2951000094	0.1	6	92	< 1	5	2	6	< 1
2951000096	< 0.1	< 5	218	< 1	< 3	< 1	< 5	< 1

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Sb ppm	Hg ppb	Cr ppm	Se ppm	Ta ppm	Pd ppb	Pt ppb	Au ppb
2951000098	0.1	15	271	< 1	12	< 1	< 5	1
2951000100	0.1	12	27	< 1	< 3	< 1	< 5	2
2951000100DUP	0.1	15	50	< 1	12	< 1	< 5	4
2951000220STD	0.5	9	34	< 1	6	1	< 5	5
2951000221STD	0.2	9	161	< 1	< 3	10	11	3
2951000102	0.1	< 5	224	< 1	5	3	< 5	2
2951000104	0.2	6	63	< 1	25	3	< 5	3
2951000106	< 0.1	12	149	< 1	< 3	3	< 5	3
2951000108	0.1	24	225	< 1	7	4	< 5	2
2951000110	0.1	9	120	2	10	-9	-9	-9
2951000112	0.2	6	94	< 1	< 3	< 1	< 5	4
2951000115	0.1	33	230	< 1	< 3	< 1	< 5	< 1
2951000123	0.3	12	124	< 1	5	3	< 5	4
2951000124	0.2	19	246	< 1	< 3	3	10	4
2951000126	0.2	12	93	< 1	3	< 1	< 5	5
2951000128	0.2	16	153	< 1	< 3	1	< 5	< 1
2951000130	0.2	19	236	5	20	4	7	4
2951000132	0.3	25	206	< 1	< 3	17	15	9
2951000134	0.8	< 5	130	< 1	21	< 1	< 5	< 1
2951000141	0.8	< 5	98	< 1	< 3	< 1	< 5	5
2951000142	0.7	9	111	< 1	4	3	6	6
2951000144	0.3	9	111	< 1	21	2	5	5
2951000147	0.3	19	116	< 1	6	2	< 5	4
2951000149	0.4	9	94	< 1	< 3	1	6	12
2951000149DUP	0.3	9	122	< 1	25	7	< 5	8
2951000222STD	2.8	99	56	< 1	23	< 1	< 5	25
2951000223STD	0.2	9	134	< 1	23	9	9	6
2951000151	0.3	6	151	< 1	29	1	< 5	8
2951000153	0.5	< 5	117	< 1	16	4	< 5	7
2951000155	0.3	< 5	104	< 1	< 3	4	< 5	9
2951000161	0.4	25	93	< 1	12	31	< 5	112
2951000167	0.3	12	102	< 1	16	3	< 5	3
2951000171	< 0.1	16	180	< 1	10	1	< 5	< 1
2951000177	0.6	34	121	< 1	< 3	3	< 5	13
2951000178	0.5	19	158	< 1	5	4	< 5	5
2951000179	0.7	22	92	< 1	11	3	< 5	6
2951000185	0.1	9	163	< 1	< 3	3	< 5	4
2951000186	0.1	12	157	1	6	3	< 5	4
2951000188	0.1	9	270	< 1	6	2	< 5	6
2951000199	0.3	25	245	< 1	16	14	< 5	24
2951000203	0.2	19	91	< 1	16	4	< 5	5
2951000204	0.4	25	155	1	< 3	2	< 5	5

APPENDIX 295-I: ANALYTICAL RESULTS (52 ELEMENT PACKAGE)

DNR Sample #	Sb ppm	Hg ppb	Cr ppm	Se ppm	Ta ppm	Pd ppb	Pt ppb	Au ppb
2951000205	0.3	310	263	5	8	13	< 5	10
2951000213	0.3	50	84	1	7	11	< 5	69
2951000216	0.2	43	86	< 1	< 3	-9	-9	-9
2951000216DUP	0.2	43	75	< 1	< 3	-9	-9	-9
2951000224STD	0.2	9	88	1	< 3	6	< 5	4
2951000225STD	0.1	9	149	< 1	13	7	< 5	2
2951000228	0.2	31	335	< 1	< 3	1	< 5	3
2951000232	0.3	29	71	< 1	< 3	2	< 5	3
2951000237	0.5	37	72	< 1	< 3	3	< 5	3
2951000248	0.8	40	105	< 1	< 3	4	< 5	3
2951000249	0.5	32	99	< 1	8	1	< 5	4
2951000250	0.5	17	72	< 1	< 3	1	< 5	5
2951000259	0.8	29	146	2	< 3	7	6	5
2951000265	0.4	46	167	< 1	< 3	2	< 5	7
2951000269	< 0.2	17	104	< 1	< 3	< 1	< 5	1
2951000270	< 0.2	17	115	1	< 3	< 1	< 5	2
2951000293	0.4	131	254	< 1	4	1	< 5	2
2951000294	0.3	37	176	3	< 3	3	< 5	13
2951000295	0.3	26	238	< 1	< 3	< 1	< 5	4
2951000296	0.7	94	184	< 1	< 3	1	< 5	3
2951000301	1.2	265	251	9	< 3	5	5	7
2951000302	0.6	131	227	9	12	8	< 5	39
2951000303	0.5	29	148	5	< 3	1	< 5	12
2951000308	0.2	20	44	< 1	< 3	< 1	< 5	5
2951000310	0.4	48	88	< 1	10	2	< 5	10
2951000310 DUP	0.4	29	77	< 1	< 3	1	< 5	4
2951000316 STD	0.7	117	117	< 1	< 3	2	< 5	1379
2951000317 STD	< 0.2	9	193	< 1	< 3	8	10	10
2951000311	0.3	20	139	< 1	< 3	2	< 5	2
2951000313	0.4	20	114	< 1	< 3	2	< 5	6

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000118	< 5	< 0.2	< 2	19	> 10	96	0.59	0.008
2951000120	< 5	< 0.2	5	25	> 10	189	0.84	0.012
2951000121	< 5	0.4	14	82	5.92	153	2.42	0.07
2951000122	< 5	1.9	20	45	> 10	> 2000	0.81	0.015
2951000136	< 5	< 0.2	< 2	73	> 10	1755	1.51	0.027
2951000138	< 5	0.8	12	67	> 10	> 2000	1.44	0.026
2951000140	< 5	0.7	3	59	> 10	> 2000	1.36	0.012
2951000146	< 5	2.1	< 2	65	> 10	> 2000	1.14	0.007
2951000157	< 5	1.2	51	95	> 10	1167	1.05	0.044
2951000159	< 5	2.6	35	83	> 10	639	1.4	0.098
2951000163	< 5	1	< 2	61	> 10	624	1.57	0.235
2951000165	< 5	0.7	< 2	60	> 10	514	1.26	0.148
2951000194	< 5	0.3	12	18	2.45	406	0.54	0.01
2951000195	< 5	0.8	14	42	> 10	272	0.42	0.006
2951000196	< 5	0.6	32	57	5.01	1118	1.2	0.02
2951000197	< 5	1.2	14	37	> 10	124	0.56	0.015
2951000198	< 5	1.2	13	54	> 10	136	0.45	0.01
2951000200	< 5	6.8	30	31	> 10	19	0.27	0.007
2951000208	< 5	0.5	17	54	4.06	53	0.3	0.005
2951000209	< 5	0.7	22	61	> 10	82	0.6	0.021
2951000209DUP	5	0.8	24	58	> 10	83	0.6	0.022
2951000226STD	6	1.4	14	22	> 10	7	0.04	< 0.001
2951000227STD	< 5	0.6	27	104	6.6	19	2.97	0.585
2951000210	< 5	1.6	21	91	> 10	59	0.71	0.03
2951000211	< 5	1.5	13	143	> 10	54	0.64	0.019
2951000212	< 5	1.5	17	193	> 10	34	0.46	0.013
2951000214	< 5	1.8	7	128	> 10	27	0.53	0.011
2951000215	< 5	1.3	13	105	> 10	16	0.71	0.011
2951000230	< 5	0.6	42	32	> 10	41	0.74	0.041
2951000231	< 5	1.7	56	32	> 10	64	0.62	0.035
2951000233	< 5	2.9	30	88	> 10	30	1.15	0.063
2951000234	< 5	2.9	31	72	> 10	35	1.18	0.051
2951000235	< 5	2.3	35	24	> 10	28	0.75	0.026
2951000236	< 5	2.1	45	18	> 10	47	0.7	0.035
2951000251	< 5	0.9	23	33	> 10	252	1.78	0.096
2951000252	< 5	1.4	28	59	> 10	245	2.08	0.074
2951000263	24	1	31	98	> 10	245	4.2	0.119
2951000290	< 5	1.3	44	146	> 10	43	4.43	0.048
2951000291	< 5	1.1	36	189	> 10	26	4.59	0.036
2951000292	6	1.8	36	236	> 10	48	3.44	0.056
2951000300	6	2.4	45	329	> 10	112	1.11	0.01
2951000304	8	1.9	36	182	> 10	15	0.73	0.005

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000305	< 5	2.4	34	119	> 10	19	0.55	0.009
2951000307	< 5	0.8	36	151	9.85	229	4.22	0.259
2951000312	< 5	2.1	36	23	> 10	24	0.83	0.018
2951000315	< 5	1.5	40	29	> 10	119	0.83	0.015
2951000297	< 5	0.7	35	39	> 10	9	0.46	0.011
2951000297 DUP	< 5	0.9	34	37	> 10	8	0.43	0.011
2951000318STD	24	2.2	33	18	> 10	8	0.04	< 0.001
2951000319STD	< 5	0.6	30	106	6.86	19	3.17	0.754
2951000247	< 5	0.8	< 2	86	> 10	42	1.31	0.127
2951000253	< 5	0.7	< 2	20	> 10	145	0.52	0.067
2951000254	< 5	0.4	< 2	13	> 10	202	0.6	0.075
2951000255	< 5	0.6	< 2	16	> 10	291	0.65	0.058
2951000256	6	0.2	< 2	8	> 10	128	0.47	0.057
2951000257	< 5	< 0.2	< 2	5	6.43	178	0.49	0.042
2951000258	< 5	< 0.2	< 2	8	1.44	98	0.63	0.011
2951000260	< 5	0.3	< 2	17	> 10	106	0.67	0.076
2951000261	< 5	< 0.2	< 2	14	> 10	113	0.52	0.075
2951000262	< 5	< 0.2	< 2	15	9.74	163	0.52	0.079
2951000264	< 5	0.3	< 2	10	> 10	160	0.51	0.096
2951000306	< 5	0.7	6	80	> 10	58	1.87	0.017
2951000309	< 5	1.7	< 2	187	> 10	64	2.09	0.014
2951000314	< 5	1.2	< 2	29	> 10	32	0.75	0.014
2951000320	< 5	1.2	< 2	29	> 10	52	0.45	0.024
2951000321	< 5	0.4	3	< 1	6.87	43	0.46	0.054
2951000322	6	0.9	< 2	4	> 10	25	0.52	0.072
2951000323	< 5	3.2	< 2	63	> 10	33	1.06	0.042
2951000324	< 5	1.8	< 2	42	> 10	61	1.03	0.068
2951000325	< 5	1.8	< 2	20	> 10	42	0.57	0.076
2951000325 DUP	< 5	1.6	< 2	21	> 10	44	0.61	0.08
2951000413 STD	< 5	0.5	< 2	98	6.33	15	2.98	0.734
2951000414 STD	67	< 0.2	4	68	7.43	22	3.57	0.052
2951000326	< 5	2.5	< 2	10	> 10	7	0.19	0.006
2951000327	< 5	2.4	< 2	13	> 10	9	0.13	0.004
2951000328	< 5	0.9	< 2	8	> 10	30	0.31	0.004
2951000329	< 5	2.6	< 2	21	> 10	4	0.24	0.007
2951000330	< 5	2.8	< 2	58	> 10	44	1.58	0.12
2951000331	< 5	1.2	< 2	11	> 10	21	0.33	0.026
2951000332	< 5	1.6	< 2	6	> 10	4	0.12	0.003
2951000333	7	2.1	< 2	277	> 10	21	0.61	0.014
2951000334	< 5	0.9	11	135	> 10	17	0.21	0.007
2951000335	7	1.2	10	139	> 10	31	0.46	0.026
2951000336	8	1.2	13	194	> 10	41	0.61	0.03

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000337	6	1.2	8	254	> 10	76	0.89	0.057
2951000338	< 5	1.1	10	94	> 10	64	0.75	0.047
2951000341	< 5	< 0.2	3	13	3.21	29	0.37	0.024
2951000342	< 5	< 0.2	4	22	4.13	60	0.63	0.064
2951000343	< 5	0.8	< 2	17	> 10	56	0.33	0.01
2951000344	< 5	2.3	< 2	24	> 10	9	0.35	0.014
2951000345	< 5	1.3	< 2	45	> 10	16	0.55	0.013
2951000346	< 5	3.4	< 2	30	> 10	8	0.18	0.007
2951000347	9	5.7	< 2	51	> 10	207	0.64	0.043
2951000347 DUP	12	6.1	< 2	51	> 10	199	0.62	0.041
2951000415 STD	< 5	1	< 2	101	6.66	16	3.15	0.787
2951000416 STD	6	3.2	< 2	13	> 10	99	0.09	0.044
2951000348	7	0.4	15	10	8.43	43	0.5	0.037
2951000349	< 5	< 0.2	21	46	> 10	12	0.9	0.011
2951000350	< 5	< 0.2	19	46	> 10	12	0.95	0.012
2951000351	< 5	< 0.2	19	27	> 10	26	0.97	0.013
2951000352	< 5	1.2	11	54	> 10	41	0.41	0.008
2951000353	17	< 0.2	50	58	> 10	8	0.36	0.004
2951000354	< 5	< 0.2	18	21	> 10	20	0.96	0.017
2951000355	< 5	< 0.2	20	8	> 10	11	0.41	0.006
2951000356	< 5	< 0.2	21	13	> 10	21	0.58	0.009
2951000357	< 5	< 0.2	22	31	> 10	26	1.43	0.018
2951000358	< 5	< 0.2	22	19	> 10	142	1.11	0.006
2951000359	16	0.5	20	37	> 10	60	0.42	0.015
2951000360	7	0.3	23	174	> 10	167	2.74	0.202
2951000361	< 5	1	42	241	> 10	158	6.32	0.272
2951000362	7	1.3	10	32	> 10	40	0.41	0.017
2951000363	11	< 0.2	20	80	> 10	53	2.26	0.035
2951000364	10	0.9	24	38	> 10	50	0.68	0.013
2951000365	20	0.4	33	196	> 10	48	0.75	0.044
2951000366	6	0.4	36	334	> 10	318	4.49	0.157
2951000417 STD	6	0.3	20	103	6.94	14	3	0.646
2951000418 STD	77	0.4	19	67	7.74	23	2.97	0.041
2951000374	< 5	0.3	30	125	9.3	662	3.05	0.274
2951000375	< 5	< 0.2	36	152	> 10	102	4.3	0.151
2951000376	< 5	0.3	28	119	9.15	569	3.75	0.373
2951000419 STD	< 5	0.3	24	110	7.44	15	3.23	0.671
2951000420 STD	10	3	< 2	< 1	> 10	103	0.09	0.048
2951000388	< 5	0.5	14	130	7.38	526	3.4	0.227
2951000389	< 5	0.5	14	134	7.61	748	3.6	0.312
2951000396	< 5	0.3	6	106	> 10	306	3.87	0.209
2951000397	10	1.4	14	413	> 10	26	1.23	0.089

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000398	< 5	0.6	3	45	> 10	86	0.9	0.06
2951000399	6	0.6	19	11	7.18	28	0.41	0.056
2951000400	< 5	< 0.2	8	65	4.84	125	2.14	0.179
2951000401	< 5	0.4	5	114	8.84	332	5.11	0.277
2951000402	< 5	1	7	123	> 10	38	4.92	0.031
2951000403	< 5	0.5	14	100	9.58	64	1.89	0.015
2951000404	< 5	< 0.2	5	21	1.63	14	0.24	0.003
2951000405	< 5	0.5	8	29	8.68	41	0.38	0.009
2951000406	< 5	0.3	12	181	7.97	48	3.19	0.066
2951000407	< 5	0.6	11	122	8.74	153	3.05	0.251
2951000407DUP	< 5	0.7	12	125	9.11	159	3.13	0.26
2951000463 STD	73	0.5	5	88	8.28	26	3.96	0.054
2951000464 STD	< 5	0.5	5	117	6.74	20	3.15	0.674
2951000408	< 5	1.8	< 2	58	> 10	28	0.56	0.016
2951000409	< 5	2	< 2	49	> 10	85	0.37	0.01
2951000410	< 5	0.4	6	79	7.33	47	4.02	0.227
2951000411	< 5	1.5	< 2	27	> 10	10	0.26	0.003
2951000412	10	1.7	< 2	38	> 10	11	0.23	0.003
2951000421	< 5	< 0.2	8	24	> 10	58	0.93	0.094
2951000422	< 5	0.9	< 2	33	> 10	25	0.61	0.005
2951000423	7	2	27	175	> 10	88	4.89	0.051
2951000424	< 5	2.4	< 2	39	> 10	73	1.26	0.057
2951000425	< 5	1.9	20	28	> 10	12	0.29	0.008
2951000426	< 5	0.4	7	71	5.43	58	2.66	0.232
2951000427	6	1.3	3	48	> 10	32	0.64	0.019
2951000428	8	3.9	15	33	9.82	40	0.24	0.003
2951000429	8	1.3	< 2	30	> 10	19	0.44	0.005
2951000430	< 5	3.6	29	104	> 10	116	0.42	0.007
2951000431	9	0.7	6	27	> 10	158	0.43	0.01
2951000432	< 5	1.8	< 2	24	> 10	25	0.28	0.004
2951000433	< 5	2	< 2	32	> 10	14	0.31	0.002
2951000434	< 5	1.2	4	137	> 10	24	4.8	0.056
2951000435	< 5	0.6	11	47	5.14	39	0.98	0.004
2951000435DUP	6	0.4	8	47	5.24	39	0.94	0.004
2951000462STD	< 5	0.5	8	126	7.19	23	3.31	0.643
2951000465STD	8	2.8	16	30	> 10	101	0.1	0.046
2951000436	< 5	1	< 2	22	> 10	54	0.29	0.008
2951000437	< 5	1.4	< 2	43	> 10	19	0.31	0.015
2951000438	< 5	0.3	10	66	5.74	29	2.23	0.163
2951000439	< 5	1	5	168	> 10	74	0.75	0.023
2951000440	< 5	0.4	3	15	9.17	6	0.06	0.003
2951000441	25	1.2	< 2	19	> 10	20	0.36	0.004

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000442	< 5	1.2	< 2	86	> 10	29	0.17	0.006
2951000443	9	0.8	4	61	> 10	31	1.09	0.035
2951000444	< 5	1	< 2	12	> 10	7	0.16	0.003
2951000445	< 5	1	3	38	> 10	17	0.29	0.005
2951000446	< 5	1.5	< 2	54	> 10	151	0.56	0.004
2951000447	6	1.8	< 2	22	> 10	30	0.23	0.01
2951000448	< 5	1.3	< 2	15	> 10	11	0.19	0.007
2951000449	< 5	0.8	< 2	30	> 10	23	0.56	0.015
2951000450	< 5	0.9	< 2	74	> 10	46	1.52	0.009
2951000451	6	1.5	< 2	59	> 10	36	0.32	0.009
2951000452	< 5	1.7	< 2	40	> 10	51	1.1	0.043
2951000453	< 5	0.5	7	48	7.85	60	0.49	0.018
2951000454	9	1.1	< 2	39	> 10	65	0.53	0.039
2951000455	< 5	0.7	5	118	> 10	13	0.14	0.002
2951000455 DUP	< 5	0.6	3	113	> 10	12	0.12	0.002
2951000531 STD	< 5	0.4	7	117	7.02	14	3.06	0.687
2951000532 STD	9	2.4	< 2	20	> 10	102	0.09	0.048
2951000456	< 5	0.2	19	101	5.49	58	0.37	0.004
2951000457	< 5	0.3	< 2	79	> 10	24	0.29	0.008
2951000458	8	1	22	32	> 10	35	2.58	0.071
2951000459	< 5	1.7	< 2	70	> 10	92	0.94	0.033
2951000460	< 5	1	4	7	1.49	58	0.27	0.003
2951000461	< 5	1.4	< 2	23	> 10	57	0.28	0.01
2951000466	10	1.6	9	33	> 10	54	0.73	0.015
2951000467	< 5	0.6	17	57	7.85	4	2.77	0.008
2951000468	< 5	0.3	15	86	5.67	40	2.5	0.004
2951000469	< 5	< 0.2	< 2	46	> 10	112	0.66	0.017
2951000470	< 5	0.6	5	43	> 10	53	0.85	0.03
2951000471	13	0.3	10	64	> 10	42	2.47	0.032
2951000472	8	0.4	8	225	9.57	127	2.27	0.086
2951000473	6	0.4	< 2	110	8.57	193	2.77	0.129
2951000474	13	1.4	4	69	> 10	44	0.53	0.011
2951000475	8	0.4	< 2	102	> 10	27	1.76	0.023
2951000476	6	< 0.2	< 2	68	> 10	36	1.13	0.019
2951000477	< 5	0.5	< 2	63	> 10	63	1.63	0.023
2951000478	< 5	0.5	9	152	> 10	32	1.94	0.047
2951000479	< 5	< 0.2	7	116	6.94	54	2.88	0.116
2951000479 DUP	< 5	0.3	7	111	6.93	54	2.88	0.12
2951000533 STD	64	< 0.2	2	77	7.8	22	3.42	0.034
2951000534 STD	10	1.6	< 2	19	> 10	99	0.09	0.046
2951000480	< 5	< 0.2	8	86	5.95	131	3.21	0.06
2951000481	< 5	1.1	< 2	20	> 10	13	0.33	0.01

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000482	6	1.2	54	134	> 10	89	0.56	0.012
2951000483	< 5	0.9	22	96	> 10	62	0.65	0.007
2951000484	< 5	1.3	< 2	62	> 10	70	0.3	0.003
2951000485	< 5	1	< 2	21	> 10	34	0.35	0.002
2951000486	< 5	1.3	< 2	48	> 10	11	0.39	0.006
2951000487	< 5	0.9	< 2	25	> 10	37	0.31	0.006
2951000488	< 5	0.6	< 2	59	> 10	36	0.78	0.038
2951000489	< 5	1.1	< 2	19	> 10	10	0.41	0.004
2951000490	< 5	1.5	< 2	45	> 10	13	0.29	0.002
2951000491	< 5	0.6	< 2	6	8.8	19	0.07	< 0.001
2951000492	14	5.3	58	98	> 10	> 2000	4.42	0.017
2951000493	< 5	1.3	< 2	11	> 10	122	0.25	0.003
2951000494	7	1	< 2	24	> 10	35	0.25	0.008
2951000495	< 5	0.6	< 2	12	> 10	39	0.28	0.018
2951000496	< 5	1	2	84	> 10	355	0.7	0.016
2951000497	< 5	1.2	< 2	93	> 10	157	0.55	0.012
2951000498	< 5	0.6	< 2	52	> 10	55	1.87	0.014
2951000499	7	1.2	< 2	75	> 10	193	1.32	0.031
2951000499 DUP	6	1.2	< 2	82	> 10	205	1.42	0.033
2951000535 STD	66	0.2	3	79	7.96	23	3.33	0.03
2951000536 STD	15	1.8	< 2	20	> 10	101	0.09	0.048
2951000500	12	0.6	3	29	> 10	35	1.37	0.028
2951000501	< 5	0.7	< 2	37	> 10	14	0.55	0.007
2951000502	< 5	0.3	< 2	48	6.07	78	3.81	0.137
2951000503	< 5	< 0.2	10	50	3.46	47	1.95	0.038
2951000504	< 5	< 0.2	< 2	47	2.86	62	2.33	0.034
2951000505	< 5	< 0.2	3	84	3.48	90	2.06	0.085
2951000506	< 5	0.4	< 2	136	> 10	69	2.37	0.101
2951000507	< 5	1	< 2	22	> 10	14	0.53	0.013
2951000508	< 5	1.4	< 2	41	> 10	31	0.4	0.016
2951000509	< 5	0.5	< 2	190	> 10	40	3.86	0.035
2951000510	< 5	0.7	< 2	13	8.5	45	0.55	0.011
2951000511	34	0.8	< 2	22	> 10	14	0.57	0.001
2951000512	16	0.8	< 2	115	> 10	34	0.48	0.001
2951000513	< 5	1	< 2	16	> 10	10	0.13	< 0.001
2951000514	< 5	1.2	< 2	141	> 10	105	0.8	0.022
2951000515	< 5	1.2	< 2	53	> 10	90	0.43	0.014
2951000516	6	1.2	< 2	48	> 10	50	0.26	0.005
2951000517	15	0.8	< 2	29	> 10	64	1.29	0.017
2951000518	< 5	1.1	< 2	51	> 10	57	0.33	0.007
2951000519	9	0.7	< 2	32	> 10	157	0.86	0.017
2951000519 DUP	8	0.7	< 2	32	> 10	167	0.93	0.017

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000537STD	67	0.3	< 2	81	8.11	24	3.61	0.037
2951000549STD	11	1.4	< 2	26	> 10	97	0.09	0.046
2951000520	< 5	1.4	< 2	100	> 10	48	0.43	0.008
2951000521	12	1.6	< 2	50	> 10	20	0.19	0.008
2951000522	< 5	1.6	< 2	21	> 10	22	0.55	0.008
2951000523	< 5	0.4	10	48	9.6	27	0.75	0.014
2951000524	6	1.7	< 2	47	> 10	25	0.45	0.011
2951000525	7	1.9	< 2	84	> 10	32	0.54	0.009
2951000526	< 5	1.8	< 2	35	> 10	77	0.23	0.004
2951000527	6	0.5	9	32	3.77	36	1.84	0.042
2951000528	< 5	< 0.2	3	56	3.01	43	2.57	0.036
2951000529	< 5	< 0.2	< 2	53	3.14	47	2.54	0.039
2951000530	< 5	< 0.2	2	27	1.73	54	1.07	0.064
2951000538	6	1.7	< 2	71	> 10	65	0.57	0.01
2951000539	6	1.5	< 2	35	> 10	78	0.61	0.023
2951000540	< 5	< 0.2	8	64	5.65	33	1.25	0.006
2951000541	7	< 0.2	12	46	4.11	24	0.39	0.012
2951000542	< 5	< 0.2	10	40	1.34	10	0.26	0.005
2951000543	7	< 0.2	11	38	3.38	22	0.48	0.011
2951000544	7	< 0.2	< 2	64	3.82	240	2.77	0.128
2951000545	7	< 0.2	6	130	3.18	213	2.46	0.147
2951000546	< 5	< 0.2	< 2	109	4.34	179	2.63	0.181
2951000546 DUP	< 5	< 0.2	< 2	111	4.44	179	2.7	0.187
2951000672 STD	14	2.7	< 2	17	> 10	96	0.09	0.046
2951000673 STD	62	0.3	< 2	75	7.93	22	3.74	0.055
2951000547	8	0.5	< 2	60	5.61	231	3.29	0.181
2951000548	7	0.3	< 2	36	5.17	261	3.29	0.163
2951000550	8	0.4	< 2	66	6.31	113	3.27	0.063
2951000551	7	0.4	4	16	3.82	28	1.01	0.018
2951000552	< 5	< 0.2	< 2	16	2.79	56	0.07	0.001
2951000553	6	< 0.2	3	16	1.12	7	0.07	< 0.001
2951000554	9	1.5	3	108	> 10	38	2.02	0.013
2951000555	8	0.5	17	484	> 10	20	2.99	0.033
2951000556	7	< 0.2	3	48	4.33	98	2.96	0.092
2951000557	6	0.3	< 2	43	6.09	59	3.76	0.095
2951000558	9	< 0.2	13	68	4	22	0.11	0.002
2951000559	6	< 0.2	< 2	47	2.05	25	0.53	0.012
2951000560	8	< 0.2	< 2	14	0.35	12	0.14	0.002
2951000561	7	< 0.2	< 2	90	4.04	114	2.27	0.096
2951000562	7	< 0.2	< 2	64	4.24	58	3.39	0.031
2951000563	7	< 0.2	< 2	72	5.7	124	3.49	0.079
2951000564	9	< 0.2	< 2	53	3.27	171	1.65	0.219

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000565	9	< 0.2	< 2	62	3.98	194	2.32	0.205
2951000566	9	< 0.2	< 2	123	4.63	171	2.81	0.169
2951000567	10	< 0.2	< 2	93	4.43	132	2.61	0.122
2951000567 DUP	8	< 0.2	< 2	92	4.35	129	2.56	0.121
2951000674 STD	14	3.3	< 2	18	> 10	95	0.09	0.045
2951000675 STD	64	0.2	< 2	73	7.52	21	3.42	0.047
2951000568	8	< 0.2	< 2	77	3.7	87	2.04	0.069
2951000569	8	0.2	< 2	96	4.15	102	2.2	0.08
2951000570	8	< 0.2	9	63	2.69	43	2.07	0.046
2951000571	9	< 0.2	< 2	96	3.91	102	2.82	0.067
2951000572	8	< 0.2	< 2	95	3.82	89	2.79	0.064
2951000573	7	< 0.2	< 2	117	4.75	99	3.24	0.087
2951000574	10	0.6	< 2	72	5.58	131	1.62	0.231
2951000575	8	0.4	< 2	13	5.13	226	4.08	0.152
2951000576	11	< 0.2	26	257	2.06	10	0.1	0.002
2951000577	7	< 0.2	< 2	33	0.61	18	0.17	0.006
2951000578	6	< 0.2	< 2	10	0.15	34	0.06	< 0.001
2951000579	8	< 0.2	< 2	4	0.1	8	0.04	< 0.001
2951000580	11	2.3	< 2	95	> 10	30	0.47	0.009
2951000581	10	2.6	< 2	123	> 10	45	1.24	0.022
2951000582	11	2.1	209	45	> 10	35	0.71	0.018
2951000583	13	2.8	< 2	72	> 10	352	0.34	0.009
2951000584	8	1.6	< 2	106	> 10	112	1.45	0.032
2951000585	8	2.6	< 2	45	> 10	32	0.4	0.016
2951000586	6	< 0.2	< 2	8	0.21	8	0.04	0.001
2951000587	7	< 0.2	< 2	46	1.1	23	2.26	0.015
2951000587 DUP	< 5	< 0.2	< 2	48	1.15	24	2.39	0.015
2951000676 STD	10	3.5	< 2	19	> 10	97	0.09	0.045
2951000677 STD	67	0.3	< 2	75	7.66	22	3.67	0.05
2951000588	< 5	< 0.2	4	57	3.46	31	2.96	0.041
2951000589	< 5	< 0.2	< 2	4	0.17	4	0.05	< 0.001
2951000590	< 5	0.3	< 2	49	> 10	67	1.22	0.085
2951000591	< 5	< 0.2	< 2	42	> 10	50	1.26	0.007
2951000592	< 5	< 0.2	< 2	52	> 10	48	1.43	0.007
2951000593	< 5	< 0.2	< 2	39	> 10	46	1.33	0.005
2951000594	< 5	0.2	< 2	105	4.85	178	2.86	0.144
2951000595	< 5	0.2	< 2	97	4.76	134	2.76	0.136
2951000596	< 5	2.4	< 2	107	> 10	74	0.99	0.028
2951000597	9	1.6	< 2	127	> 10	31	1.39	0.019
2951000598	6	3.7	< 2	194	> 10	32	1.53	0.014
2951000599	< 5	0.3	< 2	20	> 10	20	0.96	0.003
2951000600	< 5	1.8	< 2	19	> 10	10	0.7	0.003

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000601	< 5	1.6	< 2	25	> 10	8	0.33	0.009
2951000602	< 5	0.7	< 2	9	> 10	26	0.61	0.047
2951000603	< 5	2.4	< 2	152	> 10	56	0.74	0.036
2951000604	10	1	10	28	> 10	177	0.68	0.06
2951000605	< 5	0.4	6	34	5.05	78	1.23	0.007
2951000606	11	1.8	< 2	136	> 10	68	0.31	0.005
2951000607	< 5	1.6	< 2	27	> 10	41	0.54	0.009
2951000607 DUP	< 5	1.6	< 2	28	> 10	40	0.53	0.009
2951000678 STD	10	3.2	< 2	19	> 10	95	0.09	0.044
2951000679 STD	70	0.3	< 2	71	7.26	21	3.37	0.044
2951000608	< 5	1.4	58	72	> 10	26	0.56	0.022
2951000609	< 5	2.2	< 2	93	> 10	33	0.57	0.031
2951000610	< 5	2.1	< 2	27	> 10	24	0.63	0.031
2951000611	< 5	0.8	< 2	54	> 10	96	0.95	0.036
2951000612	< 5	2.6	< 2	69	> 10	186	0.83	0.022
2951000613	< 5	2.3	< 2	59	> 10	53	0.61	0.037
2951000614	6	1.9	< 2	50	> 10	37	0.29	0.009
2951000615	8	2.5	< 2	113	> 10	47	0.59	0.012
2951000616	8	1.4	< 2	15	> 10	67	0.6	0.066
2951000617	9	1	< 2	15	> 10	81	0.56	0.074
2951000618	7	0.7	< 2	12	> 10	115	0.48	0.067
2951000619	6	4.2	< 2	30	> 10	17	0.52	0.03
2951000620	12	4.4	< 2	127	> 10	43	0.31	0.015
2951000621	11	2.4	< 2	28	> 10	45	0.83	0.058
2951000622	11	1.4	< 2	21	> 10	34	0.44	0.051
2951000623	6	1.2	< 2	21	> 10	82	0.42	0.044
2951000624	< 5	< 0.2	< 2	8	0.28	1	0.03	< 0.001
2951000625	< 5	0.7	< 2	106	> 10	16	0.07	0.002
2951000626	< 5	0.3	< 2	16	> 10	11	0.78	0.012
2951000627	< 5	< 0.2	< 2	7	7.06	32	0.25	0.004
2951000627 DUP	< 5	< 0.2	< 2	7	7.01	32	0.25	0.004
2951000680 STD	11	2.8	< 2	19	> 10	97	0.09	0.045
2951000681 STD	67	0.4	< 2	71	7.22	21	3.51	0.047
2951000628	12	1.7	< 2	31	> 10	5	0.11	0.003
2951000629	6	1.5	< 2	27	> 10	51	0.43	0.039
2951000630	< 5	< 0.2	< 2	39	> 10	229	0.54	0.029
2951000631	< 5	1.9	< 2	41	> 10	75	0.48	0.016
2951000632	< 5	1.9	< 2	54	> 10	91	0.47	0.021
2951000633	6	1.1	< 2	32	> 10	24	0.95	0.02
2951000634	< 5	< 0.2	< 2	23	> 10	16	0.74	0.013
2951000635	6	< 0.2	< 2	19	> 10	10	0.53	0.012
2951000636	< 5	1.8	< 2	100	> 10	124	1.5	0.07

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000637	6	1	< 2	118	> 10	24	1.27	0.019
2951000638	8	1.2	< 2	112	> 10	192	1.46	0.024
2951000639	8	2.3	36	131	> 10	62	1.04	0.026
2951000640	22	1.2	< 2	287	> 10	70	2.93	0.071
2951000641	9	0.4	< 2	167	7.99	12	4.5	0.08
2951000642	< 5	< 0.2	< 2	61	4.46	15	2.35	0.345
2951000643	< 5	1.6	< 2	257	> 10	88	1.44	0.023
2951000644	< 5	1.7	< 2	117	> 10	82	1.65	0.058
2951000645	< 5	1.2	< 2	108	> 10	79	2.23	0.104
2951000646	13	1	< 2	554	> 10	31	1.05	0.065
2951000647	12	0.9	< 2	163	> 10	9	2.86	0.036
2951000647 DUP	11	0.7	< 2	161	> 10	8	2.81	0.036
2951000682 STD	12	2.5	< 2	19	> 10	93	0.09	0.043
2951000683 STD	66	0.2	< 2	70	7.12	21	3.19	0.041
2951000648	10	0.4	< 2	117	> 10	47	2.12	0.058
2951000649	8	0.7	< 2	226	> 10	41	2.33	0.088
2951000650	7	0.4	< 2	116	7.95	526	4.2	0.175
2951000651	7	1.3	< 2	30	> 10	67	0.43	0.016
2951000652	6	1.7	< 2	20	> 10	90	0.58	0.047
2951000653	< 5	< 0.2	< 2	118	7.27	302	3.41	0.185
2951000654	< 5	< 0.2	< 2	115	7.64	171	4.09	0.132
2951000655	< 5	0.3	< 2	115	6.95	183	4.17	0.134
2951000656	< 5	0.2	< 2	73	4.88	535	2.24	0.372
2951000657	12	0.4	< 2	193	> 10	34	1.17	0.027
2951000658	24	1.1	7	542	> 10	19	0.83	0.038
2951000659	14	1.7	< 2	608	> 10	13	0.69	0.025
2951000660	13	1.1	< 2	380	> 10	36	1.29	0.104
2951000661	24	1.5	< 2	694	> 10	80	1.33	0.056
2951000662	9	< 0.2	< 2	80	> 10	67	0.6	0.025
2951000663	9	1.7	< 2	597	> 10	30	0.7	0.024
2951000664	11	0.3	< 2	236	> 10	38	0.93	0.03
2951000665	12	0.4	< 2	91	> 10	144	2.16	0.097
2951000666	22	1.5	< 2	719	> 10	48	1.22	0.059
2951000667	9	0.2	< 2	177	> 10	43	1.09	0.037
2951000667 DUP	9	0.2	< 2	170	> 10	40	1.06	0.034
2951000684 STD	11	2.1	< 2	22	> 10	96	0.08	0.044
2951000685 STD	66	< 0.2	< 2	71	7.15	21	3.2	0.041
2951000668	< 5	0.9	39	52	> 10	17	0.75	0.014
2951000669	10	3.1	42	338	> 10	11	0.37	0.011
2951000670	8	3	57	475	> 10	30	0.71	0.026
2951000671	13	1.3	45	217	> 10	90	1.51	0.06
2951000686	8	0.5	31	100	6.74	387	3.71	0.191

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000687	< 5	0.8	37	120	8.61	323	4.47	0.257
2951000688	< 5	0.5	27	78	5.68	180	2.61	0.156
2951000689	< 5	0.6	25	92	7.14	122	2.71	0.37
2951000690	< 5	0.2	32	65	7.91	67	4.61	0.058
2951000691	11	1.1	39	80	> 10	209	4.9	0.26
2951000692	6	0.3	35	143	6.84	171	4.15	0.097
2951000693	7	0.6	32	143	> 10	235	4.93	0.178
2951000694	< 5	1	36	162	8.78	85	5.43	0.183
2951000695	10	2	41	98	> 10	32	2.05	0.016
2951000696	6	2	59	143	> 10	33	1.51	0.042
2951000697	< 5	< 0.2	20	49	3.7	23	1.8	0.023
2951000698	< 5	< 0.2	25	106	5.08	46	2.88	0.03
2951000699	6	0.3	27	51	5.28	45	2.18	0.025
2951000700	< 5	0.5	26	114	5.43	145	3.11	0.139
2951000701	< 5	0.3	13	43	3.24	183	2	0.446
2951000701 DUP	< 5	0.4	14	45	3.33	187	2.06	0.487
2951000842 STD	8	3.2	19	21	> 10	97	0.09	0.047
2951000843 STD	60	0.5	25	73	7.84	23	3.73	0.055
2951000702	44	1	26	163	> 10	106	2.01	0.089
2951000703	< 5	0.8	26	98	> 10	234	3.5	0.141
2951000704	< 5	0.8	40	135	> 10	55	4.77	0.095
2951000705	18	0.6	143	211	> 10	49	2.31	0.06
2951000706	< 5	2.1	36	137	> 10	21	1.28	0.013
2951000707	< 5	1.6	58	238	> 10	33	0.67	0.012
2951000708	< 5	0.6	34	80	> 10	23	0.33	0.007
2951000709	< 5	< 0.2	51	23	> 10	1233	0.46	0.017
2951000710	< 5	< 0.2	97	81	> 10	> 2000	0.69	0.023
2951000711	< 5	< 0.2	75	59	> 10	1397	0.51	0.019
2951000712	< 5	< 0.2	51	30	> 10	> 2000	0.59	0.027
2951000713	9	3.4	56	156	> 10	62	1.72	0.072
2951000714	10	1.2	39	244	> 10	61	1.35	0.085
2951000715	< 5	0.4	23	90	6.11	322	2.12	0.621
2951000716	8	0.5	22	61	5.28	270	2.35	0.414
2951000717	< 5	0.4	31	95	5.51	87	2.83	0.144
2951000718	< 5	0.5	25	142	5.05	50	2.74	0.038
2951000719	< 5	< 0.2	32	147	6.2	35	3.42	0.014
2951000720	< 5	0.5	24	68	5.44	34	2.53	0.034
2951000721	< 5	0.4	27	105	5.62	28	3.04	0.019
2951000721 DUP	< 5	0.2	29	108	5.61	32	3.05	0.02
2951000844 STD	9	3.7	19	23	> 10	104	0.1	0.048
2951000845 STD	57	0.5	30	81	8.41	24	4.38	0.058
2951000722	< 5	0.5	26	91	5.94	24	2.95	0.036

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000723	< 5	0.4	31	95	8.3	37	4.13	0.065
2951000724	6	0.3	25	91	4.33	47	2.21	0.047
2951000725	6	0.5	27	137	3.84	32	1.48	0.014
2951000726	< 5	< 0.2	19	40	1.5	6	0.26	0.003
2951000727	< 5	0.6	28	98	5.62	41	2.27	0.079
2951000728	< 5	0.5	33	150	7.23	63	2.94	0.111
2951000729	< 5	0.7	147	793	5.88	49	2.48	0.087
2951000730	< 5	0.5	29	160	6.41	48	2.8	0.094
2951000731	< 5	0.6	27	103	6.61	46	2.89	0.096
2951000732	< 5	0.7	34	113	7.18	25	3.11	0.035
2951000733	10	0.8	34	226	5.97	30	2.52	0.018
2951000734	< 5	0.5	24	142	5.69	28	2.46	0.049
2951000735	< 5	< 0.2	27	60	4.95	23	2.23	0.02
2951000736	< 5	0.5	30	96	6.87	23	3.48	0.039
2951000737	37	0.5	31	103	7.04	25	3.59	0.042
2951000738	< 5	0.5	28	120	5.8	27	2.71	0.019
2951000739	< 5	0.5	28	230	6	87	3.38	0.123
2951000740	6	0.7	35	151	6.83	83	3.56	0.097
2951000741	8	0.6	28	153	5.24	65	2.84	0.068
2951000741 DUP	6	0.5	29	154	5.24	61	2.79	0.067
2951000846 STD	7	3.3	22	20	> 10	94	0.08	0.043
2951000847 STD	64	0.6	28	69	7.41	22	3.62	0.054
2951000742	7	0.4	27	295	5.86	44	2.58	0.041
2951000743	< 5	0.5	27	187	5.17	48	2.95	0.089
2951000744	6	1	36	171	8.35	32	2.15	0.015
2951000745	< 5	0.8	30	167	7.13	21	2.32	0.024
2951000746	< 5	0.4	23	105	5.82	26	2.7	0.054
2951000747	< 5	0.5	28	82	5.79	34	2.8	0.095
2951000748	11	0.3	22	105	4.33	210	2.67	0.19
2951000749	< 5	0.3	31	80	4.84	106	2.8	0.154
2951000750	< 5	0.3	19	69	3.69	154	1.79	0.151
2951000751	8	0.4	20	70	4.47	326	2.4	0.53
2951000752	< 5	0.3	19	63	4.52	181	2.29	0.505
2951000753	< 5	0.5	29	76	6.86	85	3.58	0.379
2951000754	< 5	0.3	19	51	3.32	45	2.08	0.386
2951000755	< 5	0.4	24	81	6.92	482	3.22	0.375
2951000756	< 5	< 0.2	7	30	1.97	45	1.08	0.376
2951000757	13	0.4	18	89	4.29	290	2.39	0.545
2951000758	< 5	0.4	17	73	3.83	157	2.26	0.5
2951000759	< 5	0.5	18	71	4.64	422	1.87	0.397
2951000760	7	0.3	20	51	2.6	63	1.52	0.031
2951000761	4	0.3	19	38	2.14	52	1.65	0.022

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000761 DUP	6	< 0.2	17	34	2.03	56	1.57	0.023
2951000848 STD	8	3.5	17	22	> 10	102	0.09	0.047
2951000849 STD	65	0.5	25	68	7.09	21	3.31	0.048
2951000762	< 5	0.4	24	68	5.03	218	2.69	0.153
2951000763	< 5	0.4	17	45	3.29	217	2.1	0.177
2951000764	< 5	0.5	27	52	5.22	547	3.76	0.309
2951000765	< 5	0.6	31	94	5.35	324	3.62	0.338
2951000766	< 5	0.3	19	78	3.44	53	0.94	0.422
2951000767	13	0.6	37	188	7.72	39	3.3	0.013
2951000768	< 5	0.5	31	129	5.9	45	3.49	0.006
2951000769	6	0.3	34	148	5.73	50	3.03	0.003
2951000770	< 5	< 0.2	55	122	> 10	35	2.59	0.007
2951000771	10	0.6	35	156	6.83	36	1.94	0.007
2951000772	7	0.8	45	245	> 10	37	1.53	0.007
2951000773	8	0.8	34	306	4.85	48	2.15	0.011
2951000774	14	1.1	40	278	5.89	63	1.71	0.024
2951000775	< 5	0.5	23	74	6.21	28	1.77	0.005
2951000776	14	0.5	23	26	2.87	173	0.89	0.006
2951000777	< 5	0.8	35	35	> 10	12	0.96	0.006
2951000778	14	1.4	43	28	> 10	9	0.5	0.005
2951000779	< 5	0.7	25	11	> 10	3	0.46	0.002
2951000780	< 5	0.9	20	6	6.43	4	0.19	0.001
2951000781	< 5	0.5	31	246	5.28	44	3.01	0.006
2951000781 DUP	< 5	0.4	35	239	5.29	45	3.05	0.005
2951000850 STD	6	3.3	15	23	> 10	103	0.09	0.047
2951000851 STD	55	0.6	29	75	7.81	22	3.9	0.054
2951000782	7	0.5	39	154	5.1	47	2.96	0.02
2951000783	< 5	0.2	25	20	7.41	118	0.55	0.013
2951000784	< 5	1.5	41	38	> 10	130	2.84	0.098
2951000785	6	0.3	30	127	4.97	40	2.49	0.005
2951000786	< 5	0.4	31	115	5.2	36	2.62	0.005
2951000787	< 5	0.4	25	91	5.17	49	2.78	0.003
2951000788	< 5	0.7	28	135	6.59	44	3.08	0.009
2951000789	< 5	0.4	35	138	5.74	40	3.23	0.006
2951000790	< 5	0.6	40	49	8.12	47	1.58	0.011
2951000791	< 5	0.6	31	120	5.91	45	3.05	0.046
2951000792	6	0.4	51	130	5.03	42	2.6	0.006
2951000793	< 5	0.4	25	118	5.36	38	2.84	0.003
2951000794	7	0.6	22	215	6.01	64	1.26	0.005
2951000795	< 5	0.7	42	164	> 10	76	2.39	0.022
2951000796	9	1	47	171	> 10	75	3.93	0.016
2951000797	9	0.9	42	180	> 10	62	3.75	0.028

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000798	< 5	0.6	31	192	8.58	629	1.8	0.018
2951000799	< 5	0.5	32	144	5.07	43	2.79	0.004
2951000800	< 5	0.2	29	126	4.34	39	2.54	0.005
2951000801	< 5	0.5	35	152	5.11	41	2.74	0.005
2951000801 DUP	< 5	0.6	35	166	5.69	48	3.07	0.004
2951000852 STD	8	3.4	12	24	> 10	105	0.09	0.048
2951000853 STD	58	0.5	22	69	7.09	21	3.32	0.047
2951000802	< 5	0.4	30	124	4.96	52	3.08	0.008
2951000803	< 5	0.4	41	153	4.99	51	3.15	0.011
2951000804	< 5	0.6	32	144	4.89	49	2.7	0.003
2951000805	< 5	0.5	32	118	4.79	58	3.15	0.015
2951000806	< 5	0.6	25	130	5.23	175	3.05	0.145
2951000807	< 5	0.5	25	121	5.37	130	3.01	0.131
2951000808	< 5	0.4	21	98	4.36	117	2.47	0.117
2951000809	< 5	0.3	20	111	4.21	153	2.28	0.132
2951000810	1	0.3	24	51	2.99	30	2.43	0.036
2951000811	2	< 0.2	23	47	3.23	37	2.48	0.046
2951000812	< 5	0.5	31	74	5.89	134	3.97	0.096
2951000813	< 5	0.4	26	20	5.81	199	3.6	0.128
2951000814	< 5	1.2	40	116	4.76	35	2.58	0.029
2951000815	< 5	1.3	50	245	4.49	39	2.35	0.041
2951000816	< 5	0.5	28	63	5.22	182	4.74	0.096
2951000817	< 5	0.5	39	95	5.63	21	2.59	0.003
2951000818	< 5	< 0.2	9	14	0.81	9	0.2	< 0.001
2951000819	< 5	< 0.2	10	29	0.4	9	0.14	0.002
2951000820	4	< 0.2	25	36	2.99	40	2.11	0.036
2951000821	< 5	0.6	25	81	5.22	22	2.69	0.003
2951000821 DUP	< 5	0.5	25	82	5.3	25	2.76	0.003
2951000854 STD	7	2.9	15	19	> 10	92	0.08	0.042
2951000855 STD	80	0.5	25	69	7.2	21	3.57	0.052
2951000822	< 5	0.5	55	48	5.36	25	1.95	0.003
2951000823	7	< 0.2	40	60	0.97	15	0.33	0.002
2951000824	< 5	< 0.2	16	102	1.28	70	1.26	0.041
2951000825	< 5	< 0.2	9	7	0.19	10	0.07	< 0.001
2951000826	3	< 0.2	14	45	1	28	2.24	0.012
2951000827	2	0.3	20	37	2.09	32	2.17	0.027
2951000828	< 5	0.5	29	107	5.11	103	3.51	0.095
2951000829	8	0.5	29	20	5.8	180	3.77	0.144
2951000830	6	0.4	25	31	4.89	128	3.87	0.101
2951000831	< 5	0.2	21	105	5.19	41	3.49	0.018
2951000832	< 5	< 0.2	< 2	9	0.27	76	0.17	0.003
2951000833	< 1	< 0.2	13	41	0.94	22	2.44	0.009

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Au ppb	Ag ppm	Pb ppm	Zn ppm	Fe pct	Ba ppm	Al pct	Ti pct
2951000834	2	< 0.2	20	45	2.48	32	2.29	0.031
2951000835	< 5	< 0.2	4	6	0.31	13	0.31	0.002
2951000836	< 5	< 0.2	5	4	0.15	3	0.04	< 0.001
2951000837	< 5	0.4	22	104	4.45	33	2.2	0.006
2951000838	< 5	0.4	34	122	5.78	44	2.85	0.006
2951000839	19	0.5	41	134	6.35	39	3.09	0.004
2951000840	< 5	0.3	22	82	4.1	481	3.11	0.24
2951000841	6	0.6	41	49	5.9	13	1.54	0.003
2951000841 DUP	< 5	0.7	38	51	6.09	14	1.64	0.003
2951000856 STD	7	2.8	18	20	> 10	95	0.08	0.043
2951000857 STD	63	0.5	23	69	7.26	21	3.46	0.049
2951000858	12	< 0.2	20	29	2.37	81	1.69	0.033
2951000859	< 5	0.5	25	57	4.32	31	2.98	0.018
2951000860	< 5	0.7	29	341	7.56	140	5.62	0.037

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000118	> 20000	28	92	11	24	< 0.2	12	7
2951000120	> 20000	47	47	9	16	< 0.2	9	20
2951000121	1093	49	74	48	205	< 0.2	17	14
2951000122	> 20000	38	76	9	21	< 0.2	11	78
2951000136	> 20000	45	59	30	27	< 0.2	18	80
2951000138	> 20000	54	67	11	24	< 0.2	26	78
2951000140	> 20000	50	58	16	22	< 0.2	27	74
2951000146	> 20000	55	72	2	28	< 0.2	15	77
2951000157	> 20000	43	67	41	18	< 0.2	10	82
2951000159	> 20000	64	71	23	107	< 0.2	25	33
2951000163	> 20000	67	30	15	174	< 0.2	26	28
2951000165	> 20000	61	42	17	116	< 0.2	20	23
2951000194	756	95	415	25	34	< 0.2	27	98
2951000195	1581	99	395	23	17	< 0.2	22	60
2951000196	526	275	325	34	41	< 0.2	48	265
2951000197	3443	164	104	17	23	< 0.2	30	39
2951000198	2625	117	91	22	21	< 0.2	25	50
2951000200	2436	71	69	3	18	< 0.2	13	12
2951000208	280	7	245	27	85	< 0.2	3	143
2951000209	1903	28	162	28	219	< 0.2	36	112
2951000209DUP	1914	28	158	29	221	< 0.2	33	103
2951000226STD	616	7	< 1	7	8	< 0.2	< 1	3
2951000227STD	1174	115	94	21	112	< 0.2	38	78
2951000210	4529	67	47	34	65	< 0.2	15	101
2951000211	6580	75	40	39	41	< 0.2	9	50
2951000212	8038	77	23	37	37	< 0.2	10	41
2951000214	7400	100	18	33	23	< 0.2	6	19
2951000215	7021	112	13	26	29	< 0.2	7	20
2951000230	4879	62	33	16	24	3.4	8	1084
2951000231	1437	86	82	23	32	< 0.2	8	21
2951000233	3870	76	22	58	30	2.2	12	19
2951000234	3573	68	32	50	33	4.2	5	202
2951000235	1722	76	49	7	24	2.4	8	14
2951000236	790	55	165	51	28	3.2	11	10
2951000251	2867	72	144	26	379	1.5	31	22
2951000252	960	75	99	57	337	1.7	29	72
2951000263	403	119	57	31	195	0.9	19	20
2951000290	6109	481	148	72	115	0.9	21	51
2951000291	3420	329	260	132	161	1	26	69
2951000292	1335	354	173	135	121	1.4	11	58
2951000300	348	117	39	128	40	1.8	6	54
2951000304	458	33	61	21	11	1.4	10	38

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000305	351	34	33	9	13	2.4	7	11
2951000307	992	284	14	1	197	0.2	17	4
2951000312	4887	54	35	6	18	3.1	16	12
2951000315	11000	46	38	5	14	2.3	45	5
2951000297	19931	29	62	7	16	2.3	6	8
2951000297 DUP	18660	26	64	6	18	1.4	6	8
2951000318STD	676	13	2	6	12	2.4	27	4
2951000319STD	1225	129	92	21	125	0.4	36	84
2951000247	1368	201	18	14	319	1.1	29	11
2951000253	563	35	41	56	210	1.8	32	18
2951000254	501	38	31	36	232	1.8	35	14
2951000255	430	35	35	34	217	3.3	37	17
2951000256	147	79	38	18	179	1.8	33	14
2951000257	135	29	28	13	224	0.5	39	15
2951000258	83	19	20	6	224	< 0.2	30	17
2951000260	303	43	52	31	253	1.4	28	16
2951000261	287	42	52	30	288	1.7	38	12
2951000262	302	37	49	32	267	1.2	40	11
2951000264	231	39	31	31	194	1.4	24	6
2951000306	9072	33	54	28	53	1.5	10	8
2951000309	11912	60	62	70	31	4.3	13	129
2951000314	14529	39	62	21	22	2.5	9	14
2951000320	588	88	46	86	145	2.8	31	67
2951000321	116	216	72	17	229	0.5	46	5
2951000322	99	281	72	28	159	< 0.2	37	8
2951000323	4266	75	78	79	31	8.5	5	7
2951000324	879	291	53	104	237	1.1	39	23
2951000325	267	183	73	77	128	0.9	24	32
2951000325 DUP	277	191	76	79	126	1.3	24	33
2951000413 STD	1115	128	104	23	132	< 0.2	35	81
2951000414 STD	1671	163	166	128	81	< 0.2	39	126
2951000326	819	35	76	41	8	7.5	3	5
2951000327	1945	33	73	25	18	1.4	4	11
2951000328	9724	35	35	14	28	4	8	14
2951000329	1237	97	109	34	11	8.3	4	8
2951000330	1278	344	82	41	114	6.3	29	16
2951000331	298	76	72	16	31	3.5	14	13
2951000332	408	27	102	16	17	1.6	5	5
2951000333	225	245	78	48	28	4.1	22	170
2951000334	8992	36	52	47	13	1.3	12	68
2951000335	10453	94	74	69	33	3.3	< 1	56
2951000336	9638	88	62	54	29	2.5	18	61

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000337	9895	124	76	57	32	5.6	29	94
2951000338	8487	112	77	51	35	2.1	16	90
2951000341	149	10	29	10	186	< 0.2	44	3
2951000342	105	14	44	18	187	< 0.2	10	11
2951000343	> 20000	45	101	28	11	5.8	< 1	13
2951000344	1074	46	97	27	17	5.3	8	13
2951000345	1157	64	124	36	19	2.6	< 1	8
2951000346	2190	31	58	56	14	8.1	2	8
2951000347	439	113	53	94	42	8.6	45	126
2951000347 DUP	436	113	50	101	48	7.9	42	108
2951000415 STD	1166	137	109	25	114	0.5	38	85
2951000416 STD	206	72	92	33	8	4.7	< 1	27
2951000348	152	148	78	21	198	2.4	33	24
2951000349	18856	20	39	16	25	2.2	5	9
2951000350	18202	20	42	15	24	1	5	10
2951000351	> 20000	24	49	18	43	1.5	8	17
2951000352	885	10	58	24	10	2.2	3	165
2951000353	> 20000	9	27	10	9	0.4	4	23
2951000354	> 20000	21	38	13	7	0.8	10	3
2951000355	> 20000	22	36	12	8	1.6	11	25
2951000356	> 20000	35	40	16	20	2.3	10	27
2951000357	> 20000	40	46	22	31	1.2	12	< 1
2951000358	16276	44	33	15	34	< 0.2	11	14
2951000359	17184	80	57	35	55	3.1	20	116
2951000360	> 20000	244	83	113	108	1.5	13	66
2951000361	4693	299	40	62	220	3	53	14
2951000362	4679	54	56	25	41	4.1	10	16
2951000363	> 20000	130	78	41	49	2.3	12	12
2951000364	8560	49	43	30	12	1.6	5	26
2951000365	2958	47	59	99	173	2.6	21	143
2951000366	3590	300	33	38	119	2.3	23	71
2951000417 STD	1225	120	92	24	132	0.8	37	86
2951000418 STD	1819	169	132	135	75	< 0.2	33	123
2951000374	1155	323	25	14	194	1	25	65
2951000375	1990	296	33	20	187	< 0.2	23	40
2951000376	1083	210	29	16	193	0.9	34	25
2951000419 STD	1297	129	98	27	108	< 0.2	35	95
2951000420 STD	239	67	86	36	10	3.7	< 1	30
2951000388	1051	251	34	19	167	1	28	24
2951000389	922	249	30	18	186	0.5	28	30
2951000396	2596	210	115	88	67	0.6	16	143
2951000397	3321	130	57	75	51	4.2	7	65

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000398	238	124	40	33	196	0.9	42	14
2951000399	210	121	73	14	260	0.8	23	55
2951000400	816	122	83	36	97	< 0.2	15	58
2951000401	2500	163	61	98	112	< 0.2	14	59
2951000402	289	122	87	58	88	1	15	29
2951000403	1686	136	42	26	284	1	46	27
2951000404	109	7	50	7	147	0.4	10	7
2951000405	90	39	30	13	503	1	53	51
2951000406	706	44	38	26	151	0.7	48	91
2951000407	877	241	50	39	152	< 0.2	28	53
2951000407DUP	916	252	49	39	111	< 0.2	29	48
2951000463 STD	1987	186	152	143	108	0.6	32	139
2951000464 STD	1269	131	95	24	126	0.4	38	86
2951000408	4526	45	42	23	14	2.2	9	9
2951000409	1668	42	48	22	< 1	2.2	11	22
2951000410	1074	175	28	40	110	< 0.2	27	121
2951000411	3439	39	39	18	16	1.8	12	17
2951000412	2959	35	52	21	10	3.1	9	27
2951000421	307	107	83	30	29	5.9	20	7
2951000422	15066	40	40	21	16	0.5	13	10
2951000423	7785	96	89	47	66	2.7	11	34
2951000424	301	141	228	50	33	1	18	22
2951000425	328	35	61	24	20	6.1	5	25
2951000426	669	146	150	99	64	1.2	17	85
2951000427	278	178	87	34	34	< 0.2	22	29
2951000428	146	59	85	30	18	5.1	13	1328
2951000429	368	52	73	20	25	< 0.2	7	727
2951000430	877	51	77	38	19	2.7	4	99
2951000431	53	49	31	26	251	0.8	38	28
2951000432	6261	47	43	19	20	2.5	13	29
2951000433	2563	36	43	23	4	3.7	8	50
2951000434	1122	216	63	109	55	1.8	7	37
2951000435	80	15	47	39	113	0.6	15	13
2951000435DUP	75	14	47	39	121	0.8	14	10
2951000462STD	1360	132	101	25	123	< 0.2	36	92
2951000465STD	233	86	84	41	30	1.2	< 1	23
2951000436	4999	33	38	1	24	2.2	9	4
2951000437	2661	26	64	25	24	2.6	1	7
2951000438	906	47	33	63	97	< 0.2	14	145
2951000439	6515	42	44	34	32	3	4	27
2951000440	1527	5	115	11	11	0.7	< 1	5
2951000441	1901	29	47	16	13	1.2	10	3

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000442	1214	24	34	55	14	3.1	11	128
2951000443	249	54	77	52	88	1	13	18
2951000444	2792	29	50	13	25	1.2	9	3
2951000445	4510	30	78	19	9	0.5	8	16
2951000446	1049	55	85	22	13	2.1	10	9
2951000447	282	27	50	21	18	2.7	8	2
2951000448	145	30	70	16	8	2.4	5	3
2951000449	3727	34	62	26	22	1	11	16
2951000450	6538	73	57	38	39	1.8	15	7
2951000451	1119	36	42	32	10	3.4	6	47
2951000452	686	61	64	41	24	3.2	21	24
2951000453	191	14	66	25	123	0.2	19	14
2951000454	504	39	90	26	33	2	10	16
2951000455	749	10	156	51	19	0.4	2	136
2951000455 DUP	749	10	171	52	28	1.5	2	129
2951000531 STD	1317	131	98	26	132	< 0.2	34	84
2951000532 STD	226	70	82	32	14	2.7	< 1	26
2951000456	502	8	63	49	46	< 0.2	33	106
2951000457	> 20000	24	55	38	20	4	6	9
2951000458	614	85	91	20	132	2.4	33	17
2951000459	2196	52	79	225	39	2.6	16	296
2951000460	127	7	76	10	34	0.3	4	12
2951000461	2640	28	63	20	12	4.1	14	11
2951000466	3252	44	52	24	14	4.2	6	17
2951000467	351	36	91	36	96	1.3	12	18
2951000468	208	22	80	41	117	< 0.2	14	7
2951000469	15872	25	80	54	64	1	12	39
2951000470	1861	34	68	34	99	< 0.2	12	19
2951000471	7305	34	64	31	78	1.8	12	9
2951000472	649	61	11	69	408	1	40	11
2951000473	727	74	20	29	409	< 0.2	41	14
2951000474	347	74	64	123	73	2	9	104
2951000475	8155	113	42	50	80	0.8	15	102
2951000476	7093	62	29	32	90	0.5	11	51
2951000477	3340	143	36	36	171	0.9	9	34
2951000478	2046	219	34	38	223	0.5	56	229
2951000479	1170	92	25	23	318	< 0.2	34	23
2951000479 DUP	1154	93	26	24	337	< 0.2	37	27
2951000533 STD	1924	176	142	136	79	0.6	32	126
2951000534 STD	223	66	80	30	32	3.7	1	27
2951000480	1523	56	29	34	211	0.7	20	28
2951000481	1876	40	45	19	22	3.1	14	14

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000482	1452	80	43	66	53	1.2	34	219
2951000483	1851	59	38	33	25	2.7	15	154
2951000484	577	28	59	45	5	2.7	6	37
2951000485	2834	28	47	17	19	2.8	11	11
2951000486	291	36	59	25	24	3.4	10	9
2951000487	1247	23	49	16	10	2.2	12	9
2951000488	8248	52	76	61	38	2.1	9	54
2951000489	2310	43	43	19	12	2.5	10	5
2951000490	273	42	41	26	23	1.7	8	8
2951000491	1165	9	54	8	13	0.4	3	179
2951000492	1160	350	125	33	7	1.6	966	286
2951000493	133	53	93	17	< 1	2	13	6
2951000494	2510	22	64	22	7	2.7	12	11
2951000495	12362	33	62	17	14	1.7	7	7
2951000496	1339	41	65	51	12	1.3	27	263
2951000497	866	44	57	61	< 1	2.5	20	84
2951000498	561	73	77	34	114	0.7	25	52
2951000499	565	60	76	66	40	2.5	17	46
2951000499 DUP	621	65	81	68	43	2.8	17	50
2951000535 STD	1969	182	144	141	86	0.4	31	129
2951000536 STD	234	69	84	32	18	3.4	1	28
2951000500	286	66	82	28	62	0.6	14	25
2951000501	3778	34	44	26	12	1.6	14	34
2951000502	566	285	32	36	45	< 0.2	15	180
2951000503	373	55	67	20	360	0.5	40	13
2951000504	3209	43	57	61	142	0.6	22	37
2951000505	761	54	53	20	186	0.5	40	12
2951000506	637	137	62	39	297	0.6	29	26
2951000507	994	41	48	17	40	1.6	14	9
2951000508	818	156	125	36	23	3	14	116
2951000509	1372	276	187	207	135	0.4	31	133
2951000510	101	99	57	52	209	0.7	26	194
2951000511	2391	43	46	20	28	1.3	8	10
2951000512	2560	33	45	14	21	1.1	10	9
2951000513	1998	25	41	15	14	2.9	8	9
2951000514	1343	50	67	36	18	2.8	12	23
2951000515	1053	37	76	21	23	2.4	3	23
2951000516	717	23	60	30	8	1.5	21	22
2951000517	208	278	93	22	80	0.3	23	30
2951000518	1502	41	57	30	30	1.6	12	820
2951000519	93	68	33	22	157	1.1	25	20
2951000519 DUP	94	70	32	21	147	0.3	23	15

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000537STD	1977	183	148	141	89	0.4	38	133
2951000549STD	222	67	80	35	30	3	2	27
2951000520	11056	50	51	25	21	2.5	13	14
2951000521	1040	26	173	20	10	2.7	< 1	18
2951000522	663	48	42	22	14	3.1	12	11
2951000523	342	158	90	23	66	1.6	5	53
2951000524	2075	61	74	44	24	3	6	44
2951000525	1113	48	53	36	17	3.4	9	41
2951000526	546	35	57	30	9	1.9	7	11
2951000527	392	58	81	18	382	0.3	36	6
2951000528	635	42	28	24	404	0.8	43	10
2951000529	840	51	37	29	486	0.3	52	14
2951000530	231	29	77	9	173	0.3	10	7
2951000538	4752	69	55	37	20	4.6	13	230
2951000539	1419	47	52	23	24	3.2	7	83
2951000540	161	15	77	21	144	1.1	14	34
2951000541	1139	8	87	24	25	0.2	3	13
2951000542	72	4	136	13	30	1.2	3	7
2951000543	463	10	72	20	32	1.4	8	18
2951000544	694	50	522	685	62	0.6	4	42
2951000545	362	57	101	55	292	0.4	53	77
2951000546	210	85	139	83	159	1.1	18	30
2951000546 DUP	201	87	127	83	175	0.8	16	30
2951000672 STD	212	76	77	35	23	3.8	< 1	27
2951000673 STD	1774	174	138	140	75	< 0.2	30	127
2951000547	229	113	148	101	193	0.9	16	86
2951000548	258	111	149	98	162	0.9	21	59
2951000550	743	95	131	103	160	0.6	30	68
2951000551	125	63	55	48	157	0.6	21	133
2951000552	6921	7	49	7	17	1.3	< 1	2
2951000553	2005	4	19	6	17	0.7	< 1	3
2951000554	1509	125	69	112	113	1.2	22	131
2951000555	6235	71	164	207	158	2.5	49	99
2951000556	414	72	103	79	167	1.3	19	21
2951000557	1043	98	130	87	162	1.1	18	122
2951000558	5085	10	55	12	21	1.8	1	12
2951000559	3040	14	54	30	42	< 0.2	3	11
2951000560	296	69	44	11	23	0.4	< 1	4
2951000561	197	73	113	64	215	< 0.2	23	39
2951000562	891	45	64	39	73	0.5	13	20
2951000563	1704	176	200	155	103	< 0.2	18	61
2951000564	510	69	70	32	197	0.8	13	26

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000565	534	97	76	53	88	0.3	24	66
2951000566	111	78	101	84	191	0.7	22	65
2951000567	169	80	125	70	193	0.3	25	40
2951000567 DUP	159	79	119	68	217	< 0.2	26	40
2951000674 STD	208	79	75	36	23	4.2	< 1	27
2951000675 STD	1730	166	129	137	78	0.3	32	121
2951000568	182	62	115	56	166	1.5	16	25
2951000569	148	69	132	110	180	< 0.2	26	50
2951000570	517	41	49	21	472	1	48	9
2951000571	491	74	105	69	215	0.7	25	22
2951000572	470	72	108	67	230	< 0.2	26	22
2951000573	243	78	117	94	169	0.9	16	26
2951000574	712	88	524	381	99	0.4	12	169
2951000575	198	104	133	96	193	0.4	16	96
2951000576	289	41	127	39	28	1.1	7	15
2951000577	1022	9	28	8	35	< 0.2	8	11
2951000578	293	6	38	5	24	< 0.2	< 1	2
2951000579	318	5	45	3	13	< 0.2	1	1
2951000580	1567	64	40	19	18	2.3	20	40
2951000581	8517	89	55	49	20	2.2	38	44
2951000582	14362	68	75	24	23	1.3	13	222
2951000583	4813	68	55	51	35	4.3	17	782
2951000584	2268	178	122	122	79	1.8	80	345
2951000585	1236	67	44	30	13	4.8	20	22
2951000586	250	4	44	7	21	< 0.2	2	5
2951000587	301	38	49	18	451	< 0.2	40	7
2951000587 DUP	314	40	56	21	446	0.4	37	8
2951000676 STD	208	83	77	33	27	1.6	< 1	27
2951000677 STD	1696	169	133	139	90	0.3	33	124
2951000588	526	43	47	25	493	0.4	44	18
2951000589	227	2	36	4	19	< 0.2	< 1	2
2951000590	9257	34	71	33	123	< 0.2	< 1	19
2951000591	16078	34	70	33	109	1.5	8	35
2951000592	> 20000	29	59	36	88	1.7	< 1	19
2951000593	18962	29	64	31	105	1.1	9	7
2951000594	373	77	129	74	195	0.9	24	37
2951000595	371	72	134	66	211	1.4	30	52
2951000596	9777	118	66	109	34	1.5	27	194
2951000597	> 20000	100	59	58	52	3.6	11	514
2951000598	2921	104	60	69	21	2.8	12	107
2951000599	13840	35	32	17	32	0.4	9	5
2951000600	2045	36	45	25	18	< 0.2	16	12

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000601	1050	33	183	33	3	1.6	1	28
2951000602	288	61	45	11	114	1.2	31	3
2951000603	4603	86	65	100	27	5.3	5	154
2951000604	383	130	64	58	106	6.8	30	71
2951000605	255	18	34	38	158	0.8	12	51
2951000606	794	46	53	109	10	1.6	7	89
2951000607	11278	40	66	33	12	3.1	13	8
2951000607 DUP	10680	39	66	30	18	2.8	10	7
2951000678 STD	216	80	73	33	19	4.2	< 1	26
2951000679 STD	1629	162	127	133	96	0.3	32	119
2951000608	11349	64	52	67	18	2.1	3	65
2951000609	2995	59	45	68	32	8.9	17	84
2951000610	1684	51	56	46	25	2	13	10
2951000611	> 20000	56	72	58	13	11.2	13	52
2951000612	7603	77	53	203	8	3.4	9	33
2951000613	1793	73	65	61	32	2	12	101
2951000614	6924	53	55	81	7	2.2	7	77
2951000615	3795	46	46	36	40	2.9	8	191
2951000616	351	175	61	31	163	3	27	893
2951000617	216	148	56	32	164	0.5	27	17
2951000618	141	117	67	26	165	0.4	24	14
2951000619	2576	65	52	43	23	3.4	11	145
2951000620	> 20000	50	62	85	6	4.2	6	156
2951000621	1884	153	55	50	145	1.4	20	77
2951000622	1878	126	41	35	138	1.1	25	49
2951000623	12900	56	48	17	22	2.3	3	7
2951000624	39	1	1	2	11	0.3	4	9
2951000625	966	19	74	94	16	1.1	6	31
2951000626	13324	31	33	16	28	1.3	15	14
2951000627	6352	12	79	7	12	0.7	1	2
2951000627 DUP	6308	12	76	7	15	0.3	1	2
2951000680 STD	213	79	74	33	30	3.7	< 1	26
2951000681 STD	1608	160	126	132	104	< 0.2	29	118
2951000628	1016	30	71	25	< 1	2.3	8	6
2951000629	1430	48	78	27	32	2.7	3	4
2951000630	> 20000	39	85	29	31	3.8	14	< 1
2951000631	746	57	139	41	< 1	2.2	15	15
2951000632	863	63	76	50	23	2.7	8	67
2951000633	17221	61	46	24	27	0.6	20	13
2951000634	> 20000	44	43	18	32	2.6	17	3
2951000635	> 20000	31	41	14	2	1.8	10	< 1
2951000636	1567	218	66	42	92	3.2	31	74

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000637	14573	66	69	42	6	2.7	10	15
2951000638	11327	80	54	42	21	3.5	13	78
2951000639	3119	161	70	56	5	5.8	13	1468
2951000640	1615	186	74	88	80	2.6	21	188
2951000641	1694	237	86	99	88	0.3	15	117
2951000642	772	93	51	72	96	< 0.2	17	120
2951000643	10092	152	86	50	31	3.8	17	78
2951000644	2450	192	109	65	56	3	31	85
2951000645	2531	220	128	65	142	2.4	30	47
2951000646	3140	82	50	76	42	5.5	13	61
2951000647	9085	203	90	50	47	1.8	16	46
2951000647 DUP	8916	196	90	48	42	1.9	12	47
2951000682 STD	204	74	71	33	25	1.8	< 1	25
2951000683 STD	1617	160	123	129	90	1.2	38	116
2951000648	3309	114	85	82	123	2.1	19	63
2951000649	5435	141	147	119	112	2.3	21	61
2951000650	836	123	67	90	155	1	15	38
2951000651	4032	43	75	24	21	1.2	10	14
2951000652	3634	42	52	23	26	1.2	33	4
2951000653	1157	179	33	23	176	1.4	22	34
2951000654	1678	171	57	50	185	0.4	28	15
2951000655	839	196	84	83	117	0.6	16	29
2951000656	680	80	31	35	149	0.6	17	100
2951000657	12817	100	67	80	81	2.9	13	92
2951000658	2408	74	52	73	67	5.9	10	59
2951000659	1058	103	55	128	52	7.3	8	84
2951000660	2439	120	63	64	57	3.9	7	60
2951000661	1014	149	84	56	37	3.9	4	114
2951000662	> 20000	37	54	20	31	2.3	18	17
2951000663	621	55	60	126	43	6.7	4	108
2951000664	14390	72	65	31	24	1.5	15	44
2951000665	11825	50	74	28	47	1.5	14	72
2951000666	889	192	81	80	25	7	10	191
2951000667	13279	93	80	28	25	2.5	17	45
2951000667 DUP	13670	89	87	25	37	1.7	14	43
2951000684 STD	212	75	73	32	28	3.3	< 1	26
2951000685 STD	1616	160	123	130	92	1.2	27	118
2951000668	11909	34	61	20	29	0.9	5	29
2951000669	1261	57	67	158	28	5.2	< 1	134
2951000670	442	95	75	131	48	4.5	6	130
2951000671	12009	117	106	42	43	1.9	13	94
2951000686	1045	197	150	67	124	< 0.2	20	85

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000687	748	200	87	48	192	< 0.2	26	75
2951000688	1010	159	97	59	148	< 0.2	8	191
2951000689	1017	144	110	104	168	< 0.2	29	185
2951000690	2160	181	147	90	109	< 0.2	19	87
2951000691	401	323	148	100	194	< 0.2	19	173
2951000692	1190	220	140	67	111	0.5	15	92
2951000693	1509	172	170	167	87	< 0.2	18	184
2951000694	481	329	107	121	158	< 0.2	23	91
2951000695	215	223	103	159	105	6.8	18	152
2951000696	1411	86	101	132	46	0.8	7	134
2951000697	357	29	175	30	168	< 0.2	11	19
2951000698	1300	79	149	68	175	< 0.2	27	49
2951000699	655	43	123	62	140	< 0.2	18	64
2951000700	479	73	164	76	175	< 0.2	25	41
2951000701	630	85	66	40	76	< 0.2	15	162
2951000701 DUP	648	90	68	40	87	< 0.2	13	157
2951000842 STD	206	75	79	30	15	3.7	< 1	28
2951000843 STD	1790	166	160	133	80	< 0.2	35	125
2951000702	3192	45	95	26	61	< 0.2	10	31
2951000703	2136	52	131	35	118	< 0.2	1	23
2951000704	12998	97	97	45	98	< 0.2	37	67
2951000705	> 20000	71	76	48	47	0.4	16	107
2951000706	13602	62	60	33	12	1.8	20	75
2951000707	> 20000	52	73	51	17	3.1	8	130
2951000708	> 20000	31	36	20	25	< 0.2	13	31
2951000709	> 20000	62	82	23	27	2.3	2	19
2951000710	> 20000	48	64	45	20	34.1	6	116
2951000711	> 20000	56	68	34	20	36.5	7	81
2951000712	> 20000	63	56	31	21	4.1	10	34
2951000713	5821	195	54	101	35	2.5	14	66
2951000714	7719	110	118	66	65	1.3	13	42
2951000715	940	190	50	11	113	< 0.2	21	76
2951000716	1162	158	29	31	111	< 0.2	20	201
2951000717	509	55	125	59	160	< 0.2	17	41
2951000718	463	65	129	63	192	< 0.2	24	58
2951000719	1231	122	108	80	181	< 0.2	24	64
2951000720	450	25	64	70	130	< 0.2	14	49
2951000721	858	130	151	70	193	< 0.2	25	54
2951000721 DUP	885	129	154	69	186	< 0.2	28	55
2951000844 STD	216	82	86	33	20	2.5	< 1	29
2951000845 STD	1932	181	180	146	66	< 0.2	31	136
2951000722	623	51	89	60	224	< 0.2	21	32

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000723	1697	268	84	34	154	< 0.2	37	29
2951000724	304	52	98	57	179	< 0.2	25	99
2951000725	635	29	107	41	161	< 0.2	31	95
2951000726	602	6	98	10	29	< 0.2	4	6
2951000727	594	28	63	63	132	< 0.2	14	44
2951000728	713	112	74	58	152	< 0.2	25	54
2951000729	333	34	95	79	161	2.8	11	61
2951000730	296	36	84	78	164	< 0.2	17	53
2951000731	365	36	82	59	155	< 0.2	17	55
2951000732	528	36	82	56	147	< 0.2	16	36
2951000733	205	26	76	81	141	0.3	12	61
2951000734	303	28	80	74	160	< 0.2	17	46
2951000735	1569	25	81	46	101	< 0.2	13	66
2951000736	868	83	124	48	191	< 0.2	23	23
2951000737	891	86	135	51	214	< 0.2	16	26
2951000738	225	32	99	79	151	< 0.2	10	67
2951000739	493	71	152	90	168	< 0.2	22	61
2951000740	1009	73	151	89	146	< 0.2	22	140
2951000741	516	55	122	72	174	< 0.2	23	100
2951000741 DUP	513	53	116	70	173	< 0.2	23	99
2951000846 STD	198	74	78	32	16	3	< 1	26
2951000847 STD	1718	162	157	128	75	< 0.2	29	119
2951000742	890	43	101	99	132	< 0.2	27	70
2951000743	529	57	124	83	145	< 0.2	22	62
2951000744	786	68	92	153	114	0.8	20	219
2951000745	730	41	92	134	155	< 0.2	15	87
2951000746	729	36	89	53	170	< 0.2	13	24
2951000747	400	41	95	56	160	< 0.2	11	18
2951000748	297	81	180	73	179	< 0.2	34	54
2951000749	251	77	159	69	210	< 0.2	24	34
2951000750	227	77	238	40	186	< 0.2	29	93
2951000751	1107	107	65	46	95	< 0.2	26	173
2951000752	937	106	59	46	108	< 0.2	25	179
2951000753	1549	182	88	60	99	< 0.2	19	103
2951000754	834	57	73	54	78	< 0.2	23	201
2951000755	1319	85	103	104	85	< 0.2	21	428
2951000756	541	45	55	58	119	< 0.2	25	112
2951000757	696	88	113	75	151	< 0.2	33	132
2951000758	782	66	95	71	129	< 0.2	25	166
2951000759	686	154	73	41	135	< 0.2	24	31
2951000760	671	32	107	18	242	< 0.2	30	17
2951000761	458	17	70	9	196	< 0.2	14	9

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000761 DUP	450	17	71	8	224	< 0.2	16	10
2951000848 STD	214	80	85	32	19	3.4	< 1	28
2951000849 STD	1671	156	150	126	75	< 0.2	31	115
2951000762	711	121	69	66	149	< 0.2	19	62
2951000763	130	74	168	57	166	< 0.2	17	40
2951000764	202	123	223	91	125	< 0.2	19	77
2951000765	1149	95	155	65	125	< 0.2	11	8
2951000766	627	59	45	10	292	< 0.2	15	20
2951000767	351	45	113	123	150	< 0.2	25	104
2951000768	448	44	112	92	156	< 0.2	20	61
2951000769	391	43	99	95	158	< 0.2	26	96
2951000770	> 20000	82	94	48	51	1.3	10	43
2951000771	4656	71	81	55	176	< 0.2	22	109
2951000772	16089	47	72	44	55	0.7	22	65
2951000773	374	57	90	50	160	0.7	23	123
2951000774	2497	103	113	97	128	2.1	29	161
2951000775	1169	28	92	55	127	< 0.2	11	57
2951000776	242	163	90	36	114	< 0.2	87	166
2951000777	2853	143	62	28	51	0.8	10	21
2951000778	10491	70	48	20	20	0.9	15	16
2951000779	6466	32	93	9	24	0.3	7	9
2951000780	123	9	131	17	28	< 0.2	1	27
2951000781	370	43	106	151	164	< 0.2	37	87
2951000781 DUP	371	44	106	152	150	< 0.2	36	89
2951000850 STD	216	78	85	36	56	4.5	< 1	28
2951000851 STD	1785	168	168	138	78	< 0.2	36	125
2951000782	384	46	103	92	147	0.3	29	93
2951000783	5111	17	105	9	42	< 0.2	6	27
2951000784	4865	54	73	25	47	1.2	< 1	18
2951000785	497	36	93	74	161	< 0.2	28	66
2951000786	388	37	95	78	158	< 0.2	322	52
2951000787	496	41	99	81	165	< 0.2	28	63
2951000788	381	38	105	149	163	< 0.2	22	16
2951000789	573	39	98	90	149	< 0.2	26	57
2951000790	708	67	135	30	235	< 0.2	26	90
2951000791	465	42	94	86	147	< 0.2	27	45
2951000792	401	37	91	81	171	< 0.2	24	55
2951000793	414	35	88	82	148	< 0.2	23	17
2951000794	680	31	74	133	408	< 0.2	67	270
2951000795	1836	64	63	60	247	0.3	44	109
2951000796	1694	65	82	74	438	< 0.2	75	126
2951000797	1654	98	108	83	126	< 0.2	27	142

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000798	1325	48	167	48	63	< 0.2	13	89
2951000799	389	44	101	87	155	< 0.2	27	78
2951000800	737	38	86	74	135	< 0.2	31	71
2951000801	390	44	102	90	151	0.6	26	70
2951000801 DUP	433	49	115	100	146	0.3	25	75
2951000852 STD	217	83	87	35	17	2.1	< 1	29
2951000853 STD	1664	156	150	126	73	< 0.2	34	115
2951000802	609	39	95	84	157	< 0.2	22	79
2951000803	350	39	96	81	182	< 0.2	27	97
2951000804	348	41	96	86	171	< 0.2	23	108
2951000805	362	39	98	73	174	< 0.2	27	67
2951000806	245	82	135	86	152	< 0.2	25	112
2951000807	267	68	120	87	164	< 0.2	26	86
2951000808	172	58	117	72	161	< 0.2	23	67
2951000809	248	59	120	66	143	< 0.2	21	118
2951000810	689	47	45	22	495	< 0.2	60	10
2951000811	2793	58	72	28	414	< 0.2	73	21
2951000812	897	158	144	78	166	< 0.2	24	66
2951000813	217	102	162	80	140	< 0.2	14	24
2951000814	1913	143	112	104	100	< 0.2	29	314
2951000815	651	90	133	96	105	0.6	25	157
2951000816	286	97	158	95	175	< 0.2	20	64
2951000817	1026	96	63	93	130	< 0.2	33	28
2951000818	1330	10	41	8	16	< 0.2	3	7
2951000819	402	5	57	6	15	< 0.2	< 1	6
2951000820	3244	57	81	23	309	< 0.2	54	24
2951000821	452	37	72	95	183	< 0.2	23	26
2951000821 DUP	458	37	80	97	177	< 0.2	26	20
2951000854 STD	193	70	77	30	15	2.4	< 1	25
2951000855 STD	1682	158	153	127	31	< 0.2	36	116
2951000822	1348	66	55	101	145	< 0.2	25	111
2951000823	1552	71	54	39	12	< 0.2	6	105
2951000824	436	36	84	26	21	< 0.2	9	33
2951000825	241	3	57	3	24	< 0.2	< 1	6
2951000826	1029	54	46	20	362	< 0.2	43	9
2951000827	2016	68	104	25	362	< 0.2	52	17
2951000828	697	134	162	64	181	< 0.2	28	55
2951000829	511	112	167	95	162	< 0.2	15	33
2951000830	797	90	153	82	154	< 0.2	17	109
2951000831	459	68	129	80	169	< 0.2	16	9
2951000832	545	5	32	7	13	< 0.2	< 1	4
2951000833	333	44	44	20	497	< 0.2	44	17

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Mn ppm	V ppm	Cr ppm	Ni ppm	Zr ppm	Cd ppm	Y ppm	Cu ppm
2951000834	894	35	46	19	403	< 0.2	50	24
2951000835	1378	10	42	7	26	< 0.2	4	9
2951000836	424	1	38	2	13	< 0.2	< 1	3
2951000837	442	33	110	66	190	< 0.2	20	33
2951000838	509	35	91	87	178	0.3	24	51
2951000839	493	39	98	93	170	< 0.2	25	67
2951000840	366	79	75	34	227	< 0.2	15	26
2951000841	95	17	79	84	129	< 0.2	15	98
2951000841 DUP	100	18	84	87	130	0.2	15	102
2951000856 STD	196	71	78	30	18	0.3	< 1	26
2951000857 STD	1702	159	154	128	80	< 0.2	31	117
2951000858	4380	52	69	25	215	< 0.2	31	17
2951000859	250	86	85	59	188	< 0.2	42	36
2951000860	759	160	122	152	208	< 0.2	32	97

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000118	12	7	24	25	< 5		
2951000120	9	20	17	63	< 5		
2951000121	17	14	24	5	31		
2951000122	11	78	58	49	< 5		
2951000136	18	80	127	61	< 5		
2951000138	26	78	146	101	< 5		
2951000140	27	74	106	116	< 5		
2951000146	15	77	70	79	< 5		
2951000157	10	82	62	102	6		
2951000159	25	33	59	22	24		
2951000163	26	28	54	32	31		
2951000165	20	23	47	38	20		
2951000194	27	98	15	26	< 5		
2951000195	22	60	17	30	< 5		
2951000196	48	265	17	34	< 5		
2951000197	30	39	19	20	< 5		
2951000198	25	50	19	19	< 5		
2951000200	13	12	15	42	< 5		
2951000208	3	143	3	10	< 5		
2951000209	36	112	6	22	71		
2951000209DUP	33	103	7	21	69		
2951000226STD	< 1	3	< 1	6	< 5		
2951000227STD	38	78	32	14	< 5		
2951000210	15	101	11	22	15		
2951000211	9	50	16	30	< 5		
2951000212	10	41	15	36	7		
2951000214	6	19	25	31	< 5		
2951000215	7	20	21	23	< 5		
2951000230	8	1084	21	101	< 5		
2951000231	8	21	12	86	< 5		
2951000233	12	19	43	78	5		
2951000234	5	202	26	66	< 5		
2951000235	8	14	12	86	< 5		
2951000236	11	10	249	110	5		
2951000251	31	22	12	26	169		
2951000252	29	72	32	80	155		
2951000263	19	20	19	13	40		
2951000290	21	51	102	7	10		
2951000291	26	69	132	< 5	47		
2951000292	11	58	136	22	32		
2951000300	6	54	14	66	6		
2951000304	10	38	5	29	< 5		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000305	7	11	5	25	< 5		
2951000307	17	4	43	< 5	35		
2951000312	16	12	12	30	< 5		
2951000315	45	5	14	33	8		
2951000297	6	8	12	12	< 5		
2951000297 DUP	6	8	11	11	5		
2951000318STD	27	4	< 1	6	< 5		
2951000319STD	36	84	31	< 5	6		
2951000247	29	11	30	27	67		
2951000253	32	18	19	63	73		
2951000254	35	14	15	57	74		
2951000255	37	17	16	53	< 5		
2951000256	33	14	8	55	34		
2951000257	39	15	6	26	55		
2951000258	30	17	7	< 5	56		
2951000260	28	16	14	22	154		
2951000261	38	12	15	22	172		
2951000262	40	11	16	32	120		
2951000264	24	6	16	43	41		
2951000306	10	8	30	33	5		
2951000309	13	129	167	104	< 5		
2951000314	9	14	27	63	< 5		
2951000320	31	67	34	123	28		
2951000321	46	5	8	20	37		
2951000322	37	8	12	50	30		
2951000323	5	7	37	156	9		
2951000324	39	23	45	109	54		
2951000325	24	32	33	110	21		
2951000325 DUP	24	33	33	103	20		
2951000413 STD	35	81	32	19	8		
2951000414 STD	39	126	63	189	< 5		
2951000326	3	5	16	64	5		
2951000327	4	11	30	84	< 5		
2951000328	8	14	22	70	8		
2951000329	4	8	23	79	7		
2951000330	29	16	28	136	24		
2951000331	14	13	11	47	< 5		
2951000332	5	5	9	34	16		
2951000333	22	170	7	168	12		
2951000334	12	68	7	32	< 5		
2951000335	< 1	56	14	124	11		
2951000336	18	61	10	56	7		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000337	29	94	12	145	8		
2951000338	16	90	10	47	5		
2951000341	44	3	10	11	14		
2951000342	10	11	15	< 5	6		
2951000343	< 1	13	18	154	6		
2951000344	8	13	17	66	< 5		
2951000345	< 1	8	14	46	< 5		
2951000346	2	8	29	84	13		
2951000347	45	126	41	291	14		
2951000347 DUP	42	108	47	323	8		
2951000415 STD	38	85	35	89	13		
2951000416 STD	< 1	27	12	26	5		
2951000348	33	24	14	15	24		
2951000349	5	9	49	120	< 5		
2951000350	5	10	37	62	< 5		
2951000351	8	17	23	< 5	7		
2951000352	3	165	78	< 5	< 5		
2951000353	4	23	28	1362	< 5		
2951000354	10	3	11	< 5	< 5		
2951000355	11	25	15	9	< 5		
2951000356	10	27	18	110	< 5		
2951000357	12	< 1	29	12	< 5		
2951000358	11	14	16	< 5	< 5		
2951000359	20	116	18	41	< 5		
2951000360	13	66	79	43	21		
2951000361	53	14	101	< 5	22		
2951000362	10	16	13	37	5		
2951000363	12	12	41	43	< 5		
2951000364	5	26	27	24	< 5		
2951000365	21	143	35	< 5	41		
2951000366	23	71	47	< 5	8		
2951000417 STD	37	86	33	< 5	< 5		
2951000418 STD	33	123	67	83	< 5		
2951000374	25	65	45	< 5	15		
2951000375	23	40	44	< 5	33		
2951000376	34	25	44	< 5	27		
2951000419 STD	35	95	35	< 5	< 5		
2951000420 STD	< 1	30	11	17	7		
2951000388	28	24	37	11	26		
2951000389	28	30	39	19	28		
2951000396	16	143	49	24	5		
2951000397	7	65	22	102	< 5		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000398	42	14	30	7	21		
2951000399	23	55	9	17	67		
2951000400	15	58	31	< 5	5		
2951000401	14	59	55	43	26		
2951000402	15	29	24	27	9		
2951000403	46	27	38	11	36		
2951000404	10	7	3	5	6		
2951000405	53	51	11	< 5	65		
2951000406	48	91	42	20	52		
2951000407	28	53	45	21	23		
2951000407DUP	29	48	46	26	20		
2951000463 STD	32	139	73	107	< 5		
2951000464 STD	38	86	35	19	6		
2951000408	9	9	9	46	6		
2951000409	11	22	7	96	< 5		
2951000410	27	121	42	20	22		
2951000411	12	17	7	124	8		
2951000412	9	27	7	52	9		
2951000421	20	7	4	38	6		
2951000422	13	10	16	25	7		
2951000423	11	34	19	109	12		
2951000424	18	22	9	92	18		
2951000425	5	25	6	33	< 5		
2951000426	17	85	36	15	< 5		
2951000427	22	29	8	55	< 5		
2951000428	13	1328	21	100	5		
2951000429	7	727	20	92	< 5		
2951000430	4	99	18	202	6		
2951000431	38	28	8	58	39		
2951000432	13	29	6	98	5		
2951000433	8	50	10	48	7		
2951000434	7	37	68	25	13		
2951000435	15	13	10	7	13		
2951000435DUP	14	10	11	8	13		
2951000462STD	36	92	37	11	10		
2951000465STD	< 1	23	16	25	15		
2951000436	9	4	5	18	< 5		
2951000437	1	7	14	37	< 5		
2951000438	14	145	33	18	< 5		
2951000439	4	27	13	9	< 5		
2951000440	< 1	5	3	< 5	< 5		
2951000441	10	3	5	91	< 5		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000442	11	128	13	66	< 5		
2951000443	13	18	27	29	< 5		
2951000444	9	3	6	< 5	< 5		
2951000445	8	16	11	154	< 5		
2951000446	10	9	8	90	< 5		
2951000447	8	2	5	7	< 5		
2951000448	5	3	4	< 5	< 5		
2951000449	11	16	11	55	< 5		
2951000450	15	7	38	139	< 5		
2951000451	6	47	9	39	< 5		
2951000452	21	24	24	52	< 5		
2951000453	19	14	10	18	< 5		
2951000454	10	16	12	30	< 5		
2951000455	2	136	12	20	< 5		
2951000455 DUP	2	129	11	21	< 5		
2951000531 STD	34	84	36	14	< 5		
2951000532 STD	< 1	26	13	< 5	< 5		
2951000456	33	106	12	12	< 5		
2951000457	6	9	40	64	< 5		
2951000458	33	17	8	55	< 5		
2951000459	16	296	500	68	< 5		
2951000460	4	12	13	7	< 5		
2951000461	14	11	10	51	7		
2951000466	6	17	8	83	< 5		
2951000467	12	18	15	15	6		
2951000468	14	7	18	6	5		
2951000469	12	39	25	6	5		
2951000470	12	19	23	< 5	< 5		
2951000471	12	9	35	33	5		
2951000472	40	11	51	24	92		
2951000473	41	14	23	< 5	78		
2951000474	9	104	42	98	45		
2951000475	15	102	24	129	22		
2951000476	11	51	24	44	22		
2951000477	9	34	31	15	30		
2951000478	56	229	42	10	46		
2951000479	34	23	32	15	67		
2951000479 DUP	37	27	31	20	56		
2951000533 STD	32	126	68	95	< 5		
2951000534 STD	1	27	12	< 5	5		
2951000480	20	28	30	22	34		
2951000481	14	14	4	49	< 5		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000482	34	219	28	25	25		
2951000483	15	154	19	41	< 5		
2951000484	6	37	14	18	< 5		
2951000485	11	11	8	< 5	< 5		
2951000486	10	9	5	13	< 5		
2951000487	12	9	8	6	< 5		
2951000488	9	54	46	21	8		
2951000489	10	5	4	< 5	< 5		
2951000490	8	8	7	15	< 5		
2951000491	3	179	4	47	< 5		
2951000492	966	286	12	59	< 5		
2951000493	13	6	3	926	< 5		
2951000494	12	11	8	7	5		
2951000495	7	7	8	22	< 5		
2951000496	27	263	21	39	< 5		
2951000497	20	84	28	64	6		
2951000498	25	52	26	12	6		
2951000499	17	46	22	22	5		
2951000499 DUP	17	50	24	33	8		
2951000535 STD	31	129	70	102	< 5		
2951000536 STD	1	28	13	< 5	< 5		
2951000500	14	25	37	21	< 5		
2951000501	14	34	17	18	10		
2951000502	15	180	46	8	8		
2951000503	40	13	12	7	6		
2951000504	22	37	21	< 5	< 5		
2951000505	40	12	15	< 5	9		
2951000506	29	26	42	< 5	37		
2951000507	14	9	4	< 5	< 5		
2951000508	14	116	30	48	< 5		
2951000509	31	133	64	39	30		
2951000510	26	194	28	23	33		
2951000511	8	10	5	278	< 5		
2951000512	10	9	5	14	< 5		
2951000513	8	9	4	35	< 5		
2951000514	12	23	13	30	< 5		
2951000515	3	23	9	41	< 5		
2951000516	21	22	10	75	< 5		
2951000517	23	30	4	69	< 5		
2951000518	12	820	9	33	< 5		
2951000519	25	20	5	78	26		
2951000519 DUP	23	15	6	90	20		

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000537STD	38	133	71	98	< 5		
2951000549STD	2	27	13	< 5	12		
2951000520	13	14	20	38	< 5		
2951000521	< 1	18	7	126	< 5		
2951000522	12	11	5	55	< 5		
2951000523	5	53	6	61	< 5		
2951000524	6	44	8	42	< 5		
2951000525	9	41	11	128	6		
2951000526	7	11	10	128	< 5		
2951000527	36	6	8	< 5	6		
2951000528	43	10	12	< 5	< 5		
2951000529	52	14	15	< 5	13		
2951000530	10	7	6	< 5	< 5		
2951000538	13	230	14	84	< 5		
2951000539	7	83	11	87	< 5		
2951000540	14	34	10	6	10		
2951000541	3	13	11	10	< 5		
2951000542	3	7	6	< 5	< 5		
2951000543	8	18	10	22	< 5		
2951000544	4	42	50	< 5	< 5		
2951000545	53	77	22	< 5	19		
2951000546	18	30	25	6	12		
2951000546 DUP	16	30	26	< 5	9		
2951000672 STD	< 1	27	13	40	< 5		
2951000673 STD	30	127	67	101	< 5		
2951000547	16	86	31	< 5	6		
2951000548	21	59	33	10	10		
2951000550	30	68	44	< 5	9		
2951000551	21	133	29	< 5	8		
2951000552	< 1	2	10	< 5	< 5		
2951000553	< 1	3	4	< 5	< 5		
2951000554	22	131	53	9	72		
2951000555	49	99	113	18	14		
2951000556	19	21	27	< 5	10		
2951000557	18	122	34	15	13		
2951000558	1	12	17	< 5	< 5		
2951000559	3	11	22	< 5	< 5		
2951000560	< 1	4	3	< 5	< 5		
2951000561	23	39	21	6	5		
2951000562	13	20	19	6	10		
2951000563	18	61	43	< 5	9		
2951000564	13	26	18	9	10		

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DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000565	24	66	27	< 5	< 5		
2951000566	22	65	26	< 5	< 5		
2951000567	25	40	23	7	7		
2951000567 DUP	26	40	23	< 5	8		
2951000674 STD	< 1	27	12	57	< 5		
2951000675 STD	32	121	65	94	< 5		
2951000568	16	25	19	9	< 5		
2951000569	26	50	23	7	9		
2951000570	48	9	9	< 5	14		
2951000571	25	22	22	15	7		
2951000572	26	22	21	7	8		
2951000573	16	26	29	< 5	8		
2951000574	12	169	67	11	< 5		
2951000575	16	96	34	9	8		
2951000576	7	15	3	36	< 5		
2951000577	8	11	3	5	< 5		
2951000578	< 1	2	3	< 5	< 5		
2951000579	1	1	3	< 5	< 5		
2951000580	20	40	139	81	< 5		
2951000581	38	44	71	126	5		
2951000582	13	222	30	90	< 5		
2951000583	17	782	34	94	8		
2951000584	80	345	40	72	16		
2951000585	20	22	30	81	10		
2951000586	2	5	3	< 5	< 5		
2951000587	40	7	11	< 5	17		
2951000587 DUP	37	8	11	6	13		
2951000676 STD	< 1	27	12	67	< 5		
2951000677 STD	33	124	65	102	< 5		
2951000588	44	18	13	15	16		
2951000589	< 1	2	4	< 5	< 5		
2951000590	< 1	19	27	21	< 5		
2951000591	8	35	28	16	7		
2951000592	< 1	19	32	18	6		
2951000593	9	7	25	16	< 5		
2951000594	24	37	24	7	11		
2951000595	30	52	23	6	5		
2951000596	27	194	94	129	5		
2951000597	11	514	45	58	7		
2951000598	12	107	23	84	< 5		
2951000599	9	5	18	46	9		
2951000600	16	12	23	273	< 5		

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000601	1	28	15	58	9		
2951000602	31	3	4	37	13		
2951000603	5	154	34	118	9		
2951000604	30	71	53	45	15		
2951000605	12	51	7	26	17		
2951000606	7	89	23	163	7		
2951000607	13	8	26	90	10		
2951000607 DUP	10	7	25	80	< 5		
2951000678 STD	< 1	26	12	60	< 5		
2951000679 STD	32	119	62	95	< 5		
2951000608	3	65	39	106	< 5		
2951000609	17	84	26	98	13		
2951000610	13	10	20	86	8		
2951000611	13	52	47	92	< 5		
2951000612	9	33	33	140	11		
2951000613	12	101	31	98	< 5		
2951000614	7	77	43	68	< 5		
2951000615	8	191	16	68	< 5		
2951000616	27	893	12	50	30		
2951000617	27	17	12	32	36		
2951000618	24	14	11	26	29		
2951000619	11	145	28	62	7		
2951000620	6	156	68	115	< 5		
2951000621	20	77	26	73	29		
2951000622	25	49	25	52	21		
2951000623	3	7	17	41	7		
2951000624	4	9	< 1	< 5	< 5		
2951000625	6	31	18	66	< 5		
2951000626	15	14	13	84	< 5		
2951000627	1	2	4	9	< 5		
2951000627 DUP	1	2	4	11	< 5		
2951000680 STD	< 1	26	12	53	9		
2951000681 STD	29	118	61	85	< 5		
2951000628	8	6	17	61	< 5		
2951000629	3	4	28	58	9		
2951000630	14	< 1	34	62	< 5		
2951000631	15	15	18	86	6		
2951000632	8	67	21	133	< 5		
2951000633	20	13	25	38	6		
2951000634	17	3	19	36	< 5		
2951000635	10	< 1	16	24	< 5		
2951000636	31	74	72	68	27		

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DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000637	10	15	22	52	5		
2951000638	13	78	36	49	8		
2951000639	13	1468	102	101	< 5		
2951000640	21	188	59	53	9		
2951000641	15	117	50	28	18		
2951000642	17	120	32	15	22		
2951000643	17	78	76	82	8		
2951000644	31	85	54	105	14		
2951000645	30	47	54	59	26		
2951000646	13	61	22	90	5		
2951000647	16	46	22	18	< 5		
2951000647 DUP	12	47	22	10	< 5		
2951000682 STD	< 1	25	12	43	6		
2951000683 STD	38	116	61	81	< 5		
2951000648	19	63	23	8	21		
2951000649	21	61	47	11	26		
2951000650	15	38	51	30	23		
2951000651	10	14	11	83	< 5		
2951000652	33	4	9	74	< 5		
2951000653	22	34	36	15	31		
2951000654	28	15	38	26	31		
2951000655	16	29	51	53	22		
2951000656	17	100	35	9	27		
2951000657	13	92	23	19	11		
2951000658	10	59	17	85	8		
2951000659	8	84	33	31	6		
2951000660	7	60	23	70	12		
2951000661	4	114	8	28	5		
2951000662	18	17	16	18	5		
2951000663	4	108	24	11	5		
2951000664	15	44	11	19	< 5		
2951000665	14	72	21	13	17		
2951000666	10	191	21	20	5		
2951000667	17	45	12	16	< 5		
2951000667 DUP	14	43	12	18	5		
2951000684 STD	< 1	26	12	41	< 5		
2951000685 STD	27	118	61	83	5		
2951000668	5	29	13	22	< 5		
2951000669	< 1	134	25	21	8		
2951000670	6	130	17	21	6		
2951000671	13	94	14	20	16		
2951000686	20	85	40	24	20		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000687	26	75	41	29	56		
2951000688	8	191	38	16	15		
2951000689	29	185	47	22	165		
2951000690	19	87	46	39	30		
2951000691	19	173	36	42	42		
2951000692	15	92	41	28	14		
2951000693	18	184	60	37	9		
2951000694	23	91	41	49	22		
2951000695	18	152	30	38	8		
2951000696	7	134	30	23	9		
2951000697	11	19	12	13	11		
2951000698	27	49	23	21	< 5		
2951000699	18	64	23	16	18		
2951000700	25	41	26	25	18		
2951000701	15	162	25	12	26		
2951000701 DUP	13	157	27	13	27		
2951000842 STD	< 1	28	10	29	9		
2951000843 STD	35	125	63	84	5		
2951000702	10	31	14	15	11		
2951000703	1	23	17	24	7		
2951000704	37	67	57	70	16		
2951000705	16	107	53	104	11		
2951000706	20	75	33	85	< 5		
2951000707	8	130	37	87	6		
2951000708	13	31	25	59	7		
2951000709	2	19	12	49	5		
2951000710	6	116	32	46	5		
2951000711	7	81	20	41	8		
2951000712	10	34	26	56	9		
2951000713	14	66	29	63	< 5		
2951000714	13	42	16	39	12		
2951000715	21	76	33	21	33		
2951000716	20	201	35	16	27		
2951000717	17	41	20	15	13		
2951000718	24	58	24	23	16		
2951000719	24	64	27	28	16		
2951000720	14	49	24	29	19		
2951000721	25	54	26	21	17		
2951000721 DUP	28	55	25	28	15		
2951000844 STD	< 1	29	11	26	11		
2951000845 STD	31	136	68	92	10		
2951000722	21	32	17	18	21		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000723	37	29	34	31	16		
2951000724	25	99	24	17	14		
2951000725	31	95	14	13	14		
2951000726	4	6	3	< 5	< 5		
2951000727	14	44	21	18	18		
2951000728	25	54	31	27	15		
2951000729	11	61	27	20	19		
2951000730	17	53	23	27	22		
2951000731	17	55	20	21	16		
2951000732	16	36	19	24	22		
2951000733	12	61	23	23	17		
2951000734	17	46	19	23	20		
2951000735	13	66	18	15	13		
2951000736	23	23	24	24	17		
2951000737	16	26	24	31	19		
2951000738	10	67	22	28	17		
2951000739	22	61	34	31	14		
2951000740	22	140	33	34	19		
2951000741	23	100	26	15	21		
2951000741 DUP	23	99	25	20	20		
2951000846 STD	< 1	26	12	31	< 5		
2951000847 STD	29	119	61	83	9		
2951000742	27	70	65	21	13		
2951000743	22	62	27	23	18		
2951000744	20	219	26	18	15		
2951000745	15	87	19	18	20		
2951000746	13	24	16	20	20		
2951000747	11	18	20	24	24		
2951000748	34	54	25	17	17		
2951000749	24	34	23	23	22		
2951000750	29	93	16	14	15		
2951000751	26	173	32	15	9		
2951000752	25	179	33	24	22		
2951000753	19	103	42	29	18		
2951000754	23	201	24	15	12		
2951000755	21	428	52	23	12		
2951000756	25	112	24	12	21		
2951000757	33	132	37	26	19		
2951000758	25	166	33	15	10		
2951000759	24	31	37	17	15		
2951000760	30	17	10	16	9	< 1	< 5
2951000761	14	9	5	17	10	< 1	< 5

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000761 DUP	16	10	5	12	8	< 1	< 5
2951000848 STD	< 1	28	10	27	< 5		
2951000849 STD	31	115	59	80	< 5		
2951000762	19	62	36	21	18		
2951000763	17	40	19	14	8		
2951000764	19	77	29	32	14		
2951000765	11	8	33	27	22		
2951000766	15	20	13	< 5	25		
2951000767	25	104	40	27	16		
2951000768	20	61	30	19	15		
2951000769	26	96	27	25	13		
2951000770	10	43	46	42	9		
2951000771	22	109	46	32	5		
2951000772	22	65	32	34	15		
2951000773	23	123	30	31	15		
2951000774	29	161	24	46	12		
2951000775	11	57	17	20	9		
2951000776	87	166	13	46	14		
2951000777	10	21	15	29	14		
2951000778	15	16	15	23	5		
2951000779	7	9	10	5	8		
2951000780	1	27	23	42	< 5		
2951000781	37	87	35	21	15		
2951000781 DUP	36	89	34	29	16		
2951000850 STD	< 1	28	11	27	< 5		
2951000851 STD	36	125	63	85	8		
2951000782	29	93	28	28	18		
2951000783	6	27	22	27	< 5		
2951000784	< 1	18	26	37	14		
2951000785	28	66	24	20	17		
2951000786	322	52	26	30	6		
2951000787	28	63	27	24	16		
2951000788	22	16	30	28	12		
2951000789	26	57	27	23	9		
2951000790	26	90	14	22	20		
2951000791	27	45	31	32	18		
2951000792	24	55	26	20	16		
2951000793	23	17	27	25	18		
2951000794	67	270	11	22	26		
2951000795	44	109	22	38	7		
2951000796	75	126	32	51	29		
2951000797	27	142	40	56	9		

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000798	13	89	18	21	6		
2951000799	27	78	26	31	7		
2951000800	31	71	22	19	11		
2951000801	26	70	26	29	12		
2951000801 DUP	25	75	29	29	6		
2951000852 STD	< 1	29	11	34	< 5		
2951000853 STD	34	115	58	80	< 5		
2951000802	22	79	26	18	9		
2951000803	27	97	26	20	6		
2951000804	23	108	27	22	12		
2951000805	27	67	25	23	11		
2951000806	25	112	32	26	11		
2951000807	26	86	30	21	6		
2951000808	23	67	23	23	12		
2951000809	21	118	22	18	5		
2951000810	60	10	11	17	17	< 1	< 5
2951000811	73	21	15	15	15	< 1	< 5
2951000812	24	66	33	32	11		
2951000813	14	24	23	22	11		
2951000814	29	314	31	40	8		
2951000815	25	157	27	21	6		
2951000816	20	64	25	32	12		
2951000817	33	28	27	24	14		
2951000818	3	7	5	< 5	< 5		
2951000819	< 1	6	3	< 5	< 5		
2951000820	54	24	13	14	11	< 1	< 5
2951000821	23	26	29	19	13		
2951000821 DUP	26	20	30	22	10		
2951000854 STD	< 1	25	11	34	7		
2951000855 STD	36	116	59	84	< 5		
2951000822	25	111	19	13	< 5		
2951000823	6	105	5	< 5	< 5		
2951000824	9	33	12	9	< 5		
2951000825	< 1	6	3	< 5	< 5		
2951000826	43	9	10	13	16	< 1	< 5
2951000827	52	17	14	16	11	6	< 5
2951000828	28	55	34	21	12		
2951000829	15	33	29	25	12		
2951000830	17	109	31	27	12		
2951000831	16	9	23	28	12		
2951000832	< 1	4	4	< 5	5		
2951000833	44	17	11	23	18	< 1	< 5

APPENDIX 295-I: ANALYTICAL RESULTS (19 ELEMENT PACKAGE)

DNR Sample #	Y ppm	Cu ppm	Co ppm	As ppm	Nb ppm	Pd ppb	Pt ppb
2951000834	50	24	10	17	26	< 1	< 5
2951000835	4	9	5	< 5	5		
2951000836	< 1	3	3	< 5	< 5		
2951000837	20	33	24	21	8		
2951000838	24	51	29	31	11		
2951000839	25	67	32	28	11		
2951000840	15	26	17	21	7		
2951000841	15	98	28	23	15		
2951000841 DUP	15	102	27	27	14		
2951000856 STD	< 1	26	10	27	< 5		
2951000857 STD	31	117	59	76	< 5		
2951000858	31	17	11	8	8	5	< 5
2951000859	42	36	16	22	15		
2951000860	32	97	47	43	14		

Appendix 295-J: Thin Section Sample List

APPENDIX 295-J: THIN SECTION SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	DEPTH or TOP FOOTAGE	BOTTOM FOOTAGE	CROSS REF1	CROSS REF2	TOWNSHIP	RANGE	SECTION	FORTY
2951000001	OTC2951-001							45	21	25	SW-NE-SE
2951000002	OTC2951-001							45	21	25	SW-NE-SE
2951000003	OTC2951-002							45	21	27	SW-SW-SW
2951000004	OTC2951-003							45	21	21	SE-NE-SE
2951000005	OTC2951-003							45	21	21	SE-NE-SE
2951000007	RD2951-004					2951000006		46	29	2	SE-NE-SW
2951000008	RD2951-004							46	29	2	SE-NE-SW
2951000009	RD2951-004							46	29	2	SE-NE-SW
2951000011	RD2951-005					2951000010		46	29	3	NE-NE-SW
2951000012	RD2951-005					2951000010		46	29	3	NE-NE-SW
2951000013	RD2951-005					2951000010		46	29	3	NE-NE-SW
2951000017	RD2951-006					2951000016		46	29	17	NW-SW-SW
2951000019	RD2951-006					2951000018		46	29	17	NW-SW-SW
2951000020	RD2951-006					2951000018		46	29	17	NW-SW-SW
2951000022	OTC2951-007							134	32	28	NE-NE
2951000023	OTC2951-007							134	32	28	NE-NE
2951000024	GP2951-008							133	30	13	N 1/2
2951000025	GP2951-008							133	30	13	N 1/2
2951000026	GP2951-009							133	30	13	N 1/2
2951000027	GP2951-009							133	30	13	N 1/2
2951000028	GP2951-009							133	30	13	N 1/2
2951000029	GP2951-009							133	30	13	N 1/2
2951000030	GP2951-009							133	30	13	N 1/2
2951000032	OTC2951-010					2951000031		46	25	10	SE-SW-NW
2951000034	GP2951-012							47	25	34	SE-NE-SW
2951000036	GP2951-012							47	25	34	SE-NE-SW
2951000038	RD2951-013					2951000037		41	31	20	NE-SE-SE
2951000040	OTC2951-014							41	31	36	NW-SW-SW
2951000042	RD2951-015					2951000041		46	29	9	SW-SW-SW
2951000044	RD2951-015					2951000043		46	29	9	SW-SW-SW
2951000046	RD2951-015					2951000045		46	29	9	SW-SW-SW
2951000048	RD2951-016					2951000047		46	29	9	NW-SW-SW
2951000050	RD2951-016					2951000049		46	29	9	NW-SW-SW
2951000051	RD2951-016					2951000049		46	29	9	NW-SW-SW
2951000055	RD2951-017					2951000054		46	29	9	NW-NE-SE
2951000056	RD2951-017					2951000054		46	29	9	NW-NE-SE
2951000057	RD2951-017					2951000054		46	29	9	NW-NE-SE
2951000061	RD2951-018					2951000060		46	29	9	NW-NE-SE
2951000063	RD2951-019					2951000062		46	29	9	NW-SE-NE
2951000064	RD2951-019					2951000062		46	29	9	NW-SE-NE
2951000067	RD2951-020					2951000066		46	29	9	NW-NE-SW
2951000069	RD2951-020					2951000068		46	29	9	NW-NE-SW
2951000072	RD2951-021					2951000071		46	29	9	SW-NW-NE
2951000074	RD2951-021					2951000073		46	29	9	SW-NW-NE
2951000076	RD2951-022					2951000075		46	29	3	SE-NW-SW
2951000078	RD2951-022					2951000077		46	29	3	SE-NW-SW

APPENDIX 295-J: THIN SECTION SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	DEPTH or TOP FOOTAGE	BOTTOM FOOTAGE	CROSS REF1	CROSS REF2	TOWNSHIP	RANGE	SECTION	FORTY
2951000083	OTC2951-023					2951000082		46	29	4	N 1/2
2951000084	OTC2951-023					2951000082		46	29	4	N 1/2
2951000085	OTC2951-023					2951000082		46	29	4	N 1/2
2951000087	OTC2951-023					2951000086		46	29	4	N 1/2
2951000089	OTC2951-024					2951000088		46	29	4	N 1/2
2951000091	OTC2951-025					2951000090		46	29	4	N 1/2
2951000093	OTC2951-026					2951000092		46	29	10	W 1/2
2951000095	OTC2951-027					2951000094		46	29	10	W 1/2
2951000097	OTC2951-028					2951000096		46	29	6	N 1/2-SE
2951000099	OTC2951-029					2951000098		46	29	6	N 1/2-SE
2951000101	OTC2951-030					2951000100		46	29	6	N 1/2-SE
2951000103	OTC2951-031					2951000102		46	29	9	NE-SE
2951000105	OTC2951-032					2951000104		46	29	9	E 1/2-NE
2951000107	OTC2951-033					2951000106		46	29	9	PARTN1/2
2951000109	OTC2951-034					2951000108		46	29	9	PARTN1/2
2951000119	DH2951-036	307	15465	55.0	60.0	2951000112	2951000113	46	29	9	LOT 1
2951000127	DH2951-039	310	15468	70.0	75.0	2951000126		46	29	9	LOT 1
2951000129	DH2951-039	310	15468	75.0	80.0	2951000128		46	29	9	LOT 1
2951000131	DH2951-039	310	15468	80.0	85.0	2951000130		46	29	9	LOT 1
2951000133	DH2951-039	310	15468	85.0	90.0	2951000132		46	29	9	LOT 1
2951000135	DH2951-039	310	15468	90.0	95.0	2951000134		46	29	9	LOT 1
2951000139	DH2951-039	310	15468	100.0	105.0	2951000138		46	29	9	LOT 1
2951000143	DH2951-039	310	15468	115.0	120.0	2951000142		46	29	9	LOT 1
2951000169	DH2951-040	18135	10753	252.0		2951000171		45	28	17	NW-NE
2951000170	DH2951-040	18135	10753	258.5				45	28	17	NW-NE
2951000172	DH2951-041	18138	10754	214.5				45	28	17	NW-NE
2951000173	DH2951-041	18138	10754	274.0		2951000177		45	28	17	NW-NE
2951000174	DH2951-041	18138	10754	277.0		2951000177		45	28	17	NW-NE
2951000175	DH2951-041	18138	10754	301.0		2951000178		45	28	17	NW-NE
2951000176	DH2951-041	18138	10754	313.0				45	28	17	NW-NE
2951000180	DH2951-041	18138	10754	284.0		2951000177		45	28	17	NW-NE
2951000181	DH2951-041	18138	10754	302.0		2951000178		45	28	17	NW-NE
2951000182	DH2951-042	18144	10755	251.4		2951000185		45	28	17	NW-NE
2951000183	DH2951-042	18144	10755	256.0		2951000185		45	28	17	NW-NE
2951000184	DH2951-042	18144	10755	293.5		2951000186		45	28	17	NW-NE
2951000187	DH2951-043	S118	15469	121.0		2951000188		47	29	33	NE-SW
2951000201	DH2951-044	S124	15470	232.5		2951000203		47	29	33	NE-SW
2951000202	DH2951-044	S124	15470	251.0		2951000204		47	29	33	NE-SW
2951000207	DH2951-045	S126	15471	93.5		295100208		47	29	33	SE-SW
2951000229	DH2951-046	S1042	15472	182.0		2951000230		46	29	10	SW-NW
2951000239	DH2951-048	S1044	15474	22.0				46	29	10	SE-NW
2951000245	DH2951-051	18226	10761	292.0		2951000250		45	28	19	NE-NW
2951000246	DH2951-051	18226	10761	297.0				45	28	19	NE-NW
2951000267	DH2951-059	18221	10759	271.0				45	28	17	NW-NE
2951000268	DH2951-059	18221	10759	283.0		2951000270		45	28	17	NW-NE
2951000272	DH2951-052	18132	10752	268.0		2951000294		45	28	17	NW-NE

APPENDIX 295-J: THIN SECTION SAMPLE LIST

SAMPLE NUMBER	P295 FILE NO.	DRILL HOLE	UNIQUE DDH NUMBER	DEPTH or TOP FOOTAGE	BOTTOM FOOTAGE	CROSS REF1	CROSS REF2	TOWNSHIP	RANGE	SECTION	FORTY
2951000273	DH2951-052	18132	10752	272.5		2951000295		45	28	17	NW-NE
2951000274	DH2951-052	18132	10752	273.0		2951000295		45	28	17	NW-NE
2951000275	DH2951-052	18132	10752	282.0		2951000295		45	28	17	NW-NE
2951000276	DH2951-052	18132	10752	283.0		2951000295		45	28	17	NW-NE
2951000277	DH2951-052	18132	10752	291.0		2951000295		45	28	17	NW-NE
2951000278	DH2951-052	18132	10752	313.0				45	28	17	NW-NE
2951000279	DH2951-053	18427	10749	269.0		2951000302	2951000303	45	28	9	SW-NW
2951000280	DH2951-053	18427	10749	270.0		2951000303		45	28	9	SW-NW
2951000281	DH2951-053	18427	10749	272.0		2951000303		45	28	9	SW-NW
2951000282	DH2951-053	18427	10749	275.0		2951000303		45	28	9	SW-NW
2951000283	DH2951-053	18427	10749	276.5		2951000303		45	28	9	SW-NW
2951000284	DH2951-053	18427	10749	280.0		2951000303	2951000304	45	28	9	SW-NW
2951000285	DH2951-054	18430	10750	326.0				45	28	9	SW-NW
2951000286	DH2951-055	18228	10762	292.0		2951000308		45	28	19	NE-NW
2951000287	DH2951-057	18146	10757	444.0				45	28	17	NW-NE
2951000298	DH2951-056	18435	10751	326.0				45	28	9	SW-NW
2951000299	DH2951-057	18146	10757	397.0				45	28	17	NW-NE
CCW17453	SEE PROJECT 251	CW-1	10781	365.6				46	28	10	NE-SW
CCW17454	SEE PROJECT 251	CW-1	10781	392.0				46	28	10	NE-SW
CCW17456	SEE PROJECT 251	CW-1	10781	420.0				46	28	10	NE-SW
CCW17457	SEE PROJECT 251	CW-1	10781	441.2				46	28	10	NE-SW
CCW17458	SEE PROJECT 251	CW-1	10781	461.3				46	28	10	NE-SW
CCW17461	SEE PROJECT 251	CW-1	10781	540.1				46	28	10	NE-SW
CCW17985	SEE PROJECT 251	CW-1	10781	853.0				46	28	10	NE-SW

Appendix 295-K: Thin Section Summary and Tables

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For the Department of Natural Resources

By

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Introduction

This report supplements the geological investigations of Project #278 of the Minnesota Department of Natural Resources--Hibbing. The purpose of the petrographic work was to augment the extensive diamond drill hole core relogging program. Specific goals include identification of primary rock textures and lithologies, protoliths of the metamorphic rocks, and characterization of alteration.

This report is divided into three sections. The first section (Appendix 295-G) contains a summary of the major features identified in the thin sections. The second (Appendix 295-G) summarizes these data into two tables: one concerning lithology, protolith, metamorphic grade, and alteration; the other concerning mineralogy. The third section (Appendix 295-H) provides descriptions of each thin section examined.

I. Summary of Results

Lithologies

The rocks described in the petrographic work can be divided into the following groupings:

1. Iron formation, oxidized and unoxidized
2. Clastic and calcareous metasedimentary rocks
3. Mafic metavolcanic rocks (including amphibolites)
4. Mafic intrusive rocks
5. Fragmental and felsic metavolcanic rocks
6. Felsic to intermediate intrusive rocks

Iron Formation and Related Rocks

A large number of sections examined fall into this category and include both oxidized and unoxidized varieties. Unoxidized varieties typically contain quartz (recrystallized chert) and iron silicates such as stilpnomelane and minnesotaite. Included here are a number of conglomeratic specimens, which appear to contain intraclasts of chert in a matrix containing iron-silicates (#'s 272-277, 279, 281). Iron silicates are partially to totally replaced by hematite and/or limonite in the oxidized varieties. In general these rocks are not highly metamorphosed. Oxidation in these samples postdates metamorphism. A significant number of these sections contain small amounts of (secondary?) carbonate.

Clastic Metasedimentary Rocks and Marbles

Most of these rocks are quartz-rich, sericitic phyllites and fine-grained schists which were originally siltstones and fine-grained sandstones. Many of these are bedded or laminated, and a couple of specimens appear to be graded. A number of these samples show significant replacement by hematite, possibly indicating proximity to iron formation. Small amounts of secondary carbonate are common. Marbles are relatively uncommon, and are typically micaceous.

Mafic Metavolcanic Rocks

Mafic metavolcanic rocks are relatively uncommon in this suite. Included here are amphibolitic rocks of basaltic to andesitic composition, and are identified as such on the basis of texture and mineralogy. In relatively low grade specimens plagioclase typically shows a relict felty texture. A few specimens are porphyritic. Typical minerals in these rocks include hornblende or actinolitic hornblende, biotite, and chlorite, with secondary epidote and sphene.

Mafic Intrusive Rocks

Fine- to medium grained metagabbros (or -diorites?) and metadiabase constitute another grouping of rocks in this suite. These rocks are typified by a relict ophitic or diabasic texture, 50-70% original plagioclase, and 3-5% Fe-Ti-oxides (probably ilmenite) which have been altered to leucoxene. Original mafic minerals have been replaced by hornblende or actinolitic hornblende. These rocks for the most part do not contain a deformational fabric, but have been metamorphosed to upper greenschist or lower amphibolite facies. One unique sample (#026) is a hornblende pyroxenite. The mineralogy of this rock is probably primary and consists of pyroxene grains surrounded by large poikilitic hornblende (some recrystallization of hornblende is evident, however).

Fragmental and Felsic Metavolcanic Rocks

A few specimens in this study are pyroclastic (or perhaps tuffaceous metasediments). All samples have been sufficiently sericitized or chloritized to mask the primary texture. Only sample #030 was probably originally a dacitic flow (or shallow intrusive). These rocks appear to range in composition from dacite to andesite. Specimen #101 may have been originally trachytic.

Felsic to Intermediate Intrusive Rocks

Six thin sections of rocks fitting this description were examined. Of particular interest is the timing of intrusion with respect to regional metamorphism and deformation. Two specimens of metagranite (#003, 005) have undergone shearing and metamorphism. A well developed foliation has developed along shear bands. That foliation has been slightly crenulated in spec. #005, indicating two possible periods of deformation.

Specimen #023 is a tonalite. Plagioclase in this rock has been heavily sericitized, and epidote is well developed. There appears to have been little textural modification. This rock has undergone a thermal event, but does not appear to have been deformed.

Specimens 036, 038, and 040 appear to be related. They are monzodioritic to dioritic in composition. Specimens 36 and 38 have undergone a thermal event. Plagioclase is moderately to heavily sausserized. Quartz shows some strain, and there may have been some grain boundary modification. Specimen 40 exhibits foliation of biotite and hornblende, but it is not clear whether this foliation is primary or secondary. Quartz and feldspar appear to have undergone some recrystallization, however. Plagioclase in this rock is relatively fresh.

Metamorphism and Deformation

Rocks in this study have not been highly metamorphosed. Metamorphism for the most part ranges from lower greenschist facies to lower amphibolite facies.

The metavolcanic and metasedimentary rocks generally show some evidence of deformational fabric. Specimens #3, 17, 20, 83 show evidence of two deformations. Some of the iron formations show development of a distinct foliation or cleavage as well, but many do not. As a whole the mafic intrusive rocks do not possess a fabric, however they have clearly been metamorphosed. It is unclear whether these rocks were intruded late with respect to deformation, or whether these rocks were merely more strain resistant.

A few specimens have undergone shear. Specimens 3 and 5 contain well developed shear bands, and specimens 42, 44, and CCW17456,57 are phyllonites.

Alteration

Unless alteration is unusual, it is difficult to determine from the examination of a single specimen the nature of the "alteration". Low-grade hydrothermal metamorphism may be indistinguishable from greenschist facies metamorphism, for example. Preferably it helps to have altered and "unaltered" rocks for comparison. Most of the specimens selected for study show some degree of alteration.

The most common alteration in these rocks is the development of ferric oxides and hydroxides in the iron formations. In some cases these oxides have been mobilized, so that clastic sediments, probably nearby in the stratigraphic sequence, have been altered by replacement. A few hematitic and goethitic specimens have high Mn contents, notably specimens 11, 12, 13, and 55, 56, 57. An Mn-oxide (pyrolusite?) was identified in reflected light in specimen 13. Mn-oxide minerals were not identified in the other sections. Specimens 76 and 78 also have relatively high Mn contents. These contain a pink carbonate mineral, possibly rhodochrosite. Sample 105 is also manganiferous. This sample contains 20% fine carbonate; perhaps this is rhodochrosite as well.

Specimen 34 contains thin veins of what appear to be anhydrite and possibly apophyllite. Introduction of calcium is indicated by presence of diopside and epidote in association with these veins.

A number of specimens are partially kaolinized. These specimens include #'s 46, 95, 182, and 187. Of special note is abundant chlorite associated with specimen 95. None of these is associated with sulfide, however.

Specimens 95 and 103 have high MgO values. Both samples are metasediments and contain abundant chlorite.

Simple metamorphism (with hydration) can account for such common secondary minerals as sericite, chlorite, epidote, sphene. Without accompanying sulfidation or elevated values of key trace elements, it is unlikely that these assemblages are a result of hydrothermal alteration. Carbonate minerals are also common secondary minerals in these rocks.

Economic Geology

Disregarding the iron formations, samples of interest are those mentioned in the previous section. High Mn values are present in samples 11, 12, 13, 76, 78, and 105. Of particular interest are the probable presence of Mn-bearing carbonates in samples 76, 78, and 105.

Specimens 95 and 103 have high MgO values. As Mg-enrichment is associated with the base of massive sulfide deposits, these samples might merit further study. However, sulfides are lacking in these sections.

Specimen 34 shows an interesting calcic alteration, with possible anhydrite and apophyllite. A chemical analysis was not provided for this sample, however.

Specimen 7 contains sulfide-rich veins. This specimen also shows slightly elevated arsenic and mercury values.

III. Tabular Studies

Explanation of Abbreviations

Grain Size

1	Very Fine	<0.2 mm
2	Fine	0.2-1.0 mm
3	Medium	1.0-5.0 mm
4	Coarse	>5.0 mm

Primary Textures

1	Igneous	(includes hypidiomorphic, diabasic, and ophitic textures)
2	Porphyritic	
3	Fragmental	
4	Clastic	
5	Bedded	

Foliation

0	None
1	Weak
2	Moderate
3	Strong
4	Extreme
5	Banded

Mineralogy

Pl	Plagioclase
Q	Quartz
Qf	Quartz/Feldspar (undifferentiated)
Kf	K-feldspar
Fs	Feldspar (undifferentiated)
Bi	Biotite
Ms	Muscovite
Ser	Sericite
Hb	Hornblende
Cpx	Clinopyroxene
Act	Actinolite
Chl	Chlorite
Sph	Sphene
Cb	Carbonate
Hem	Hematite
Lim	Limonite (or Goethite)
Opq	Opaque
Ap	Apatite
Py	Pyrite
Mt	Magnetite
Po	Pyrrhotite
Trm	Tourmaline
Mn	Minnesotaite
Zo	Zoisite
Zr	Zircon
St	Stilpnomelane
Ilm	Ilmenite
Leux	Leucoxene
Gr	Graphite
Cc	Calcite

Table 1. Rock Type, Protolith, Metamorphic Grade, Primary Texture, Grain Size, Foliation, Alteration

Sample #	Rock Type	Protolith	grade	pr txt	Gn Sz	Fol'n	Alteration	Comments
2951-001	biotite amhibolite w/ marble	(calcareous?) volcaniclastic	amph.		1-3	5	lt. ser; (carb?)	marble layers prob. primary; matrix carb
2951-002	carbonate-rich amphibolite	interm. volcaniclastic?	amph.		13	2	carb?, ser	carb primary?, remobilized
2951-003	foliated meta-granite	granite		2	123	2	ser	sheared, metamorphosed
2951-004	biotite-calcite schist	calcareous volcaniclastic?	amph.		2	2		
2951-005	metagranite	granite	gs/amph	1	123	1	lt. ser; chl	recryst'd cataclastic
2951-007	iron formation?			5	12		hem + lim	veined with pyrite
2951-008	hematite						lim	
2951-009	iron formation			5	1			folded, w/ ax. pl. clvg
2951-011	granular iron formation				1	1	hem.	
2951-012	granular iron formation			5	1	1	hem.	
2951-013	quartz vein?						cc/Mn-ox	qz. fractured, recryst'd. Veined w/ cc &
2951-017	phyllite	pelite	gs.		1	3		crenulated, w. S2 fol.
2951-019	sericitic quartzite	siltstone	gs.		1	1		
2951-020	semischist	slts/sh.	gs.	5	1	1-2		
2951-022	metagabbro	gabbro (or dior.)	gs.	1	2		heavy sauss;	
2951-023	tonalite			1	23		mod-hvy ser., chl.	
2951-024	Fe-oxide vein in qz.						lim after hem	
2951-025	qzvein w/ phyllite		low gs.			1	hem,lim	phyll. incl. in qz vein
2951-026	hornblende pyroxenite	ultramafic igneous			23		minor biot.	
2951-027	quartz vein?						hem; carb	
2951-028	metavolcanic	andesite?	ep-	2	12		sph; lt. ser.	
2951-029	metavolcanic	prob. andesite	epid.	2	12	12		sheared
2951-030	felsic metavolcanic	dacite?	gs/amph	2	1		ser; some lim.	
2951-032	metagabbro	gabbro	ep-amph.	1	23		sauss; leucox.	cut by vein of epid+cc
2951-033	metagabbro	mafic igneous	ep-amph.	1	23		heavy sauss.; leucox.	
2951-034	amphibolite	mafic volcanic	amph.		1	1	diop-ep-anhy?-apoph?	calcic alt? late veins
2951-036	(meta?)diorite	mafic igneous	amph?	1	23		ser, ep, sph	lg. poik plag.; cumulus text?
2951-038	monzodiorite			1	23	1	light ser.	
2951-040	monzodiorite			1	23		ser; chl	
2951-042	phyllonite	felsic volc. or volc-clastic	gs.		1	3	sph, hem	
2951-044	phyllonite	felsic volc or volc-clastic	gs.		1	3	hem.	strong replacement by hem
2951-046	qz vein + phyllite	tuff?	gs		1	0	kaol, hem	kaol alongvein bdry
2951-048	phyllite	fels. volc. or tuff	gs		1	2	v. fine hem	
2951-050	hematite+"chert"	"cherty" iron fm			1		hem replacement	crude layering
2951-051	limonite-qz breccia	iron fm					hem-lim	hem brecciated
2951-055	qz breccia	quartz vein						qz brecciated; hem fills fractures
2951-056	hematite-rich breccia	qz vein						qz brecciated; fracts. filled w/ hem, cc
2951-057	hematite-rich qz breccia						late lim	qz. sheared; hem fills fractures

Table 1. Rock Type, Protolith, Metamorphic Grade, Primary Texture, Grain Size, Foliation, Alteration

Sample #	Rock Type	Protolith	grade	pr txt	Gn Sz	Fol'n	Alteration	Comments
2951-061	quartz	vein						strained
2951-063	goethite							fractures filled w/ remobilized lim and qz
2951-064	siltstone			45	1		lim?	some recryst.
2951-067	graphitic phyllite	metasediment?	gs?		1	2		
2951-069	metasiltstone or tuff	felsic tuff or volc-clastic			1	2	hem	hem replacing sericite
2951-072	"cherty" iron fm			5	1		hem	hem is martite; also replaces chert
2951-074	"cherty" iron fm			5	1		hem	hem pseudomorphs after mt
2951-076	hematite-carb-qz				23		hem?	hydrothermal? hem primary?
2951-078	hematite-carbonate	Mn-rich iron fm?					hem-carb	
2951-083	phyllite	tuff	gs	3	1	2	hem, sph	fol. crenulated
2951-084	phyllite	tuff?			1	1		
2951-085	metasiltstone	tuffaceous? siltstone	gs	5	1	0		laminated; faint grading; weak spaced
2951-087	hematitic meta- siltstone			5	1	1		
2951-089	silts/ss			5	12	2	hem?	thin layered alternating ss/slts
2951-091	quartzite	quartz ss			12			strain w/ some recryst
2951-093	hematitic siltstone			4	1		sph	
2951-095	chlorite schist	metasedimentary		4			kaol	
2951-097	feldspathic qzite	ss		5	12		weak ser.	
2951-099	siltstone/ss.		gs.	45	12	2		layers folded; ax. pl. clvg
2951-101	lithic meta-tuff	probably trachytic	gs.	3	123	1		relict flow banding
2951-103	chlorite schist	Mg-Al rich sediment	amph?			2	ilm-->leucox.	weak spaced clvg; pressure soln?
2951-105	biot-carb schist	metasediment	low	5	1	1		strange assemblage
2951-107	metasiltstone	siltstone	gs	45	1	2	hem	qz grains flattened in plane of fol.
2951-109	ferruginous sandstone			4	23			unmetamorphosed; prob not PC
2951-119	marble?	carbonate?		5	1			grain mount; laminated
2951-125	qtzite; hematite	iron fm?			1-2			grain mount
2951-127	hem w/ minor qz	iron fm?						grain mount
2951-129	hem + qzite	iron fm?			1		hem replacement	grain mount
2951-131	hem + qzite	iron fm?			1			grain mount
2951-133	hem + qzite	iron fm?			1			grain mount
2951-135	Fe-oxides	iron fm?					lim	grain mount
2951-137	Fe-oxides	iron fm?					lim	grain mount
2951-139	Fe-oxides	iron fm?					lim	grain mount
2951-143	Fe-oxides	iron fm?					lim	grain mount
2951-169	metagabbro	gabbro?	ep-amph.	1	23		ep-sph	
2951-170	metagabbro	gabbro?	ep-amph	1	23		ep-sph	
2951-172	hematitic quartzite	iron fm	gs?		12		hem-lim	
2951-173	sheared? iron fm	iron fm			1		lim	deformed qz fibers

Table 1. Rock Type, Protolith, Metamorphic Grade, Primary Texture, Grain Size, Foliation, Alteration

Sample #	Rock Type	Protolith	grade	pr txt	Gn Sz	Fol'n	Alteration	Comments
2951-174	oxid. iron fm	iron fm			1		hem	fibrous qz
2951-175	oxid. iron fm.	iron fm			12		hem-lim	
2951-176	iron fm	iron fm.		5				
2951-180	rextt'l chert	iron fm			1			
2951-181	Fe-silicate iron fm	iron fm		5	1			
2951-182	metagabbro	gabbro or diabase	gs	1	12		sauss; chl-kaol-sph	alt possib hydroth. (note kaol)
2951-183	metadiabase	diabase or basalt	ep- amph	1	23			
2951-184	metagabbro	gabbro or diabase	up. gs.	1			chl-kaol-ep-sph	late alt.--hydrothermal?
2951-187	feldspathic qzite	feldspath. ss		4	12		kaol-ser	
2951-201	hematite	iron fm?					lim	numreous fine fractures
2951-202	quartzite	ss?			12		Fe-oxides and cc	veined with hem-qz and lim-cc
2951-207	altered quartzite	siltstone	gs	5?	1		green clay-lim	heavy alt, hydroth?
2951-229	massive limonite							brecciated; minor qz veins also
2951-239	fract. quartz vein						lim	Qz grains sheared into thin ribbons
2951-240	metagabbro	gabbro	ep. amph	1	2		sauss	
2951-245	limonite	iron fm?						cc porphyroblastic
2951-246	meta-iron fm	iron fm	gs?	5	1		hem; cc, some lim	qz-cc veins
2951-267	metavolcanic?	andesite?	gs.		1		chl; later lim, leux	chl pervasive; lim along cracks
2951-268	metavolcanic	andesite?	gs	2	1		chl, unid. clay; hem,	section pitted
2951-272	conglomerate	iron fm?	gs	34	1		lim, clay	intraformational
2951-273	conglomerate	iron fm?	gs	34	1		lim	intraformational
2951-274	conglomerate	iron fm?	gs	34	1			intraformational
2951-275	conglomerate	iron fm?	gs	34	1		lim	intraformational
2951-276	conglomerate	iron fm?	gs?	34	1		lim	intraformational
2951-277	conglomerate	iron fm?	gs?	34	1		hem-lim	intraformational
2951-278	iron fm?	iron fm	gs?	5	1		lim-hem-cc	
2951-279	conglomerate	iron fm?		34	1		hem-lim	clasts prob. orig chert
2951-280	quartzite, sericitic	ss	gs	4	12		ser, lim	
2951-281	conglomerate	iron fm?		34	1		hem-lim	
2951-282	quartzite	chert granule ss.		34	1			
2951-283	conglomerate	iron fm?		34	1		hem-lim	late Fe-clay in vein
2951-284	iron fm	iron fm		5	1		hem-lim	
2951-285	intermed. metavolcanic	andesite?	gs	1	1		calcite; minor hem, leux;	possibly an Mg-alt.
2951-286	metavolcanic	andesite porphyry	gs	2	123		leux-hem; lim	
2951-287	pyroclastic flow breccia?	andesite or dacite	gs	3	1		calcite; leux	Mg-alt?
2951-298	Fe-silicate-rich iron fm	iron fm		5	1		hem	
2951-299	pyroclastic breccia	dacite or andesite	gs	3	13		calcite	
CCW17453	metagabbro	gabbro or diabase	ep. amph	1	23		sauss	

Table 1. Rock Type, Protolith, Metamorphic Grade, Primary Texture, Grain Size, Foliation, Alteration

Sample #	Rock Type	Protolith	grade	pr txt	Gn Sz	Fol'n	Alteration	Comments
CCW17454	metavolcanic	intermed. volc.	gs	1	2	1	kaol; hem-leux	
CCW17456	phyllonite	iron fm?	gs		1	3	hem-lim	
CCW17457	phyllonite	metasediment--iron fm?	gs		1	3	leux	
CCW17458	fragmental metavolcanic?	intermed.--dacite?	gs	3	1		leux	possib. pillow breccia or agglom.
CCW17461	amphibolite	metagabbro	amph	1	2		ep-cc-sph	half of section altered
CCW17985	fragmental metavolcanic?	intermediate volc?	gs	3	1	2		pervasive chl

Table 2. Mineralogy

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
2951-001	<5	30				30		tr	15				1		15			1% mt; tr. py, cp		rotated hb porphyroblasts.
2951-002		10				3		5	60				1	.5	20				.1 ap	
2951-003	20	30		35		5	10					.5							ap. tr	
2951-004		20				40							10		30			tr. mt		
2951-005	20	40		20		8	5					<1						mt 1; py 1		
2951-007		25														15	5		py. 40; mt 15; tr. po	
2951-008		19														70	10	mt 1		
2951-009		30														45	5	10 py, 10 mt		
2951-011		70														30				
2951-012		70														30				
2951-013		65													30				4 Mn-oxide; 1 ap.	
2951-017		25				X	x					x							5 fine dissem hem	70% intergrowth bi, ms, chl
2951-019		75						23										2 (mt+hem)		
2951-020		30					69									1			tr. Trm	
2951-022	34	2				2			13	2	12	10	20			tr		3 ilm; tr. py	2 sph	orig. plg 60%, 35% maf,
2951-023	60	20				2			10			3	5					mt <1		
2951-024		57														40			3% ap.	
2951-025		85				2	7									2	3		.5 tourm	tourm. in phyll.
2951-026	2					.5			40	57					.5				tr. ap	
2951-027		74													5	20			1% mn?; cb=siderite?	
2951-028	50							1	40			<1	2	5				1 py		
2951-029	20						3		50			20	5						2 sph	
2951-030	25	50					1										2	2	20% Zois.	
2951-032	33					3			40				30		tr			3 ilm?	.5 ap	
2951-033	2					3			50				41		1			3, altered ilm		
2951-034	30	4							55	4			2	2				tr. py	2 anhy?, 1 apoph?	vein minerals: ep, qz, anhy?,
2951-036	30	5				10		x	50				3						2 sph	
2951-038	70	1		10		13			15	.5		tr	tr					tr. py	tr. zr	
2951-040	55			12		1			20	tr		4	tr					5	2% ap	
2951-042		30					60							5		5		5 py; 5 fine		
2951-044			25				25									50				
2951-046		60	7					17								6				qz in vein; qf in phyll; hem
2951-048			42					50						3		5				
2951-050		40														60				
2951-051		70														25	5			
2951-055		70													1	29				
2951-056		18													2	70	10			
2951-057		80														20				

Table 2. Mineralogy

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
2951-061		100																		
2951-063		1															99			
2951-064		40															60			
2951-067			30					10?								10		50% gr.		
2951-069		25						30								45				
2951-072		35														65				
2951-074		90														10				
2951-076		20													30	50			minor mn?	carb may be manganiferous
2951-078		10													37	50			3 mn?	carb may be rhodochrosite
2951-083		20						70								5				
2951-084	5?	3						77								14		py 1%?		
2951-085	3	2						85										10		
2951-087		5						70								20			sph 5	
2951-089	tr	35		.5				60								5				hem finely dissem
2951-091	fsp	92						tr										3	tr. tourm.	
2951-093		18			?							30		2		50				
2951-095		15										72						5 leux	8 kaol.	
2951-097		70		23				2								4		1 mt	tr. tourm, zirc.	
2951-099		25						55								20			tr. zirc	
2951-101				10		1		79								10				
2951-103		24					20					50						ilm 5	cord? 1	
2951-105						55									20				25% colorless	high Mn in chem anal
2951-107		10			?			85								5				
2951-109	1	45		2		tr			tr				1			30		mt,ilm,py tr.	Rock frags: 20	rock frags mostly felsic plut.
2951-119		<5				10									80	2		mt 3		
2951-125		49													1	50				
2951-127		5														95				
2951-129		40														55	5			
2951-131		50														50		tr. unid		drill bit fragments?
2951-133		52													3	25	20			carb colloform; algal?
2951-135		5													5	45	45			
2951-137		10													3	52	35			
2951-139		2													5	33		60		
2951-143		3				1									3	50	44			
2951-169	26					5			30				35	3					1% ap.	
2951-170	26					5			35				30	3					1% ap.	
2951-172		80														5	10	5 leux		prim. St? repl. by hem/lim
2951-173		50														20	27	3% py		

Table 2. Mineralogy

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
2951-174		10													10	15		5 py; 5 mt	60% stilp	
2951-175		50														30	19	1 py; tr. mt	1% ap	
2951-176		20													5	36	2	tr. py; tr. mt	35% stilp, 2% mn	
2951-180		95														5				
2951-181		10													2	15				40% mn, 28% stilp
2951-182	50					1					10	10	15	4					10% kaol	
2951-183	44					1			35			5	10	3	2					
2951-184	48					3			5			25	5	4						
2951-187		86						2											10% kaol	
2951-201		3													7	85	5			
2951-202		90													2	5	3			
2951-207		45															15		40 green clay; 5 mn?	green clay--nontronite?
2951-229		5															95			
2951-239		90													tr		10			
2951-240	44					5		tr	25			5	15	3	3					
2951-245		tr													5	2	88		5% stilp	stilp and cc formed after lim
2951-246		8													10	10	2	5 mt	65% stilp	
2951-267	10											55					30	3 leux	2% green alt mineral	
2951-268	55					<1		1				35		1		3		2 leux	3% unid. clay	
2951-272		20				33											10	5 py; 30 graph?	2% green clay	graph? v. fine
2951-273		20				58											8	py 10; graph? 4		graph? v. fine
2951-274		40				38										1	7	py 10; graph? 4		graph? v. fine
2951-275		50				30										1	7	10 py; 2 graph?		
2951-276		84				5											7	py 1; grap? 3		
2951-277		59				20										4	15	py 2	"biot" possib. stilp	
2951-278		20														20	35	tr. py	15% mn, 5% stilp?	
2951-279		50														25	25			
2951-280		70						15									1		4%	unid lt. brwn layer sil. alt.
2951-281		60														32	5	graph? 3		
2951-282		80														8	7	5% graph.		
2951-283		72														10	5	5% graph?	2% Fe-clay	
2951-284		45														20	5	graph? 20	unid Fe-silicate 10	
2951-285	37					5						40			10	3		ilm (leux) 2; 3		
2951-286	61	tr				20						10						5	4 ap.	opaques alt. to leux-hem
2951-287			7			5						45			40			2 leux; 1 mt		
2951-298		25													5	3		Mt 10	stilp 52; mn 5	
2951-299			15			5	tr					32			45				rutile? 3	
CCW17453	45	tr							35			5	10	5						

Table 2. Mineralogy

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
CCW17454	40					15						25						10 (mt, ilm)	10 kaol, .5 ap	opqs-->leux-hem
CCW17456		50				10										10	20		10 mn?	bio? v. green, fibrous; in
CCW17457		50				10						37						leux 3		
CCW17458			15			20						61						4		
CCW17461	30					3			30			1	25	5	5			py 1		
CCW17985		5										65			3			py 5, ilm 2		

Appendix 295-L: Thin Section Descriptions

June 15, 1993

For the Department of Natural Resources

By

James L. Welsh

Gustavus Adolphus College

Spec. No: 295000001

Chip Desc: green/black med. grained, biot-hb schist w/ thin marble layers

Minerals:	%	Desc.
biotite	30	brown; lepidoblastic
hornblende	15	blue green; porphyroblastic; intergrown w/ biot.
quartz	30	fine; granoblastic
carbonate	15	ankerite?; alters slightly to Fe-stain; doesn't fizz readily; intergrown & in equil w/ bi-hb-qz
plagioclase	<5	slightly alt. to ser.
epidote	1	intergrown--in equil. w/ biot.
opaques	1	mostly magnetite; trace py and cp

Structures/Textures: foliated, banded; some biot. wraps around hb; looks as if hb is slightly rotated. mineral growth appears synkinematic.

Alteration: very slight sericitization of plag; minor alt. of hb to fibrous biot.

Interpretation: protolith: volcaniclastic (intermediate)? with intercalated carbonate; foliation possibly developed by shearing, then recrystallized. Marble interlayers suggest primary calcareous intercalation, with possible mobilization of carbonate into amphibolite matrix during metamorphism. Assemblage: biot-hb-carb-qz-ep: Amphibolite facies.

Spec. No: 295000002

Chip Desc: med.-grained, banded biot-amphibolite w/ somewhat diffuse marble interlayers

Minerals:	%	Desc.
hornblende	60	pale bluish green; poikiloblastic
calcite	20	anhedral to subhedral; appears to partially replace hb; could be introduced
quartz	10	small, mostly as inclusions in hb and calcite; couple of bands rich in qz
biotite	3	one band in corner of slide
epidote	1	
sphene	.5	
apatite	.1	
sericite	5	

Structures/Textures: appears to be banded; grain size bimodal: mostly med. grn hb,cc, w/ v. fine granoblastic quartz. Much of hb is poikiloblastic

Alteration: sericite-replaces plag? (note: plag not observed). Much of carbonate may be introduced.

Interpretation: protolith: volcaniclastic (intermediate)? with intercalated carbonate; amphibolite facies. Marble interlayers suggest primary calcareous intercalation, with possible mobilization of carbonate into amphibolite matrix during metamorphism

Spec. No: 295000003

Chip Desc: med. grained, foliated, possibly cataclastic, porphyritic granite

Minerals:	%	Desc.
microcline	35	larger "porphyroclasts", somewhat poikilitic, perthitic (perthitie plag mostly replaced by musc); smaller polygonal grains in matrix
quartz	30	mostly smaller polygonal grains
plagioclase	20	ragged, sericitized, mostly replaced
biotite	5	lepidoblastic; olive brown
muscovite	10	lepidoblastic; forms spaced folia; some as sericite
apatite	tr	
chlorite	.5	minor alt. of biotite

Structures/Textures: Originally porphyritic with microcline phenocrysts. Present texture metamorphic: phenocrysts now porphyroclasts with partially polygonized matrix. Spaced foliation defined by lepidoblastic muscovite and biotite, slightly crenulated.

Alteration: plag moderately altered to sericite/musc.

Interpretation: Protolith: plutonic igneous--porhyritic granite. Development of spaced foliation, probably by shear, with subsequent recrystallization probably at amphibolite grade. Foliation slightly crenulated suggesting 2 deformations. Muscovite developed metamorphically--from earlier sericitization of plag.

Spec. No: 2951000004

Chip Desc: fine-med. biotite calcite schist

Minerals:	%	Desc.
biotite	40	olive green, lepidoblastic (somewhat)
calcite	30	granoblastic to decussate, untwinned
quartz	20	small, granoblastic grains
epidote	10	
apatite	tr.	
magnetite	tr.	

Structures/Textures: biotite somewhat lepidoblastic defining a weak foliation

Alteration: none

Interpretation: Protolith: calcareous (volcaniclastic?) metasediment? Quartz grains look clastic. Assemblage: biotite-calcite-quartz-epidote. Amphibolite grade.

Spec. No: 295000005

Chip Desc: med. grained, dark granitoid w/ reddish fspr

Minerals:	%	Desc.
quartz	40	polygonal, mostly small matrix grains; outlines of larger original grains visible
plagioclase	20	generally sericitized, a few partially recrystallized porphyroclasts
microcline	25	mostly small, polygonal, some partially recrystallized porphyroclasts
biotite	8	olive green
muscovite	5	
magnetite	1	
pyrite	1	
chlorite	<1	replaces biotite

Structures/Textures: foliated, polygonized, porphyroclastic; some wrapping of biot-musc folia around porphyroclasts

Alteration: plag lightly sericitized; minor replacement of biot by chl

Interpretation: Protolith: plutonic igneous (granite). Cataclasized, recrystallized to smaller grain size.

Spec. No: 295000007

Chip Desc: pyrite-filled fractures in iron oxide +quartz host (iron formation?)

Minerals:	%	Desc.
pyrite	40	fill anastomozing fractures
quartz	25	some very fine, "cherty". Some coarser vein qz
magnetite	15	v. fine, disseminated; assoc. w/ chert
hematite	15	secondary, replacing mt; two generations: finely crystalline and later cryptocrystalline
limonite	5	late, cryptocrystalline
pyrrhotite?	tr	creamy in reflected light; strong anisotropism

Structures/Textures: subparallel, in part anastomozing, fractures filled with pyrite cuts across what appears to be a fine lamination between quartz and v. fine magnetite, probably indicating a primary layering.

Alteration: hematite from primary magnetite; later cryoptocrystalline hematite and limonite.

Interpretation: Probably fractured, altered iron formation. Fractures later filled with pyrite. First stage of alteration, of magnetite to finely crystalline hematite predates fracturing. Later cryptocrystalline hematite and limonite postdate pyrite.

Additional Comments: Magnetic character of chip probably due to presence of fine magnetite

Spec. No: 2951000008

Chip Desc: hematite

Minerals:	**%**	**Desc.**
hematite	70	finely crystalline and later cryptocrystalline
limonite	10	cryptocrystalline alteration product
magnetite	1	remnants
quartz	19	finely crystalline, visible in reflected light, not visible in transmitted light due to pacity of hematite

Structures/Textures: some thin , subparallel bands of coarser, more reflective hematite; remainder is very fine cryptocrystalline hematite and limonite. A few remnants of primary magnetite

Alteration: limonite replacing hematite

Interpretation: hematite probably derived from oxidation of primary magnetite

Spec. No: 2951000009

Chip Desc: iron formation

Minerals:	**%**	**Desc.**
quartz	30	mostly very fine-grained; also as larger polycrystalline granules
hematite	45	replaces primary magnetite
magnetite	10	relict cores in hematite
pyrite	10	intergrown with hematite, especially along cleavage; generally confined to specific layers
limonite	5	

Structures/Textures: primary laminations of alternating fine-quartz and iron oxide or pyrite; layers have been folded, with development of axial plane clvg; granules of silica are flattened in plane of foliation; some late stage veining of later (remobilized?) hematite and minor pyrite

Alteration: Primary magnetite mostly replaced by hematite. Later replacement of hematite by cryptocrystalline hematite and limonite veins. Pyrite remobilized along cleavage planes and in late veins

Interpretation: magnetite-bearing iron formation, with magnetite later replaced by hematite. Later folding developed cleavage, along which pyrite is developed. Pyrite possibly primary, but some pyrite is remobilized.

Spec. No: 2951000011

Chip Desc: granular ("cherty") iron formation; chip subdivided into hematite-rich layer and quartz-rich layer

<u>Minerals:</u>	<u>%</u>	<u>Desc.</u>
quartz	70	v.fine, microcrystalline to crystalline
magnetite		relict cores, replaced by hematite
hematite	30	replaces magnetite, later cryptcrystolline hem. replaceing earlier hem

Structures/Textures: probable primary layering indicated by quartz-rich and hematite-rich areas; weak foliation at high angle to layering, marked by remobilized hem. and "streakiness" in "chert".

Alteration: oxidation of primary magnetite to hematite; later cryptocrystalline hematite replacing earlier hematite

Interpretation: Deformed banded iron formation, probably Proterozoic, with deformation producing weak secondary foliation cutting across primary layering. Hematite replacing primary magnetite. Original chert recrystallized to v. fine-grained quartz.

Spec. No: 2951-012

Chip Desc: granular ("cherty") iron formation, chip cuts across hematite-rich layer and silica-rich layer

<u>Minerals:</u>	<u>%</u>	<u>Desc.</u>
quartz	70	v. fine-grained
hematite	30	replaces primary magnetite
magnetite		relict cores

Structures/Textures: primary layering intersected at high angle by weak secondary foliation, marked mostly by hematite

Alteration: hematite replacing primary magnetite; late cryptocrystalline hematite replacing crystalline hem.

Interpretation: Deformed banded iron formation, probably Proterozoic, with deformation producing weak secondary foliation cutting across primary layering. Hematite replacing primary magnetite. Original chert recrystallized to v. fine-grained quartz.

Additional Comments: There is a "dustiness" to the chert. Some is v. fine hem. Low K and Na values in chem analysis suggest feldspars are absent, thus not likely that this is a fspr alt. It is therefore not likely that the chert is tuffaceous.

Spec. No: 2951000013

Chip Desc: fractured quartz-calcite vein?

Minerals:	**%**	**Desc.**
quartz	65	anhedral, strained, partially polygonized and sutured
calcite	630	anhedral,ragged, secondary as fracture fillings (and replacements?)
apatite	1	small hex. crystals with sector zoning, occurs only as inclusions in calcite
Mn-oxide	4	pyrolusite?; larger anhedral grain; locally patchy; also fills in cracks

Structures/Textures: fractured--cataclasized? Quartz partially polygonized with sutured boundaries Veins filled with calcite and Mn-oxide.

Alteration: secondary carbonate replaces feldspars?, fills in cracks. Mn-oxide also introduced.

Interpretation: Protolith: quartz vein?. Deformed, partially recrystallized. Subsequently fractured with introduction of calcite and Mn-oxide. Lack of twinning in calcite indicates vein-filling posdates deformation.

Spec. No: 2951000017

Chip Desc: crenulated phyllite

Minerals:	**%**	**Desc.**
micas	70	intergrowth of v. fine grained biotite, muscovite, chlorite
quartz	25	(+ fspr?) v. fine grained
hematite	5	v. fine, disseminated, probably after magnetite
tourmaline	tr.	

Structures/Textures: crenulated foliation with development of spaced S_2 along axial planes of crenulation

Alteration: hematite, probably after magnetite

Interpretation: metapelite; two deformations

Spec. No: 2951000019

Chip Desc: lt. grey v. fine quartzite

Minerals:	**%**	**Desc.**
quartz	75	recrystallized, somewhat polygonal
sericite	23	
opaques	2	prob mostly v. finely dissem. hematite, prob altering from magnetite

Structures/Textures: very fine grained; sericite defines a weak foliation

Alteration:

Interpretation: fine-grained metasiltstone--tuffaceous?; metamorphosed--greenschist grade; sericite probably developed after fsprs or clays

Spec. No: 2951000020

Chip Desc: lt. reddish brown v. fine-gned semischist

Minerals:	%	Desc.
muscovite	69	v. fine grained (sericite)
quartz	30	(+ fspr?)
hematite	1	? v. fine, dissem, also forms a couple of thin seams; secondary
tourmaline		tr

Structures/Textures: primary layering defined by slight change in grain size. S_1 foliation parallel S_0. Weak crenulation with weak S_2 axial pl. foliation, defined by ms., developed oblique to S_0. Fine, conjugate and en echelon fractures filled w/ hematite.

Alteration: hematite appears secondary

Interpretation: protolith: siltstone-shale. Two metamorphic/deformational events.

Spec. No: 2951000022

Chip Desc: dark green to black, fine-med. grained metagabbro

Minerals:	%	Desc.
plagioclase	34	long laths; heavily sausseritized esp. cores.; rims albitic or poss. Kfspr (R.I. < qz). (orig. 60%)
quartz	2	interstitial
augite	2	relict cores of hb/act. grains
hornblende	13	blue green pleo.--generally outer edges of orig. mafic grains
actinolite	12	brown, wealkly pleo., fibrous, radial mats; replaces hornblende and augite, typically occurs in cores of hb grains
chlorite	10	replaces amphiboles
biotite	2	intergrown with chlorite
epidote	20	abundant; secondary, result of sauss.
ilmenite	2	skeletal, mostly altered to sphene + biotite (orig. 5%)
sphene	3	secondary, after ilmenite
pyrite	tr	altering to hem

Structures/Textures:

Alteration: plag heavily sausseritized; actinolite replaces hb + augite ; chlorite replaces hb + (biot?); ilmenite replaced by sphene; pyrite (minor) altering to hem.

Interpretation: Protolith: gabbro (or diabase), possibly diorite. Secondary mineralization probably result of greenschist grade metamorphism. It's also possible that hornblende formed deuterically, with later metamorphism producing the actinolite-chlorite-epidote-sphene assemblage.

Spec. No: 295000023

Chip Desc: pinkish, med. grained, hb tonalite

Minerals:	%	Desc.
plagioclase	60	mod. to heavily sericitized; some zoning
quartz	20	anhedral, intersitial
hornblende	10	bluish green, pleo.
biotite	2	
chlorite	3	replacing biotite
epidote	5	yellow, euhedral to subhedral grains
magnetite	<1	partially replaced by hem.

Structures/Textures:

Alteration: mod to heavy sericitization of plag; chlorite replacing biotite; secondary epidote

Interpretation: protolith: tonalite. Moderately altered.

Additional Comments: pinkish color in chip suggests presence of K-fspr, but K-fspr is not evident in thin section.

Spec. No: 2951000024

Chip Desc: Fe-oxide vein in quartz

Minerals:	%	Desc.
quartz	57	
hematite/	40	cryptocrystalline; vein and fracture filling in quartz
limonite		
apatite?	3	Small hex crystals with sector zoning; abnt in hem/lim vein

Structures/Textures: quartz strained, grn boundaries slightly sutured. Fe-oxide fills fracture

Alteration: limonite replacing hematite

Interpretation: Fe-oxide is secondary vein filling of fractured quartz

Spec. No: 2951000025

Chip Desc: quartz vein with included phyllite

Minerals:	%	Desc.
quartz	85	strained
muscovite	7	v.fine; in phyllite
biotite ?	2	V. fine, faintly pleochroic, intergrown w/ musc. in phyllite,somewhat fibrous
tourmaline	.5	fairly abnt , in phyllite
limonite	3	secondary; in cracks, sutures; stains phyllite
hematite	2	in cracks; v. finely disseminated in phyllite

Structures/Textures: Quartz strained, fractured; grain boundaries sutured; some polygonization at grain boundaries. Phyllite is included in vein quartz. Thin shear bands in phyllite, cutting across foliation. Som crumpling of foliation. A couple of thin phyllite seams occur along along fractures in quartz.

Alteration: hematite and limonite is secondary

Interpretation: Quartz vein has been deformed, with fracturing and some recrystallization. Low metamorphic grade. Micas not well formed. "Biotite" appears to be forming as a result of introduction of Fe from Fe-oxides into mica structure. Quartz filling original fracture or breccia in phyllitic country rock?

Spec. No: 2951000026

Chip Desc: black, med. grained, hornblende pyroxenite

Minerals:	%	Desc.
diopside?	57	cpx; high relief, v. pale green; equigranular
hornblende	40	olive brown, "dirty"- appearing, larger poikilitic grains, and smaller, pale green, tabular to equant grains
plagioclase	2	vein filling
biotite	.5	minor, replaces "dirty" hornblende
calcite	.5	
apatite	tr.	

Structures/Textures: Texture generally equigranular, w/ poikilitic hb. Probably metamorphic texture. Appears to be two generations of hb.

Alteration: hornblende appears "dirty". Minor biot replaces hb

Interpretation: Hornblende pyroxenite. Probably igneous protolith, with pyoxenes having been cumulus with subsequent crystallization of the hb, forming the large poikilitic grains. Later recrystallization, formed second generation hbs, and developed equigranular texture

Spec. No: 2951000027

Chip Desc: brecciated quartz (vein?); hematite-carbonate-filled fractures

Minerals:	%	Desc.
quartz	74	strained, fractured, grain boundaries somewhat sutured
hematite	20	fracture-filling
siderite?	5	some Fe-staining; fracture-filling
minnesotaite?	1	fibrous, looks like muscovite

Structures/Textures: quartz brecciated; some suturing of grain boundaries

Alteration: hematite and carbonate are secondary--fracture filling

Interpretation: quartz vein? brecciated with subsecquent fracture filling of carbonate and calcite. Hematite looks to post-date carbonate

Spec. No: 2951000028

Chip Desc: dark, porphyritic metavolcanic

Minerals:	%	Desc.
hornblende	50	blue green, strong pleo; fibrous, matted
plagioclase	40	mostly fine-grained, sericitized; relict phenos approx 5%
epidote	2	yellow; in equil. with hb
chlorite	<1	in equil. with hb
sericite	1	alters plag phenos
sphene	5	abnt, fine-gned, granular
pyrite	1	disseminated euhedral to subhedral grains

Structures/Textures: relict phenocrysts

Alteration: sericite; fine sphene

Interpretation: metavolcanic, probably andesite; lower amphibolite facies (epidote amphibolite)

Additional Comments: chip looks amygdaloidal, but thin section shows a relict porphyritic texture

Spec. No: 2951000029

Chip Desc: greenish-grey, fine to med grained; looks sheared

Minerals:	%	Desc.
hornblende	50	pale green, slightly pleo; idioblastic to fibrous
plagioclase	20	v. fine grained; matrix
epidote	5	mostly idioblastic
chlorite	20	occurs prinicipally along crude fol; in equil w/ hb, ep
muscovite	3	
sphene	2	fine-grained, granular; secondary

Structures/Textures: weakto mod. foliation; chlorite grains define fol, and are aligned parallel to fol.,but wrap around hb idioblasts. Fol produced by shear. Prob. relict porphyritic texure

Alteration:

Interpretation: metavolcanic; prob. andesite; hb idioblasts prob. pseudomorphs after pyroxene. Sheared. Hb and chlorite are syntectonic. Prob. epidote-amphibolite facies (or upper greenschist)

Spec. No: 2951000030

Chip Desc: Light grey, porphyritic felsic metavolcanic

Minerals:	%	Desc.
quartz	50	relict polycrystalline pheno's and fine matrix; grain boundaries generally irregular
plagioclase	25	relict phenos (& matrix?); sericitized
zoisite?	20	abnt; cornflower blue interference colors; parallel extinction
muscovite	1	
opaque	2	large grain; and forms along grain boundaries and cracks
limonite	2	secondary

Structures/Textures: relict porphyritic texture; qz phenos recrystallized

Alteration: sericitization of plag; scattered secondary limonite

Interpretation: felsic metavolcanic; dacite?; with secondary development of zoisite and musc. Upper greenschist/lower amphibolite facies?

Spec. No: 2951000032

Chip Desc: med.-grained black/white metagabbro or diorite

Minerals:	**%**	**Desc.**
hornblende	40	pale green; mod. pleo; somewhat fibrous
plagioclase	33	heavily sausseritized; (orig. 50-55%)
epidote	30	secondary; replaces plag
biotite	3	
opaques	3	late, interstitial; altered to leucoxene
apatite	<1	

Structures/Textures: cut by vein of columnar to radiating epidote and minor calcite; xtls perp. to vein

Alteration: mod to heavy sausserite; leucoxene

Interpretation: metagabbro; epidote-amphibolite grade

Additional Comments: Light brown color and columnar habit of vein mineral suggests zoisite, but optics work out to be epidote.

Spec. No: 2951000034

Chip Desc: fine-grained amphibolite

Minerals:	**%**	**Desc.**
hornblende	55	strong blue green pleo
plagioclase	30	v. fine, polygonal
diopside	4	assoc. w/ vein; prob. secondary
anhydrite?	2	vein mineral
apophyllite?	1	vein mineral
quartz	4	minor; in veins; matrix?
epidote?	2	vein mineral
sphene?	2	high relief mineral, assoc w. epidote,
pyrite	tr	assoc. w/ veins

Structures/Textures: Thin veins cutting postdating metamorphic fabric

Alteration: Sausserite along margins of veins with diopside. Diopside prob. secondary, as only developed adjacent to epidote rich vein. Major vein shows a zonation: epidote + sphene(?) grading outward to diopside-sausserite. Two veins are qz-plg-anhdrite(?). Late vein of anhhydrite(?) + apophyllite(?)

Interpretation: Protolith: mafic volcanic; amphibolite grade; later fracturing w/ calcium-rich alteration along veins. Anhydrite-apophyllite? cuts across qz veins

Additional Comments: Vein mineralization difficult to identify positively. Primary vein mineral looks to be epidote optically, but is chalky to colorless in chip. At least two and possibly three other vein minerals exist--anhydrite?, apophyllite?. These are identified as a "best guess".

Spec. No: 2951000036

Chip Desc: fine to med-grained, equigranular (meta?)diorite

Minerals:	**%**	**Desc.**
hornblende	50	green, pleo, somewhat patchy color; generally lighter in color aroundedges; mostly euhedral
biotite	10	olive green; some replaces hb, commonly in hb interiors; rest as individual grains
plagioclase	30	mod to heavily sericitized; some large poikilitic grains
quartz	5	interstitial
epidote	3	secondary
sphene	2	mostly secondary; couple of possibly primary grains w/ secondary overgrowths
apatite	.5	
muscovite		sericitic replacement of plag

Structures/Textures: large, poikilitic plag; igneous texture, but looks recrystallized

Alteration: sericite, epidote, sphene

Interpretation: Diorite to quartz diorite, but looks recrystallized. Poikilitic plag suggests possibly a cumulate texture, with cumulus hornblende (or pyroxene?) and intercumulus plag. Biotite looks magmatic, although there has been later re-equilibration, w/ biot partially replacing hb (and hb replacing pxn?) If metamorphic, prob amphibolite grade.

Additional Comments: This rock has a strange texture. Chip looks like it might be veined (w/ plag), but "vein" merges with remainder of rock. This could be some kind of secondary texture w/ plag introduced, however, I think it is most likely a metamorphosed cumulate texture.

Spec. No: 2951000038

Chip Desc: med-grained foliated metadiorite

Minerals:	**%**	**Desc.**
plagioclase	70	subhedral, tabular; lightly sericitized
microcline	10	blocky, anhedral, poikilitic w/ myrmekitic plag incls
quartz	1	
biotite	13	dark brown, subhedral to anhedral; pleochroic haloes around zircons
hornblende	15	green, pleo; many grains have lighter colored cores (replace orig. augite?)
augite	.5	relict cores inhb
sphene	.5	
epidote	tr	
chlorite	tr	
pyrite	tr	assoc. w/ biotite and hb
zircon		numerous, mostly as small inclusions in biot.
allanite	tr	

Structures/Textures: Foliation defined by biot and hb. Many plag grains somewhat polygonal. Biotite and hb appear to be magmatic.

Alteration: light sericitization of plag

Interpretation: hornblende monzodiorite; probably recrystallized. Foliation caused by crystallization under stress?, rather than being metamorphic?

Spec. No: 2951000040

Chip Desc: pink, med-grained granitoid

Minerals:	%	Desc.
plagioclase	55	subhedral, tabular; mod to locally heavy sericite
microcline	12	interstitial, larger poikilitic grains
hornblende	20	green, pleo
augite	tr	few scraps of relict cores in hb
biotite	1	
opaque	5	interstitial
sphene	1	
apatite	2	
chlorite	4	replaces biotite; generally occurs in most seritized part
epidote		minor

Structures/Textures: hypidiomorphic granular

Alteration: sericitization of plag; chlorite after biotite

Interpretation: hornblende monzodiorite; igneous texture

Spec. No: 2951000042

Chip Desc: light purple v. fine grained phyllonite; sericitic

Minerals:	%	Desc.
quartz	30	v. fine grained; some ribbon qz (+fspr?)
muscovite	60	v. fine folia
sphene	5	(leucoxene?) anhedral, granular; probably alt of ilmenite
hematite	5	v. tiny dissem grains; strung out along foliation

Structures/Textures: phyllonitic; weak development of S-C foliation; gentle asymmetric folding of folia;

Alteration: sphene (possibly leucoxene); fine hem

Interpretation: sheared felsic metavolcanic or possbily volcaniclastic

Additional Comments: too fine grained to determine protolith precisely; can't distinguish fsprs from quartz--looks mostly like quartz

Spec. No: 2951000044

Chip Desc: lt. grey; v. fine-grained phyllite, mostly replaced by hematite

Minerals:	%	Desc.
quartz/fspr	25	v. fine, occur in QF domains and as small porphyroclasts
muscovite	25	v. fine; defines folia
hematite	50	

Structures/Textures: phyllonitic w/ small fspr porphyroclasts and "augen" of finely recrystallized quartz+fspr; folia defined by v. fine muscovite; porphyroclasts rotated

Alteration: over half of the rock in thin section is replaced by hematite

Interpretation: sheared felsic volcanic or volcaniclastic; later replacement by hematite

Additional Comments: Fine musc. (sericite) makes up 50% of unaltered rock; remainder is qz/fspr = 5% fine dissem hem.

Spec. No: 2951000046

Chip Desc: quartz vein + phyllite;white powdery material occurring along vein boundary and quartz grain boundaries

Minerals:	%	Desc.
quartz	60	vein
quartz/fspr	7	v. fine, matrix in phyllite
sericite	17	v. fine
hematite	6	v. fine, disseminated (with leucoxene)
kaolinite	10	along margin between qz vein and phyllite; also as patches in phyllite

Structures/Textures: quartz vein cutting through phyllite; quartz grains in vein are sutured; "wispiness" of dissem. hem in phyllite appears to outline relict shards

Alteration: kaolinite along vein boundary; also as patches in phyllite; fine dissem. hematite is secondary

Interpretation: possibly a metatuff; cut by qz vein, and altered

Additional Comments: percentages given are for phyllite

Spec. No: 2951000048

Chip Desc: lt. grey, phyllitic, felsic metavolcanic; porphyritic

Minerals:	**%**	**Desc.**
quartz/fspr	42	v. fine; some fspr remnants in porphyroclasts
muscovite	50	(sericite) defines foliation
hematite	5	v. finely disseminated
sphene?	3	abundant v. fine "grunge"

Structures/Textures: phyllitic; foliation wraps around recrystallized porphyroclasts; porphyroclasts show some rotation; slight development of S-C cleavage

Alteration: v. finely disseminated hematite and sphene? "grunge"

Interpretation: sheared felsic metavolcanic or tuff; greenschist facies

Spec. No: 2951000050

Chip Desc: hematite replacing? pinkish white chert

Minerals:	**%**	**Desc.**
quartz	40	polygonal; mostly v. fine grained; some lenses and veins coarser
hematite	60	appears to be mostly secondary; fills veins, grain boundaries, though does define a crude layering

Structures/Textures: crude layering defined by hematite; one vein of fine "quartzite" cuts obliquely across the crude layering. Late spaced fracture pattern cuts across early layering and "quartzite" vein. These fractures filled with hematite

Alteration: most if not all hematite secondary; certainly there has been remobilization of hem.

Interpretation: protolith probably "cherty" iron formation; later with later recrystallization and remobilation of both silica and hematite

Spec. No: 2951000051

Chip Desc: vein quartz plus Fe-oxides

Minerals:	**%**	**Desc.**
quartz	70	vein
hematite	25	mostly crystalline, some later cryptocrystalline
limonite	5	replaces hematite

Structures/Textures: quartz strained, partially polygonized esp. along grn boundaries. Hematite brecciated, healed w/ quartz

Alteration: cryptocrystalline hematite and limonite after crystalline hematite

Interpretation: breccia of hematite, filled w/ quartz. Later alt of hematite to cryptocrystalline hematite and limonite.

Spec. No: 2951000055

Chip Desc: quartz breccia, fractures filled w/ goethite

Minerals:	**%**	**Desc.**
quartz	70	strained' polygonized along grain boundaries
hematite	29	mostly crystalline, some late cryptocrystalline
calcite	1	late fracture filling; fibrous, radial, w/ concentric banding

Structures/Textures: brecciated quartz (vein?), fractures filled w/ hematite. Some late refracturing, fractures filled w/ fibrous calcite

Alteration:

Interpretation: quartz vein brecciated, fractures filled w/ hematite. Later re-fracturing, filled w/ calcite

Spec. No: 2951000056

Chip Desc: hematite-filled quartz breccia

Minerals:	**%**	**Desc.**
hematite	70	breccia filling, and replacing? quartz
limonite	10	replacing hematite
quartz	18	
calcite	2	late vein

Structures/Textures: quartz breccia

Alteration: some late limonite

Interpretation: hematite filling fractures; may also replace quartz

Spec. No: 2951000057

Chip Desc: fractured or brecciated quartz

Minerals:	**%**	**Desc.**
quartz	80	highly strained; sheared into thin ribbons
hematite	20	fracture filling
limonite		cryptocrystalline; occurs along interface between qz and hem

Structures/Textures: Quartz highly strained; sheared into thin ribbons. Closely spaced discontinuitiesoccur at high angle to ribbons, and are marked by v. thin line of finely polygonized qz. Hematite postdates the shearing, and fills along some shear discontinuities

Alteration: Limonite alters earlier hematite

Interpretation: Quartz sheared and fractured. Later introduction of hematite along fractures and some shear discontinuity.

Spec. No: 2951000061

Chip Desc: quartz

Minerals:	%	Desc.
quartz	100	strained

Structures/Textures: some suturing of grain boundaries, but v. little recryst. Closely spaced, parallel, discontinuous microcracks.

Alteration:

Interpretation:

Spec. No: 2951000063

Chip Desc: goethite

Minerals:	%	Desc.
goethite	99	
quartz	1	v. fine, polygonal,fills fine fractures

Structures/Textures: numerous fracture sets, mostly filled w/ remobilized lim; quartz fills earlier set, then offset by later fracture set filled w/ remobilized lim.

Alteration:

Interpretation:

Spec. No: 2951000064

Chip Desc: thin layered limonitic siltstone

Minerals:	%	Desc.
quartz	40	fine, polygonalgrains
limonite	60	matrix

Structures/Textures: qz grains are clastic; but have been recrystallized

Alteration: limonite?

Interpretation: meta-siltstone; Fe-oxide matrix

Spec. No: 2951000067

Chip Desc: graphitic phyllite

Minerals:	**%**	**Desc.**
graphite	50	thin, "wispy", opaque
sericite	10	v. fine
qz/fspr	30	v. fine, partially replaced by sericite
hematite	10	(+some lim); isolated anhedral grains

Structures/Textures: graphite defines fol; wraps around tiny "augen" shaped domains of quartz/feldspar

Alteration: sericite; hematite after magnetite?

Interpretation: Protolith probably a carbonaceous metasediment

Additional Comments: "augen" pseudomorphed by sericite (+ chl?--looks like ser., but has low bir, but does not appear to be pleo--1% MgO might indicate presence of chl). Note high values of TiO_2, P_2O_5, and F. Can't see this in mineralogy--too fine grained.

Spec. No: 2951000069

Chip Desc: hematite replacing meta-siltstone or tuff. A couple of larger flattened clasts or lapilli visible

Minerals:	**%**	**Desc.**
quartz	25	v. fine, somewhat flattened grains; a few polycrystalline "porphyroclasts" and veins
sericite	30	abnt; defines fol; appears to replace all orig. minerals but qz.
hematite	45	secondary; replaces sericite

Structures/Textures: Foliated; fol. wraps around porphyroclasts. Subparallel microcfaults, oblique ot fol, offset qz veins, and warp sericite. "Veins" consist of a few slightly coarser -grained qz segregations parallel to fol.

Alteration: hematite is secondary and appears to replace sericite

Interpretation: Protolith: siltstone prob. volcaniclastic or tuff. Deformed and metamorphosed to greenschist facies, producing fol. Later introduction and replacement by hematite. Microfractures postdate hematite.

Spec. No: 2951000072

Chip Desc: hematite-rich "cherty" iron fm

Minerals:	**%**	**Desc.**
quartz	35	microcrystalline--chert
hematite	65	martite; also replaces chert; approx half is cryptocrystalline

Structures/Textures: thin layering; weak fol oblique to layering--visible only in hematitic portions

Alteration: Replaces primary magnetite; also replaces chert; primary layering still visible.

Interpretation: "cherty" iron formation, with replacement of magnetite and chert by secondary hematite

Spec. No: 2951000074

Chip Desc: thin layered chert + minor hematite

Minerals:	%	Desc.
quartz	90	microcrystalline--chert
hematite	10	pseudomorphs earlier magnetite?; and as v. fine disseminated "crud"

Structures/Textures: thin layering

Alteration: hematite secondary, replaces magnetite?

Interpretation: "cherty" iron formation, oxidized

Spec. No: 2951000076

Chip Desc: pink/black, med-grained magnetite-carbonate-quartz rock

Minerals:	%	Desc.
hematite	50	anhedral, fracture;
carbonate	30	siderite/ankerite?--(or rhodochrosite?), anhedral to euhedral; "dirty" appearance
quartz	20	mostly vein; also intergrown w/ hematite-carbonate
minnesotaite?		fibrous, secondary mineral; looks a little like serpentine, but birefringence too high

Structures/Textures: some vein quartz

Alteration: minnesotaite? may be secondary; hematite after magnetite--or is hematite primary?

Interpretation: hydrothermal?

Additional Comments: Carbonate may be manganiferous. Note relatively high MnO_2 in analysis.

Spec. No: 2951000078

Chip Desc: hematite-pink carbonate-quartz; approx one-half of chip is massive hematite

Minerals:	%	Desc.
hematite	50	some martite; intergrown with carbonate
carbonate	37	rhodochrosite? somewhat dirty in appearance; appears to replace quartz
quartz	10	appears to be vein quartz
minnesotaite?	3	slightly greenish, fine grained, somewhat fibrous layer silicate; low bir; intergrown w/carbonate (bir may be too low; but is v. fine grained)

Structures/Textures:

Alteration: hematite/carbonate appear to replace quartz; is alt hydrothermal?

Interpretation: possibly manganiferous iron formation?

Additional Comments: Carbonate is probably manganiferous; note relatively high MnO2.

Spec. No: 2951000083

Chip Desc: lt. brown phyllite

Minerals:	**%**	**Desc.**
quartz	20	v. fine grained
sericite	70	define foliation
hematite	5	v. fine, "dusty", anhedral
sphene?		fine, anhedral "grunge"

Structures/Textures: Primary fragmental texture well camouflaged by metamorphism and deformation. Foliated, with foliation crenulated, in some places disharmonically

Alteration: much of fine opaques prob. secondary; much fine, probably Ti-rich, "grunge"

Interpretation: Probably a tuff, though fairly low SiO2 in analysis. Probably two deformations: first forming foliation (though could have formed from a flow banding), second causing crenulation of foliation

Spec. No: 2951000084

Chip Desc: lt. brown, weakly foliated phyllite

Minerals:	**%**	**Desc.**
quartz	3	mostly v. fine
feldspar	5	v. fine; in a few small polycrystalline porphyroclasts
sericite	77	defines weak fol
hematite	14	fine, anhedral
py?	1	

Structures/Textures: weak fol; clast outlines barely visible, mostly lenticular

Alteration:

Interpretation: probably a metatuff or tuffaceous siltstone--not much qz; clasts are probably fine felsic volc fragments, replaced by sericite. Greenschist grade

Additional Comments: looks like more fspr than qz, based on alt; striations not visible

Spec. No: 2951000085

Chip Desc: laminated siltstone

Minerals:	%	Desc.
quartz	2	
feldspar	3	
sericite	85	
opaques	10	fine, dissem; thin seams define weak clvg

Structures/Textures: Laminated; subtly graded; weak cleavage oblique to lamination, defined by trains of fine opaques, and a few spaced fractures filled w/ v. fine qz+fspr (looks chertified). Minor crumpling fol along one edge of slide (clvg axial planar to this), but is not carried through whole slide

Alteration:

Interpretation: metasiltstone, prob w/ high felsic volc content. Greenschist grade

Spec. No: 2951000087

Chip Desc: laminated hematitic sitlstone

Minerals:	%	Desc.
quartz	5	v. fine; relict clasts
sericite	70	
hematite	20	
sphene	5	fine, granular clusters

Structures/Textures: laminated; foliation perpendicular to layering, defined by sericite and elongate hematite

Alteration:

Interpretation: Laminated siltstone. Laminae vary in hematite content, generally between richer and poorer hematite contents, suggesting Fe-oxide is primary. Rock has been metamorphosed to greenschist facies, with probable deformation producing weak foliation.

Spec. No: 2951000089

Chip Desc: thinly interlayered siltstone and ss; sericitic

Minerals:	%	Desc.
quartz	35	rounded clasts
microcline	.5	rounded clasts
plagioclase	tr	clasts
sericite	60	
hematite	5	v. fine disseminated

Structures/Textures: Thinly layered; alternating between siltstone and ss.; clasts well rounded; perhaps slightly graded--equivocal. Layers bent; probably folded on larger scale. Well defined foliation, defined by sericite, cuts across layering at high angle.

Alteration: hematite probably secondary

Interpretation: Interlayered ss/siltstone. Turbiditic? Deformed and weakly metamorphosed (greenschist facies).

Additional Comments: Note lack of volcanic fragments, and relatively minor feldspar content of coarser clasts.

Spec. No: 2951000091

Chip Desc: light purple, fine-grained quartzite

Minerals:	%	Desc.
quartz	92	strained, somewhat recrystallized
feldspar	5	pits in thin section
opaques	3	fine; along grain boundaries

Structures/Textures: quartz grains strained; boundaries somewhat sutured. Essentially bimodal grain size: larger , generally lenticulargrains, w/ small polygonal grains along larger grain boundaries. I think the smaller grains are result of deformation/recrystallization rather than primary bimodal distribution

Alteration:

Interpretation: quartzite; strained, with recrystallization along grain boundaries

Spec. No: 2951000093

Chip Desc: red, hematitic siltstone

Minerals:	**%**	**Desc.**
quartz	18	(+ fspr?) fine gned; subangular clasts; some chert
hematite	50	matrix
chlorite?	30	v. fine; intergrown w/ hematite; weak pleo; low bir
sphene	2	fine granular; secondary; some leucoxene

Structures/Textures: v. fine grained; clastic

Alteration: sphene/leucoxene secondary

Interpretation: hematitic siltstone; weakly metamorphosed

Spec. No: 2951000095

Chip Desc:

Minerals:	**%**	**Desc.**
chlorite	72	defines fol
quartz	15	mostly v. fine, generally lenticular grains; a few composite grains
leucoxene	5	fine, dissem; mostly entrained along fol
kaolinite	8	fills in larger "augen"-shaped spaces; replacing feldspar?

Structures/Textures: fol deflected around larger grains; second, spaced,discontinuous clvg at high angle to primary fol, and deflects primary fol

Alteration: some hematite staining

Interpretation: prob. metasedimentary

Spec. No: 2951000097

Chip Desc: reddish, fine-grained quartzite; porous

Minerals:	%	Desc.
quartz	70	
feldspar	23	generally altered
sericite	2	v. fine gned; mostly in matrix
magnetite	1	small, euhedral grains
hematite	4	mostly fine, dissem., ragged to "dusty" grains
tourmaline	tr	
zircon	tr	

Structures/Textures: some recryst. of quartz

Alteration: slight sericitization of fspr

Interpretation: feldspathic quartzite; weakly metamorphosed

Spec. No: 2951000099

Chip Desc: red, hematitic siltstone w/ thin ss interlayers

Minerals:	%	Desc.
quartz	25	clasts, generally rounded
sericite	55	defines fol
hematite	20	fine, dissem; may replace orig magnetite
zircon	tr	

Structures/Textures: Primary layering, folded into tight microfolds. Layering consists of alternating siltstone and fine ss layers. Qz grains generally rounded. Axial plane foliation cuts across primary layers

Alteration: hematite?

Interpretation: Interlyared ss/slts; folded, metamorphosed. Greenschist facies

Spec. No: 2951000101

Chip Desc:

Minerals:	%	Desc.
microcline	10	individual crystals, and in composite lithic fragments
sericite	79	v. fine; matrix
biotite	1	greenish; occurs in a couple of fragments
hematite	10	v. fine dissem; secondary

Structures/Textures: Pyroclastic, w/ relict flow banding. Many of clasts rounded.

Alteration: abundant fine disseminated hematite

Interpretation: lithic tuff, probably of trachytic composition

Spec. No: 2951000103

Chip Desc: lt. greenish grey chlorite schist

Minerals:	%	Desc.
quartz	30	v. fine-grained; polygonal
chlorite	50	defines primary fol; pale greyish green; faintly pleo
muscovite	20	generally idioblastic, cutting across primary fol.
cordierite?	1	small, roundish, colorless, low relief
ilmenite	3	(orig 5%) skeletal remnants of a prophyroblastic mineral; some leucox & sphene assoc.

Structures/Textures: Primary foliation defined by chlorite; asymmetrically crenulated, w/ development of weak spaced clvg--prob. pressure solution. Muscovite generally aligned w/ second fol. Primary fol. wraps around ilmenite? porphyroblasts. These porphyroblasts are stretched, and perhaps broken, and altered.

Alteration: Ilmenite altering to leucoxene + sphene

Interpretation: Protolith: Mg-Al rich metasediment. Two deformations, possibly two metamorphisms. Amphibolite grade?

Spec. No: 2951000105

Chip Desc: brown, fine grained, laminated to thin bedded

Minerals:	%	Desc.
biotite	55	v. fine
antigorite?	25	fine, colorless, non pleo, low bir
calcite	20	fine, disseminated throughout

Structures/Textures: laminated to thin bedded; weak fol at high angle to layering defined by some fibrous chlorite (note: not all chlorite aligns with this fol--only the most elongate grains do)

Alteration:

Interpretation: metasediment; lower amphibolite facies

Additional Comments: Strange assemblage; not sure what kind of sedimentary protolith this represents. Antigorite doesn't seem to fit with biotite. Bir too low for sericite. Could be chlorite, but lack of color and pleochroism, bir, and fibrous habit fit antigorite better. Note fairly high Mn in chem analysis.

Spec. No: 2951000107

Chip Desc: lt. grey laminated metasediment

Minerals:	%	Desc.
quartz	10	relict clasts
sericite	83	
hematite	7	disseminated; prob replace primary magnetite

Structures/Textures: Laminated, mostly v. fine grained, w/ thin beds of slightly coarser grained clastic quartz. Relict quartz clasts are flattened in plane of foliation; some of the larger grains havepressure shadows. Foliation cuts across layering. Porphyroclasts? of what looks to be fine granular quartzofeldspathic material have pitted out, and leave holes in section.

Alteration: hematite probably secondary

Interpretation: Siltstone w/ thin fine ss. laminae. Deformation and metamorphism produced foliation; greenschist facies.

Spec. No: 2951000109

Chip Desc: hematitic sandstone

Minerals:	%	Desc.
quartz	45	clasts; mostly single crystal grains; a few polycrystalline
rock fragments	20	Mostly felsic plutonics and metamorphic clasts. Lesser maficplutonic, intermediate volcanic, clastic sedimentary, jasper and iron formation.
plagioclase	1	
microcline	2	
biotite	tr	
hornblende	tr	
epidote	1	
hematite	30	matrix
magnetite	tr	
ilmenite	tr	
pyrite	tr	

Structures/Textures: Clasts sand sized; generally angular; matrix supported.

Alteration:

Interpretation: Immature ferruginous sandstone. Not metamorphosed. I don't think this is a Precambrian sediment

Spec. No: 2951000119

Chip Desc: grain mount; marble? one lg. grain laminated

Minerals:	%	Desc.
calcite	80	v. fine
biotite	10	occurring in most grains
quartz	<5	occurs in one grain
magnetite	3	euhedral-subhedral
hematite	2	alt. of hematite
unid. layer	<5	fibrous; low bir.; v. fine; occurs in one clast silicate

Structures/Textures: one grain laminated

Alteration: minor alt of magnetite to hematite

Interpretation: micaceous marble? Is carbonate primary?

Spec. No: 2951000127

Chip Desc: grain mount; grains of hematite and quartzite

Minerals:	%	Desc.
quartz	49	mostly fine grained granoblastic
hematite	50	
calcite	1	

Structures/Textures: Quartz grains are composite and are fine-grained granoblastic. Most of quartz "clasts" are separate from hematite "clasts". Intergrowth in individual grains is minimal

Alteration: minor limonite

Interpretation: probably iron formation; metamorphosed so that original siliceous material is now fine grained quartzite

Spec. No: 2951000129

Chip Desc: grain mount; mostly grains of hematite

Minerals:	%	Desc.
hematite	95	
quartz	5	very fine grained

Structures/Textures: quartz very fine grained, granoblastic; generally intergrown with hematite

Alteration: minor limonite

Interpretation: iron formation? quartz has been recrystallized

Spec. No: 2951000131

Chip Desc: grain mount: grains of hematite and fine-grained quartzite

Minerals:	%	Desc.
quartz	50	fine-grained, granoblastic
hematite	50	
unid. opaque	tr	highly relective (steel from drill bit?)

Structures/Textures:

Alteration:

Interpretation: probably iron formation; granoblastic nature of quartz indicates metamorphism

Spec. No: 2951000133

Chip Desc: grain mount: fine-grained quartzite and hematite

Minerals:	%	Desc.
quartz	52	fine-grained, granoblastic
hematite	25	
limonite	20	
calcite	3	concentric banding w/ radiating fibers; colloform?, algal?

Structures/Textures:

Alteration: limonite

Interpretation: probably iron formation; granoblastic quartz indicates metamorphism

Spec. No: 2951000135

Chip Desc: grain mount: mostly hematite and limonite

Minerals:	%	Desc.
hematite	45	two types: darker and redder
limonite	45	
quartz	5	
calcite	5	probably vein fillings; colloform

Structures/Textures: some grains have calcite filled grains and tiny quartz-filled fractures

Alteration: limonite and red hematite are secondary

Interpretation: probably iron formation; calcite grains are probably from veins

Spec. No: 2951000139

Chip Desc: grain mount: mostly Fe-oxides

Minerals:	%	Desc.
hematite	33	finely crystalline
limonite	60	cryptocrystalline, secondary
calcite	5	
quartz	2	v. fine grained; "cherty"

Structures/Textures:

Alteration: secondary limonite (+ hematite?)

Interpretation: probably from iron formation

Spec. No: 295000143

Chip Desc: grain mount: mostly Fe-oxides

Minerals:	%	Desc.
quartz	3	
calcite	3	colloform
hematite	50	mostly finely crystalline; some cryptocrystalline
limonite	44	secondary; cryptocrystalline

Structures/Textures:

Alteration: secondary cryptocrystalline limonite and hematite

Interpretation: probably from iron formation

Spec. No: 2951000169

Chip Desc: dark, med. grained metagabbro?

Minerals:	%	Desc.
hornblende	30	lt. green/weak-mod. pleo
epidote	35	occurs both as larger idioblasts and in fine, granular masses
plagioclase	26	mostly remnants, some laths remaining
biotite	5	
apatite	1	long prisms
sphene	3	fairly lg grains, interstitial; could be a replacement of ilmentite; also as small secondary grains enclosed within hornblende grains

Structures/Textures:

Alteration: secondary epidote and sphene (metamorphic)

Interpretation: Protolith: diorite or gabbro--prob. gabbro based on low silica in chemical anaysis; epidote-amph. facies?

Spec. No: 2951000170

Chip Desc: med. grained metagabbro

Minerals:	%	Desc.
hornblende	35	lt. green/weak-mod. pleo
plagioclase	25	mostly remnants of laths
epidote	30	larger idioblasts and fine granular masses replacing plag
biotite	5	
sphene	3	blocky, interstitial; replaces ilmenite?
apatite	1	long prisms

Structures/Textures:

Alteration: secondary epidote and sphene (metamorphic)

Interpretation: Protolith: metagabbro

Spec. No: 2951000172

Chip Desc: hematite stained qzite/ with yellowish-red fibrous mineral

Minerals:	%	Desc.
quartz	80	fine-grained granoblastic
stilpnomelane?		thin sheaf-like blades and fibers; deep red, semi-transparent, non-pleo replacing stilpnomelane?
hematite	5	small anhedral masses partially replaced by limonite
limonite	10	
leucoxene	5	assoc. w/ limonite

Structures/Textures:

Alteration: hematite is secondary; partially replaces fibrous mineral (stilpnomelane?)

Interpretation: iron formation, recrystallized; with stilpnomelane?, later partially replaced by hematite

Spec. No: 2951000173

Chip Desc:

Minerals:	%	Desc.
quartz	50	v. fine grained, fibrous
hematite	20	crystalline, cryptocrystalline, and fibrous
limonite	27	replaces hematite
pyrite	3	

Structures/Textures: fibers deformed along numerous fine grained fractures; at least two fracture sets, quartz in both is prinicipally fibrous, with fibers normal to vein walls

Alteration: cryptocrystalline hematite and limonite replaces earlier hematite; slight oxidation of pyrite along edges of grains

Interpretation: Iron formation; fractured and possibly slightly sheared deforming quartz fibers. At least two generations of hematite.

Spec. No: 2951000174

Chip Desc:

Minerals:	%	Desc.
stilpnomelane?	60	thin, bladed, occurs in mats; pleo cream to red brown; lacks birdseye
quartz	10	intergrown with hem/lim fibers
calcite	10	
hematite	10	martite; 5% cryptocrystalline; some fibrous, possibly replacing stilpnomelane.
pyrite	5	irreg.; probably late; assoc with some calcite
magnetite	5	partially replaced by hem

Structures/Textures:

Alteration: hematite replacing magnetite; secondary hematite replacing earlier hematite and stilpnomelane

Interpretation: probably iron formation

Spec. No: 295000175

Chip Desc:

Minerals:	%	Desc.
quartz	50	fine grained, polygonal
hematite	30	mostly crystalline (martite), some later cryptocrystalline;
magnetite	tr	remanants in martite
limonite	19	replaces hematite and fibrous mineral--stilpnomelane?
apatite	1	larger blocky grains

Structures/Textures:

Alteration: secondary hematite and limonite after hematite and stilpnomelane(?)

Interpretation: oxidized iron formation;

Spec. No: 2951000176

Chip Desc: oxidized iron formation; some banding visible

Minerals:	%	Desc.
quartz	20	both somewhat granoblastic and fibrous; fibrous varieties are intergrown with hematite which has replaced stilpnomelane
stilpnomelane	35	fiibrous to bladed, matted; lacks birdseye
hematite	36	blocky euhedral, crystalline (martite); cryptocrystalline replaces stilpnomelane
limonite	2	
calcite	5	
minnesotaite	2	fibrous; mod relief, high birefringence; intergrown w/ stilp.
pyrite	tr	
magnetite	tr	remnants in martite crystals

Structures/Textures: primary layering

Alteration: later hematite (and minor limonite) replacing stilpnomelane

Interpretation: oxidized iron formation; hematite replaces (earlier hem?) and stilpnomelane

Spec. No: 2951000180

Chip Desc:

Minerals:	%	Desc.
quartz	95	fibrous, radiating--to finely granoblastic
hematite	5	small remnant at edge of slide; intergrown w/ quartz (some fibrous); occurs as blocky grains and fibrous replacements(?) of stilpnomelane(?)

Structures/Textures:

Alteration: hematite secondary

Interpretation: slightly recrystallized chert; with a small portion of secondary hematite

Spec. No: 2951000181

Chip Desc: banded iron formation; greenish color; oxidized

Minerals:	%	Desc.
quartz	10	granoblastic and fibrous
minnesotaite	40	greenish-gray; fibrous, radiating, short fibers, low 2V(-)
stilpnomelane	30	thin blades, matted, pleo: golden yellow to olive brown pleo; generally intergrown with minnesotaite
hematite	15	occurs as blocky grains, and secondary cryptocrystalline; replaces earlier hem and some stilpnomelane
limonite		minor
calcite	2	

Structures/Textures: primary thin layering

Alteration: secondary hematite

Interpretation: Fe-silicate iron formation; oxidized; one thin vein containing quartz, hematite, and minor stilpnomelane (replaced) cuts across layering

Spec. No: 2951000182

Chip Desc: altered metagabbro or diabase

Minerals:	%	Desc.
plagioclase	50	orig. approx. 70%; sausseritized; originally zoned, cores now mostly epidote
amphibole	10	actinolite or actinolitic hb; pale green, lightly pleo; somewhat fibrous; heavily Fe-stained partially replaced by chlorite
chlorite	10	replaced actinolite
epidote	15	euhedral to anhedral
sphene	4	blocky pseudomorphs of ilmenite(?); also fine granular grains assoc w. chlorite
biotite	1	incipient
kaolinite	10	mostly assoc. w/ breakdown of actinolite

Structures/Textures: original diabasic texture

Alteration: plag sausseritized; actinolite altering to chlorite and kaolinite; sphene secondary

Interpretation: Protolith: gabbro or diabase; prob metamorphosed to greenschist facies; later altered with actinolite altering to chlorite and kaolinite; kaolinite might suggest a hydrothermal alt.

Spec. No: 2951000183

Chip Desc: fine- to med-grained metadiabase

Minerals:	%	Desc.
plagioclase	44	laths euhedral to subhedral; a few larger relict pheno's
hornblende	35	blue green, lightly pleo; some poikilitic, possibly after ophitic pyroxene
epidote	10	euhedral
chlorite	5	interstitial; generally assoc. w. hb and epid, but doesn't replace hb
biotite	1	
sphene	3	larger blocky grains, perhaps after ilmenite?; smaller anhedral grains assoc w/hb
calcite	2	

Structures/Textures: possibly porphyritic

Alteration:

Interpretation: Protolith: diabase or basalt; upper greenschist or epidote amphibolite facies

Spec. No: 2951000184

Chip Desc: altered fine-grained metagabbro

Minerals:	**%**	**Desc.**
plagioclase	48	generally small laths
hornblende	5	actinolitic?; mostly relics; replaced by chlorite
chlorite	25	replaces hornblende
biotite	3	
epidote	5	
sphene	4	larger blocky grains after ilmenite?; small anhedral grains assoc. w/ chlorite
kaolinite	10	Fe-stained; typically occurs in patches assoc w/ chlorite, replaces plag and hb

Structures/Textures:

Alteration: chlorite, kaolinite, epidote, sphene

Interpretation: Protolith: fine-grained metagabbro or diabase; metamorphosed to upper greenschist facies; later alteration to chlorite and kaolinite (+ sphene and epidote?). Alteration hydrothermal?

Spec. No: 2951000187

Chip Desc: brownish-white fine grained feldspathic quartzite

Minerals:	**%**	**Desc.**
quartz	86	granoblastic, with irreg. grain boundaries
kaolinite	10	completely replaces fspr? grains
sericite	2	along grain boundaries
limonite	2	in fine fractures and stains kaolinite
tourmaline	tr	

Structures/Textures: clastic, grain supported; a few fine fractures filled w/ limonite

Alteration: kaolinite--probably replaces feldspars

Interpretation: Protolith: feldspathic sandstone

Spec. No: 2951000201

Chip Desc: massive hematite and limonite

Minerals:	%	Desc.
hematite	85	massive
calcite	7	fills small fractures
quartz	3	small veins
limonite	5	later alt

Structures/Textures: hematite cut by numerous fine fractures which are filled mostly with calcite and some quartz; calcite appears to be later than quartz

Alteration: limonite

Interpretation: iron formation?

Spec. No: 2951000202

Chip Desc: fine-grained quartzite veined w/ Fe-oxides

Minerals:	%	Desc.
quartz	90	fine-grained, granoblastic
hematite	5	in larger vein
limonite	3	in veins roughly perpendicular to larger vein, with calcite
calcite		

Structures/Textures: two vein sets: larger hematite-quartz vein, truncates smaller calcit-limonite veins. These veins may have merged into larger vein, but are truncated and slightly offset by thin quartz vein

Alteration: calcite and Fe-oxides are introduced

Interpretation: quartzite; fractured and veined with calcite-limonite and hematite-quartz

Spec. No: 2951000207

Chip Desc:

Minerals:	%	Desc.
quartz	45	mostly small grains, appears clastic
nontronite?	40	brownish green clay mineral;
minnesotaite?	5	very pale green mica, lacks birdseye
limonite	10	irregualar spots and patches

Structures/Textures: looks like some original layering

Alteration: heavy "coating" of greenish clay mineral--nontronite?; limonite

Interpretation: looks clastic--siltstone--possbily a greywacke; heavily altered, perhaps hydrothermal

Spec. No: 2951000229

Chip Desc: massive limonite/hematite

Minerals:	%	Desc.
limonite	95	massive
quartz	5	in veins

Structures/Textures: brecciated; quartz veins heal some fractures; larger quartz vein is brecciated and recemented w/ limonite

Alteration: limonite/hematite is secondary

Interpretation: brecciated limonite/goethite, possibly forming along fault or slump

Spec. No: 2951000239

Chip Desc: fractured quartz (vein?); healed with limonite

Minerals:	%	Desc.
quartz	90	vein quartz, fractured; deformed into thin ribbons .
limonite	10	
calcite	tr	tiny grains form along ribbon boundaries

Structures/Textures: Quartz fractured; individual grains sheared into thin ribbons, with tiny calcite grains forming along ribbon boundaries. Ribbons are bent (slightly folded)

Alteration:

Interpretation: Probably a quartz vein, fractured, and filled with limonite. Deformation (shearing?) produced thin ribbons in quartz

Spec. No: 2951000245

Chip Desc: massive goethite with small carbonate rhombs

Minerals:	%	Desc.
goethite	88	massive;
calcite	5	porphyroblastic? rhombs
stilpnomelane	5	tiny needles assoc w/ healed fractures
hematite	2	fine martite grains
quartz	tr	

Structures/Textures: Three sets of veins: 1. early, healed w. stilpnomelane, 2. cacite filllings; 3. late fractures w/ qz

Alteration: hematite replacing primary magnetite; later limonite

Interpretation: Some recrystallization of limonite indicated by healed stilpnomelane fractures and later growth of calcite rhombs

Spec. No: 2951000246

Chip Desc:

Minerals:	%	Desc.
stilpnomelane	65	fine needles, matted
calcite	10	in veins and patches in stilp
quartz	8	in veins assoc w/ calcite, also layered w/ stilp
hematite	10	martite; replacing magnetite
magnetite	5	remnants in martite grains
limonite	2	in veins

Structures/Textures: thin layered, mostly masked by stilpnomelane; fractures filled w/ qz-cc and some stilpnomelane

Alteration: hematite replacing primary magnetite; minor limonite; calcite appears to have been introduced

Interpretation: iron formation? somewhat metamorphosed; fractured and veined w/ qz-cc. Calcite probably introduced.

Spec. No: 2951000267

Chip Desc: limonitic metavolcanic?

Minerals:	%	Desc.
chlorite	5	pale green
plagioclase	10	mostly as remnants in chlorite matrix
limonite	30	in cracks, grain boundaries near cracks, and stains
leucoxene	3	ragged
sphene		v. fine-grained, assoc w. leucoxene
nontronite?	2	v. fine, greenish layer silicate alt mineral; assoc w/ limonite

Structures/Textures: appears to be a relict volcanic texture, masked in chlorite

Alteration: chlorite secondary; leucoxene (after ilmentite?) ; limonite and assoc. green alt mineral occurs mostly along fractures; postdates chlorite

Interpretation: Protolith: probably metavolcanic, probably andesite. Limonite along cracks, seems to stain rock--probably introduced.

Spec. No: 2951000268

Chip Desc: gray metavolcanic(?), pitted, contains small patches of hematitc alt; slightly porphyritic

Minerals:	%	Desc.
plagioclase	52	partially recrystallized; a few larger phenocrysts; light sericite on pheno's
chlorite	35	forms matix, pervasive
biotite	<1	
leucoxene	2	from ilmenite
hematite	3	from magnetite; and v. fine "powder"
sphene	1	fine, assoc w/ opaques
ser	1	
unid. clay	3	pale greenish brown alt mineral assoc w/ pits

Structures/Textures: slightly porphyritic

Alteration: chlorite; also a greenish clay mineral (nontronite?), probably what is pitting out; opaques originally magnetite and ilmenite, altered to hematite and leucoxene

Interpretation: metavolcanic, probably andesite; greenschist facies (or caused by alteration)

Spec. No: 2951000272

Chip Desc: greenish brown, fragmental, w/ rounded, silieceous clasts

Minerals:	%	Desc.
quartz	20	fine-grained granoblastic; mostly in larger clasts?; a few angular grains in matrix
biotite?	33	v. fine needles, greenish brown, but weakly pleo; incipient?; forms in matrix and conc along silica clast peripheries w/ needles projecting inward; some smaller clasts matted w/ biot
pyrite	5	irreg; forms especially along periphery of silceous clasts
other opaques	30	v. fine dissem--graphite?; replaces some smaller clasts
limonite	10	late, mostly from alt of pyrite
clay	2	green, fills fractures and a few patches

Structures/Textures: conglomeratic, intraformational; texture looks pyroclastic, but clasts are not volcanic

Alteration: limonite and late greenish clay mineral in fractures

Interpretation: Intraformational conglomerate; possibly formed by slumping or other soft sediment deformation. Protolith: probably iron formation, graphitic? Siliceous clasts probably orig. chert. Probably greenschist facies metamorphism.

Additional Comments: Greenish brown layer silicate mineral probably incipient biotite (doesn't look like stilpnomelane--though that's possible)

Spec. No: 2951000273

Chip Desc:

Minerals:	%	Desc.
quartz	20	fine grained granoblastic; mostly in larger oblong clasts; a few grains in matrix
biotite?	58	v. fine grained; greenish-brown, but weak pleo; mostly in matrix
limonite	8	after pyrite
pyrite	4	late; mostly around periphery of siliceous clasts
graphite?	10	v. fine dissem.; abnt in clasts, some in matrix

Structures/Textures: fragmental; flow texture; amygdaloidal

Alteration: limonite after pyrite

Interpretation: Intraformational conglomerate; possibly formed by slumping or other soft sediment deformation. Protolith: probably iron formation, graphitic? Probably greenschist facies metamorphism.

Additional Comments: Greenish brown layer silicate mineral probably incipient biotite (doesn't look like stilpnomelane--though that's possible)

Spec. No: 2951000274

Chip Desc: greenish gray, fragmental w/ siliceous clasts; contains sulfide

Minerals:	%	Desc.
quartz	45	20% fine ,granoblastic; oblong clasts(?); 20% matix
biotite	38	v. fine, greenish-brown; matix
limonite	7	after pyrite
hematite	1	finely crystalline; after pyrite
pyrite	10	late; irreg., mostly around periphery of siliceous clasts
graphite?	4	v. fine dissem.; abnt in a few small clasts and some matrix

Structure/Texture: conglomeratic, intraformational; texture looks pyroclastic, but clasts are not volcanic

Alteration: limonite after pyrite

Interpretation: Intraformational conglomerate; possibly formed by slumping or other soft sediment deformation. Protolith: probably iron formation, graphitic? Probably greenschist facies metamorphism.

Additional Comments: Greenish brown layer silicate mineral probably incipient biotite (doesn't look like stilpnomelane--though that's possible)

Spec. No: 2951000275

Chip Desc: conglomerate with ovoid siliceous clasts

Minerals:	%	Desc.
quartz	50	fine-grained, granoblastic; mostly as vesicle? fillings
biotite	30	v. fine-grained needles
pyrite	10	late; irreg.
limonite	7	after py
hematite	1	finely crystalline; after pyrite

Structures/Textures: conglomeratic; intraformational

Alteration: limonite (and minor hematite) after pyrite

Interpretation: Intraformational conglomerate; possibly formed by slumping or other soft sediment deformation. Protolith: probably iron formation. Siliceous clasts probably orig. chert. Probably greenschist facies metamorphism.

Additional Comments: Greenish brown layer silicate mineral probably incipient biotite (doesn't look like stilpnomelane--though that's possible)

Spec. No: 2951000276

Chip Desc: fragmental with siliceous clasts; Fe-stained

Minerals:	%	Desc.
quartz	84	fine, granoblastic, forms in larger ovoidal clasts, and in matrix
biotite	5	v. fine needles, greenish brown, but weakly pleo; incipient?
pyrite	1	
limonite	7	
graphite?	3	v. fine, abnt in some clasts

Structures/Textures: conglomeratic, intraformational

Alteration: limonite

Interpretation: Intraformational conglomerate; possibly formed by slumping or other soft sediment deformation. Protolith: probably iron formation, graphitic? Siliceous clasts probably orig. chert. Probably greenschist facies metamorphism.

Additional Comments: Greenish brown layer silicate mineral probably incipient biotite (doesn't look like stilpnomelane--though that's possible)

Spec. No: 2951000277

Chip Desc: fragmental with siliceous clasts; Fe-stained

Minerals:	%	Desc.
quartz	59	granoblastic, in matrx and ovoidal clasts
biotite?	20	tiny, needle-like grains, brown-yellow brown pleo
hematite	4	martite
pyrite	2	
limonite	15	replacing hematite, pyrite and some biotite (or stilpnomelane)

Structures/Textures: congloeratic, intraformational

Alteration: hematite replacing orig. magnetite; limonite replacing hematite, pyrite, and biotite

Interpretation: intraformational conglomerate; possibly formed by slumping or other soft sediment deformation. Protolith: probably iron formation? Siliceous clasts probably orig. chert. Probably greenschist facies metamorphism.

Additional Comments: "biotite" could be stilpnomelane

Spec. No: 2951000278

Chip Desc: thin layered, Fe-stained

Minerals:	%	Desc.
quartz	20	fine-grained, granoblastic
minnesotaite	15	light green, radiating fibers
stilpnomelane	5	reddish brown, thin fibers
hematite	20	approx. 5%is martite, remained is fine crystalline
limonite	35	much bladed, probably replacing stilpnomelane, also replacing hematite
pyrite	tr	
calcite	5	lines layer boundaries between qz-rich layers and Fe-rich layers

Structures/Textures: Thin layered. Qz-rich layers crumpled into tiny crenulations. Some stilpnomelane (or limonite-replaced stilp) aligned parallel ax. pl of crenulations

Alteration: hem-lim; calcite probably secondary

Interpretation: Protolith probably iron formation. Hematite and limonite replace primary magnetite and Fe-silicates

Spec. No: 2951000

Chip Desc: conglomerate, granule-sized clasts; Fe-oxide matrix

Minerals:	%	Desc.
quartz	50	fine-grained granoblastic; clasts are polycrystalline
hematite	25	matrix, mostly in one half of section
limonite	25	matrix, in other half of section

Structures/Textures: clastic, granule sized; clasts have been recrystallized so that all quartz is fine grained granoblastic

Alteration: hematite and limonite are secondary

Interpretation: Protolith probably iron formation; clasts probably originally chert

Spec. No: 2951000280

Chip Desc: red-yellow-green quartzite; colors due to lim-hem

Minerals:	%	Desc.
quartz	70	as clasts .5-1 mm; recrystallized into v. fine grains at boundaries; boundaries somewhat serrated
sericite	15	along grain boundaries and a couple of larger "patches"
limonite	1	replaces earlier oxides?
tourmaline	tr	one grain
unid alt min		about 5% of grains are altered to a mix of sericite, limonite, and light brown layer silicate (incip. biot or a clay)

Structures/Textures: clastic, sand-sized grains; a couple of sericite-rich "patches" could have been mud rip-ups. Altered clasts seem to have be very fine grained.

Alteration: sericite, limonite +unidentified light brown layer silicate alteration mineral

Interpretation: quartzite, originally a sandstone with some clay matrix and possbily clay rip-ups. Fine-grained altered clasts may have had a clayey component

Spec. No: 2951000281

Chip Desc: conglomerate or breccia? w/ "cherty" clasts, and Fe-oxide matrix

Minerals:	%	Desc.
quartz	60	v. fine-fine grained; prob recrystallized chert
hematite	32	appears to form a matrix
limonite	5	
graphite?	3	v. fine dissem

Structures/Textures: clastic texture w/ rounded to angular "chert" fragments

Alteration: limonite; hematite probably secondary as well

Interpretation: probably intraformational conglomerate in iron formation

Spec. No: 2951000282

Chip Desc: lt. gray quartzite, pitted

Minerals:	%	Desc.
quartz	80	v. fine-grained; recrystallized chert
hematite	8	mostly as martite
limonite	7	after hematite
graphite	5	v. fine, dissem; conc. in chert clasts and defines them

Structures/Textures: clastic, orig. fine-grained; clasts are chert granules

Alteration: hematite after primary magnetite; limonite after hem

Interpretation: Quartzite, originally a chert granule sandstone, probably derived from an iron formation

Spec. No: 2951000283

Chip Desc: conglomerate with chert clasts; hematitic

Minerals:	%	Desc.
quartz	72	fine granoblastic in matrix, slightly coarser in granules
hematite	15	finely crystalline, and later cryptocrystalline
limonite	5	
graphite	5	v. fine, dissem, assoc with small cherty clasts and in matrix
nontronite?	2	lt. brown crypotcrystalline layer silicate in late veins

Structures/Textures: clastic, conglomeratic; clasts include sand, granules, and small pebbles

Alteration: hematite and limonite; also late vein material (nontronite?)

Interpretation: clasts derived from chert , in iron formation?, probably intraformational

Spec. No: 2951000284

Chip Desc: thin layered iron formation

Minerals:	%	Desc.
quartz	45	fibrous in radiating clusters; some granoblastic; tiny granules in graphitic? layers have dark cores--possbily ooids?
hematite	20	massive to thin-bladed, sheaf-like
limonite	5	
Fe-silicate	10	fibrous, radiating, occurs with fibrous qz; pale greenish-brown, low mod bir. chlorite? (bir seems too low for minnesotaite)
graphite?	20	fine, occurs in dark bands w/ hematite and "oolitic?" quartz; v. low reflectance
pyrite	tr	

Structures/Textures: thin bedded (2 mm thick), alternatitne layers of recrystallized chert and Fe-minerals; microfaults cutting chert layers

Alteration: hematite replaces earlier Fe-silicates; and limonite

Interpretation: iron formation, possibly graphitic

Spec. No: 2951000285

Chip Desc: light gray, fine grained, biotite-bearing metavolcanic; includes darker "patch"

Minerals:	%	Desc.
plagioclase	37	short tabular grains and a couple of relict pheno's; mostly obscured by secondary mineral growth
chlorite	40	v. pale green, lt. brown interference colors
biotite	5	orange-brown pleo
calcite	10	
hematite	3	probably after magnetite
ilmenite	2	mostly altered to leucoxene
unid opaque	3	v. fine dissem; graphite? abnt in dark patch; and assoc w/ calcite
pyrite	tr	

Structures/Textures: a couple of relict pheno's; texture of plag looks igneous

Alteration: Calcite is probably introduced; primary magnetite and ilmenite altered to hematite and leucoxene. Chlorite is a metamorphic mineral.

Interpretation: Protolith: intermediate volcanic--probably andesite. Uncertain as to what the darker "patch represents", as mineralogy is similar to rest of rock, except for abundance of graphite(?), which gives it the darker color. Metamorphism probably greenschist facies. Abundance of chlorite could suggest an Mg alteration.

Spec. No: 2951000286

Chip Desc:

Minerals:	%	Desc.
plagioclase	61	approx. 40% as phenocyrsts; remainder v. fine in matrix
bioitite	20	v. fine grained, brownish green pleo; in matrix
chlorite	10	in matrix
apatite	4	long prisms
opaques	5	altered to mix of v. fine leucoxene and hematite; late limonite veins
quartz	tr	in matrix

Structures/Textures: relict porphyritic texture; cut by a couple of veins with leucoxene-hem assemblage; later limonitic veins

Alteration: leucoxene-hematite alteration of imenite or Ti-magnetite; late limonite

Interpretation: Protolith: andesite porphyry. Greenschist facies. Alteration of Fe-Ti oxides with leucoxne-hematite forming in veins. Late limonitic veins

Spec. No: 2951000287

Chip Desc: fragmental volc.; contains one large elliptical clast

Minerals:	%	Desc.
chlorite	45	pale green; brown int. colors
biotite	5	orange-brown pleo
calcite	40	forms in veins, matrix; small amount in clasts
qz/fspr	7	v. fine grained; in matrix, and in some clast matrix
opaques	3	mostly altered to leucoxene; a few are magnetite

Structures/Textures: fragmental, probably pyroclastic; foliation probably flow banding; one large clast is amygdaloidal

Alteration: leucoxene after ilmenite; calcite introduced

Interpretation: Probably pyroclastic flow breccia; intermediate composition. Greenschist facies: assemblage chlorite-biotite-qz/fspr-cc. Calcite is introduced

Additional Comments: Is abundant chlorite related to a Mg-alteration?

Spec. No: 2951000298

Chip Desc: thin-bedded, probably iron formation

Minerals:	%	Desc.
quartz	25	v. fine grained
stilpnomelane	52	brown, forms v. fine-grained mats
minnesotaite?	5	colorless to pale green, slightly pleo; high bir
magnetite	10	euhedral
hematite	3	alt of magnetite, replaces some stilpnomelane
calcite	5	intergrown with stilp and minnesotaite

Structures/Textures: thinly layered; microfault offsets layers

Alteration: hematite replacing magnetite and stilpnomelane

Interpretation: Fe-silicate-rich iron formation

Spec. No: 2951000299

Chip Desc: fragmental volcanic

Minerals:	%	Desc.
calcite	45	larger grains with deformation lamellae
biotite	5	orange-brown pleo
chlorite	32	pale green
qz/fspr	15	mostly as v. fine grained matrix minerals in clasts;
muscovite	tr	
rutile?	3	brown, very high relief, partially altered to leucoxene

Structures/Textures: Clastic, probably pyroclastic breccia; most clasts granule-sized. Most clasts consist of very fine qz/fspr mix

Alteration: calcite probably introduced

Interpretation: Pyroclastic breccia, dacitic or andesitic composition. Carbonate probably secondary.

Spec. No: CCW17453

Chip Desc:

Minerals:	%	Desc.
plagioclase	45	euhedral to subhedral grains, sausseritized
hornblende	35	green, pleo
chlorite	5	replacing hornblende
epidote	10	mostly as sausserite; about 2% larger euhedral grains
sphene	5	3% large blocky grains, probably pseudomorphs after ilmenite, 2%small grains assoc. w/ hornblende
quartz	tr	in thin shear band

Structures/Textures: relict diabasic texture; thin shear band cuts across section

Alteration: sausserite

Interpretation: Protolith: metagabbro or diabase

Spec. No: CCW17454

Chip Desc:

Minerals:	%	Desc.
plagioclase	40	mostly as remnants of tabular grains
biotite	15	brown, poorly formed, much "grades" into chlorite, appears to be related to alteration of opaque minerals
chlorite	25	pale green, weakly pleo, intergrown w/ biotite
kaolinite	10	v. finely crystalline, alt of fspr
opaques	10	mostly mix of hematite and leucoxene; prob orig both mt and ilm
apatite	.5	long prisms

Structures/Textures: Interlocking texture of plagioclase indicates an original igneous texture. Weak fol defined by biotite and chlorite; rock looks like its been subjected to shear

Alteration: kaolinite; opaques altered to hematite and leucoxene; chlorite and biotite probably related to alterationas well

Interpretation: Protolith: intermediate volcanic; appears to be somewhat sheared. Probably greenschist facies; alteration appears related.

Spec. No: CCW17456

Chip Desc:

Minerals:	%	Desc.
quartz	50	V. fine granoblastic; in unsheared bands
hematite	10	in shear bands and replacing thin bladed layer silicate (minnesotaite? or possibly some stilpnomelane)
limonite	20	in shear bands
biotite?	10	fibrous, very green, pleo; mod-high bir; occurs in shear bands
minnesotaite?	10	essentially colorless tiny, radiating fibers; it may be these that are being replaced by hem/lim

Structures/Textures: Phyllonitic; shear bands of thin fibrous mica (green biotite?), hematite and limonite. Quartz in unstrained bands is granoblastic

Alteration: hematite-limonite

Interpretation: Sheared iron formation

Additional Comments: Layer silicates are problematic. Green mineral in shear bands looks like chlorite, but is significantly birefringent. Light fibrous, colorless mica may be chlorite, however, some grains show some biregringence. It could be that most of the grains are too small to exhibit much biregringence.

Spec. No: CCW17457

Chip Desc:

Minerals:	%	Desc.
quartz	50	fine, granoblastic
biotite	10	intergrown w/chlorite
chlorite	37	defines foliation
opaques	3	altered to leucoxene

Structures/Textures: Phyllonitic; chlorite and biotite form shear bands, around lenses of quartz

Alteration: leucoxene

Interpretation: Phyllonite. Protolith uncertain--probably a metasediment, perhaps iron formation. Quartz lenses could be recrystallized chert. Quartzite lenses could also have been clasts which were flattened by shear.

Spec. No: CCW17458

Chip Desc:

Minerals:	%	Desc.
chlorite	61	very fine, pervasive
biotite	20	orange-brown pleo
qz/fspr	15	v. fine, may be mostly or all quartz
opaques	4	altered to leucoxene

Structures/Textures: Texture is fragmental, looks possibly like a pillow breccia or agglomerate. Larger clasts seem to have rinds. One larger clast may contain a couple of amygdules.

Alteration: leucoxene

Interpretation: Probably an intermediate metavolcanic--dacite?; pillow breccia or agglomerate. Greenschist facies metamorphism. Has there been an Mg-alt to produce pervasive chlorite.

Additional Comments: The texture is not conclusively volcanic, as plagioclase is not evident, nor is there any evidence of porphyritic textures. However, matrix is so fine grained, plagioclase could be there. It may also be replaced by chlorite. Of course a volcanic rock need not be porphyritic.

Spec. No: CCW17461

Chip Desc: amphibolite

Minerals:	%	Desc.
plagioclase	30	tabular; light sauss
hornblende	30	green, pleo; "ophitic" texture
biotite	3	intregrown w/ hb; and in calcite vein
calcite	5	mostly in vein; also assoc. w/ epidote
epidote	25	yellow
sphene	5	mostly in fine granular masses
chlorite	1	after biotite; only in calcite vein
pyrite	1	

Structures/Textures: relict ophitic texture; calcite vein cuts through section

Alteration: Plagioclase in one half of section is completely replaced by epidote and calcite; in the other half it is only lightly sausseritized. Calcite vein marks boundary of alteration.

Interpretation: amphibolite; probably a metagabbro or diabase; pervasive alteration of one half of section. Amphibolite facies

Spec. No: CCW17985

Chip Desc:

Minerals:	**%**	**Desc.**
chlorite	65	fibrous, pervasive
stilpnomelane?	20	thin, radiating, sheaf-like fibers; lacks birdseye
quartz	5	assoc/ w/ stilp; small isolated grains in chlorite matrix
pyrite	5	
ilmenite	2	thin blades
calcite	3	assoc. w/ pyrite and in late vein

Structures/Textures: Appears to be a fragmental texture, masked by chlorite, especially visible under cross polars. Stilpnomelane occurs in a layer and also in what might be a matrix between clasts

Alteration: relatively unaltered except for a little late hematite altering pyrite; chlorite prob. related to metamorphis

Interpretation: Fragmental volcanic? intermediate comp? perhaps deposited within or on iron formation, with Fe-rich sediment forming a matrix.

Appendix 295 M: Geophysical Measurements Outcrops, Rock Dumps, Drill Core and Boulders

PROJECT 295, SAMPLES FROM OLD MINE OR QUARRY WASTE ROCK OR LEAN ORE DUMPS, DENSITY DATA:											
ROCK DUMP AREA NUMBER	P295 FILE NUMBER[1]	LITHOLOGY	DENSITIES[2] GM/CM^3							CODE[3]	AVERAGE
1	RD2951-004	I.F. & Phyllite	4.05	3.47	3.52					K	3.68
2	RD2951-005	I.F. & Quartzite	2.52	4.21	3.74	3.91	2.70			L	3.42
3	RD2951-006	I.F. & Quartzite	2.59	2.59	2.95	3.98	2.50	2.54		L	2.86
4	RD2951-013	Tonalite	2.81	2.82						K	2.82
5	RD2951-015	I.F. & Phyllite	2.62	3.23	3.21	2.52	2.69			L	2.85
6	RD2951-016	I.F. & Siltstone	3.48	3.21	3.6	3.79	2.70	2.47	3.15	L	3.20
7	RD2951-017	I.F. & Siltstone	2.62	2.71	3.72	3.03	3.63	3.76		L	3.25
8	RD2951-018	Quartz Veining	2.01	2.62						K	2.32
9	RD2951-019	Iron Formation	3.65	3.60	3.32					K	3.52
10	RD2951-020	I.F. & Phyllite	2.94							K	2.94
11	RD2951-021	I.F. & Siltstone	2.62	3.35						L	2.99
12	RD2951-022	I.F. & Qtz.-Carb.	2.73	3.92	3.52		3.02			L	3.32

1. Each sample site or drill hole is given a Project 295 file number. For outcrops there is an OTC prefix, then 295 to designate which project this work was funded under, then a sample number which is sequential for all samples measured. Rock dump samples have the prefix RD to designate their origin, then again the 295 project designation followed by the sequential sample number. For drill holes the pattern is somewhat different because the company drill hole number precedes the file number which has a DH prefix.

2. **DENSITY**, Density was measured on a Mettler PE 360 balance with a bridge and water filled beaker for measuring the weight in air and buoyed up weight in distilled water. Water temperature was measured and a correction made. Some samples are porous and gradually fill with water resulting in an unstable weight measurement even after a considerable time, such densities are indicated by a question mark on the reading or in the average.

3. CODE LETTER THAT EXPLAINS SAMPLE REPRESENTATION FOR AVERAGE COLUMN:

K. Density measurements on different pieces of the same, usually dominant, lithology at the sample site described on the summary sheet.

L. Density measurements of several sample pieces that appear to have the same lithology, but have variations in density that indicate a change in lithology or epigenetic changes of samples.

PROJECT 295, SAMPLES FROM OLD MINE OR QUARRY WASTE ROCK OR LEAN ORE DUMPS, MAGNETIC SUSCEPTIBILITY DATA:

ROCK DUMP AREA NUMBER	P295 FILE NUMBER[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITIES[2] 10^{-3} SI UNITS										CODE[3]	AVE.
1	RD2951-004	I.F. & Phyllite	419	354	506	85.0	2.00	326	52.0	154	83.0		I	220
2	RD2951-005	I.F. & Qtzite.	35.2	9.30	0.60	11.5	6.40	9.80	7.80	39.2	16.8	10.4	I	14.7
3	RD2951-006	I.F. & Qtzite.	0.13	0.12	0.94	0.07	0.06	0.24	0.33	0.70	0.20	0.88	I	0.37
4	RD2951-013	Tonalite	0.34	0.47	1.71	1.56	0.38	0.24	0.38	0.70	0.29	0.46	J	0.65
5	RD2951-015	I.F. & Phyllite	0.18	0.10	0.14	0.28	0.09	0.09	0.21	0.10	0.10	0.07	J	0.14
6	RD2951-016	I.F. & Siltst.	0.73	0.97	0.55	0.73	0.61	0.67	0.10	0.90	0.90	0.61	I	0.68
7	RD2951-017	I.F. & Siltst.	0.30	13.5	13.7	7.00	1.20	10.5	16.1	3.20	2.60	5.90	I	7.40
8	RD2951-018	Quartz Veining	0.03	0.07	0.01	0.02	0.02	0.02	0.02	0.03	0.06		J	0.03
9	RD2951-019	Iron Formation	2.06	0.81	0.81	4.55	2.14	1.29	21.20	0.91	0.78	0.36	I	3.49
10	RD2951-020	I.F. & Phyllite	0.09	0.08	0.08	0.76	0.86	0.65	0.90	0.08	0.09	0.71	I	0.43
11	RD2951-021	I.F. & Siltst.	1.27	4.27	0.88	6.38	2.12	7.54	1.67	1.66	4.55	0.44	I	3.08
12	RD2951-022	I.F. & Qtz.	13.6	21.1	6.67	20.8	13.9	4.61	18.2	26.2	22.6	5.63	I	15.3

1. Each sample site or drill hole is given a Project 295 file number. For outcrops there is an OTC prefix, then 295 to designate which project this work was funded under, then a sample number which is sequential for all samples measured. Rock dump samples have the prefix RD to designate their origin, then again the 295 project designation followed by the sequential sample number. For drill holes the pattern is somewhat different because the company drill hole number precedes the file number which has a DH prefix.

2. **MAGNETIC SUSCEPTIBILITY,** The magnetic attraction of the sample as measured with an Exploranium G.S. Ltd. KT-5 magnetic susceptibility meter. Note that for readings less than ten the meter reads two places past the decimal point, for readings ten or greater than ten one place past the decimal point and for readings one hundred or greater than one-hundred it does not read a decimal fraction. Apparently sensitivity and repeatability increase at low magnetic susceptibilities.

3. CODE LETTER THAT EXPLAINS SAMPLE REPRESENTATION FOR AVERAGE COLUMN:
   I. Several magnetic susceptibility measurements of different samples and lithologies at the sample site described in the summary sheet.
   J. Magnetic susceptibility measurements repeated on different samples of the same lithology (usually the dominant observed lithology) in the sample site described on the summary sheet.

PROJECT 295 OUTCROPS LOCATED IN THE FIELD OR HANNA MINING COMPANY SAMPLES OBTAINED FROM MINE PITS NOW FLOODED, MAGNETIC SUSCEPTIBILITY DATA:

OUTCROP AREA NUMBER	P295 FILE NUMBER[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITIES 10^{-3} SI UNITS[2]															CODE[3]	AVERAGE
1	OTC2951-001	Apmh. & Bio. Schist	0.52	0.42	0.39	0.48	0.36	0.38	0.44	0.51	0.42							D	0.44
2	OTC2951-002	Qtz. Bio. Gneiss	0.32	0.18														D	0.25
3	OTC2951-003	Qtz. Bio. Gneiss	15.8	0.53	0.20	0.41	0.66	0.24	1.11	1.12	0.10							D	2.24
4	OTC2951-007	Tonalite & Gabbro	0.23	0.17	0.19	0.20	0.20	0.25	0.26	0.19	2.04	3.41	8.07	3.51	1.40	2.12	0.21	D	1.50
5	OTC2951-010	Gabbro/Diorite	0.88	0.99	0.89	0.96	0.85	1.03	0.94	0.91	0.91	0.82						D	0.92
6	OTC2951-011	Plg. Act.-Hrnb. Int	0.76	0.70	0.64	0.74	0.96	0.72	0.77	0.60	0.62	0.91						D	0.74
7	OTC2951-014	Tonalite	3.40	3.00	6.60	16.2	21.4	57.9	102	72.0	36.9	68.4	57.5	53.6	51.9	55.2		D	43.3
8	OTC2951-023	Schist/Slate	0.08	0.07	0.04	0.06	0.16	0.09	0.18									D	0.10
9	OTC2951-024	Qtz./Slate. Above Qtzite	0.02	0.06	0.07	0.07												E	0.06
10	OTC2951-025	Footwall Qtzite.	0.01	0.01	0.00	0.00												E	0.01
11	OTC2951-026	Red Schist	0.37	0.38	0.29	0.24												D	0.32
12	OTC2951-027	Gray Schist	0.84	0.71	0.69													E&F	0.75
13	OTC2951-028	Quartzite	0.11	0.11	0.09	0.09												D	0.10
14	OTC2951-029	Qtzite./Slate Footwall	0.11	0.15	0.09													E&F	0.12
15	OTC2951-030	Weathered Volcanics	0.28	0.31	0.13													E&F	0.24
16	OTC2951-031	Chlorite Schist	0.26	0.34	0.32	0.34	0.31											D	0.31
17	OTC2951-032	Siltstone W. Ox. & Carb.	1.12	1.26	1.15	1.23	1.13											D	1.18
18	OTC2951-033	Mudstone W. Hem Grains	0.10	0.11	0.11	0.10												D	0.11
19	OTC2951-034	Goet. Quartz. Sandstone	0.55	0.69	0.58	0.69												E	0.63

1. Each sample site or drill hole is given a Project 295 file number. For outcrops there is an OTC prefix, then 295 to designate which project this work was funded under, then a sample number which is sequential for all samples measured. Rock dump samples have the prefix RD to designate their origin, then again the 295 project designation followed by the sequential sample number. For drill holes the pattern is somewhat different because the company drill hole number precedes the file number which has a DH prefix.

2. **LITHOLOGY,** Brief description of sampled lithology.

   MAGNETIC SUSCEPTIBILITY, The magnetic attraction of the sample as measured with an Exploranium G.S. Ltd. KT-5 magnetic susceptibility meter. Note that for readings less than ten the meter reads two places past the decimal point, for readings ten or greater than ten one place past the decimal point and for readings one hundred or greater than one-hundred it does not read a decimal fraction. Apparently sensitivity and repeatability increase at low magnetic susceptibilities.

   NUMBER OF READINGS, This is the number of recorded magnetic susceptibility observations for the designated lithologic unit. Usually three observations were made for each recorded observation to eliminate erratic or anomalous observations.

3. CODE LETTER THAT EXPLAINS SAMPLE REPRESENTATION FOR AVERAGE COLUMN:
   - D. One or more magnetic susceptibility measurements on separate pieces of rock from sample area described on summary sheet.
   - E. One or more magnetic susceptibility measurements on separate pieces of rock. This sample is from the sample area described in the summary sheet of the first D coded sample site above this. This sample is a different lithology than the above D coded sample.
   - F. One or more magnetic susceptibility measurements on a sample with one piece of rock.

PROJECT 295 OUTCROPS LOCATED IN THE FIELD OR HANNA MINING COMPANY SAMPLES OBTAINED FROM MINE PITS NOW FLOODED, DENSITY DATA:

OUTCROP AREA NUMBER	P295 FILE NUMBER[1]	LITHOLOGY	DENSITIES[2] IN G/CM^3							CODE[3]	AVERAGE
1	OTC2951-001	Amph. & Bio. Schist	2.96	2.84						G	2.90
2	OTC2951-002	Qtz. Bio. Gneiss	2.56	2.61						G	2.59
3	OTC2951-003	Qtz. Bio. Gneiss	2.70	2.69	2.83	2.77				G	2.75
4	OTC2951-007	Tonalite & Gabbro	2.97	2.82	2.81					G	2.87
5	OTC2951-010	Gabbro/Diorite	3.19	3.03	2.97					G	3.06
6	OTC2951-011	Plag. Actin.-Hornb. Int.	2.99	2.98	3.00	2.96				G	2.98
7	OTC2951-014	Tonalite	2.55	2.89	2.80	2.81				G	2.76
8	OTC2951-023	Schist/Slate	2.71	2.49	2.73	2.71	2.69	2.90		G	2.71
9	OTC2951-024	Qtz./Slate Above Qtzite.	2.59	2.55						H	2.57
10	OTC2951-025	Footwall Quartzite	2.61	2.58						H	2.59
11	OTC2951-026	Red Schist	2.61	2.99						G	2.80
12	OTC2951-027	Gray Schist	2.83							H	2.83
13	OTC2951-028	Quartzite	2.38							G	2.38
14	OTC2951-029	Quartzite/Slate Footwall	2.52							H	2.52
15	OTC2951-030	Weathered Volcanics	2.45							H	2.45
16	OTC2951-031	Chlorite Schist	1.59?	1.60?						G	1.60?
17	OTC2951-032	Siltstone w. Ox. & Carb.	2.78	2.63						G	2.71
18	OTC2951-033	Mudstone w. Hem. Grains	2.62							G	2.62
19	OTC2951-034	Goet. Qtz. Sandstone	2.78							H	2.78

1. Each sample site or drill hole is given a Project 295 file number. For outcrops there is an OTC prefix, then 295 to designate which project this work was funded under, then a sample number which is sequential for all samples measured. Rock dump samples have the prefix RD to designate their origin, then again the 295 project designation followed by the sequential sample number. For drill holes the pattern is somewhat different because the company drill hole number precedes the file number which has a DH prefix.

2. **DENSITY,** Density was measured on a Mettler PE 360 balance with a bridge and water filled beaker for measuring the weight in air and buoyed up weight in distilled water. Water temperature was measured and a correction made. Some samples are porous and gradually fill with water resulting in an unstable weight measurement even after a considerable time, such densities are indicated by a question mark on the reading or in the average.

3. CODE LETTER THAT EXPLAINS SAMPLE REPRESENTATION FOR AVERAGE COLUMN:

   G. One or more density measurements on separate pieces of sample which are the same lithology as determined from visual and density criteria, (there might be questions about the 2.49 and 2.90 gm/cm^3 measurements from area eight). The sample is from the sample site described on the summary sheet.

   H. One or more density measurements on separate pieces of sample. This sample is from the sample area described in the summary sheet of the first G coded sample site above this. This sample is a different lithology than the above G coded sample.

PROJECT 295 BOULDER SAMPLES FROM GLACIAL DEPOSITS, USUALLY GRAVEL PITS, DENSITY DATA:													
SAMPLE AREA NUMBER	P295 FILE NUMBER	LITHOLOGY	DENSITIES G/CM^3									CODE[1]	AVERAGE
1	GP2951-008	Iron Rich Schist		2.58	2.66							O	2.62
		Stained Quartz		2.66	2.57							O	2.62
2	GP2951-009	Gray/Red Intrusive		2.47	2.80	3.19						P	2.82
		Quartz & Goethite		2.69								O	2.69
3	GP2951-012	Rhyolite		2.47								O	2.47
		Schist		2.82								O	2.82
		Intrusive		2.93	2.89							O	2.91
		Quartz & Goethite		2.32								O	2.32

1. CODE LETTER THAT EXPLAINS SAMPLE REPRESENTATION FOR AVERAGE COLUMN:
   - O. One or more density measurements taken on several sample pieces of the same lithology.
   - P. Density measurements on several sample pieces which appear to have the same lithology, but have a variation in densities which indicates different lithologies or an epigenetic change of the sample.

PROJECT 295 BOULDER SAMPLES FROM GLACIAL DEPOSITS, USUALLY GRAVEL PITS, MAGNETIC SUSCEPTIBILITY DATA:														
SAMPLE AREA NUMBER	P295 FILE NUMBER	LITHOLOGY	MAGNETIC SUSCEPTIBILITIES 10^{-3} SI UNITS										CODE[1]	AVERAGE
1	GP2951-008	I.F./Qtz.	0.11	0.09	0.09	0.02	0.13	0.18	0.10	0.08	0.14		M	0.10
2	GP2951-009	I.F.	0.12	0.10	0.24	0.25	0.12	0.18					M	0.17
		Maf. Int.	0.23	0.25									M	0.24
		Vol	0.07	0.51	3.76	50.0	49.3	60.0	0.42				N	23.4
3	GP2951-012	Fel. Vol.	20.3	0.18	13.8	9.97	0.08	11.0	1.64				N	8.14
		Maf. Vol.	0.69	1.01	27.5	1.13	0.82	0.49					N	4.52
		Amph.	0.37	0.56	0.50	16.4	1.27						N	4.42

1. CODE LETTER THAT EXPLAINS SAMPLE REPRESENTATION FOR AVERAGE COLUMN:
   M. Uniform magnetic susceptibility measurements taken on several sample pieces of the same lithology.
   N. Magnetic susceptibility measurements taken on several sample pieces that appear to have the same lithology, but have variations in magnetic susceptibility that indicate a change in lithology or epigenetic changes of ferro-magnetic minerals.

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	**LITHOLOGY**	**MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS**			**NUMBER OF READINGS**	**PERCENT METER COVERED**	**DENSITY IN G/CM^3**			**NUMBER OF READINGS**
		HIGH	**LOW**	**AVERAGE**			**HIGH**	**LOW**	**AVERAGE**	
DRILL HOLE 306, P295 FILE NUMBER DH2951-035:[2]										
44-50	Magnetic Iron Fm.	117	111	114	2	70%	3.12	3.12	3.12	1
DRILL HOLE 307, P295 FILE NUMBER DH2951-036:										
55-65	Ox.-Silicate Iron Fm.	56.5	46.9	51.7	2	90%	3.06	3.02	3.04	2
DRILL HOLE 308, P295 FILE NUMBER DH2951-037:										
55-60	Ox.-Silicate Iron Fm.	37.3	35.3	36.3	2	45%	3.25	3.25	3.25	1
DRILL HOLE 309, P295 FILE NUMBER DH2951-038:										
65-70	Ferruginous Siltstone	Not enough core for measurement					2.66	2.66	2.66	1
DRILL HOLE 310, P295 FILE NUMBER DH2951-039:										
185	Ferruginous Chert	Not enough core for measurement.					2.55	2.55	2.55	1
DRILL HOLE U.S.S. 18135, P295 FILE NUMBER DH2951-040:										
230-275	Metagabbro	0.79	0.26	0.53	30	90%	3.03	2.60	2.86?	20
DRILL HOLE U.S.S. 18138, P295 FILE NUMBER DH2951-041:										
216-220	Ferruginous Chert	0.10	0.04	0.07	6	68%	2.75	2.60	2.68?	4
230	Goethite Iron Fm.	0.97	0.90	0.93	3	100%	3.91	3.65	3.78	2
240	Pisolitic Fe-Mn Oxide	1.12	1.21	1.16	3	85%	3.35?	3.18	3.27?	2
250-305	Magnetic Iron Fm.	147	22.6	73.5	30	95%	3.81	2.79	3.15?	20
310	Metabasalt	23.4	21.0	22.4	3	90%	2.89	2.81	2.85	2
315	Metabasalt/Magnetite	52.9	49.8	51.5	3	80%	3.18	3.08	3.13	2
320-340	Magnetic Iron Fm.	169	52.2	111	15	95%	3.42	2.88	3.12?	10
DRILL HOLE U.S.S. 18144, P295 FILE NUMBER DH2951-042:										
234-300	Metagabbro	0.60	0.31	0.51	42	100%	3.19	2.67	2.89?	26

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³ HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE S-118, P295 FILE NUMBER DH2951-043:										
114-124	Quartzite	0.04	0.02	0.03	6	100%	2.63	2.59	2.62?	6
DRILL HOLE S-124, P295 FILE NUMBER DH2951-044:										
207-212	Quartzite	0.20	0.12	0.17	4	95%	2.67	2.59	2.62	4
217	Hematite Iron Fm.	0.15	0.15	0.15	3	100%	3.03	2.99	3.01	2
222-224	Cherty Iron Fm.	0.63	0.59	0.61	3	80%	3.17	2.91	3.04	2
228-247	Quartz and Goethite	0.94	0.45	0.73	15	95%	3.39	3.01	3.24?	10
252	Hematite Iron Fm.	0.10	0.06	0.08	3	100%	3.20	2.63	2.92	2
257	Quartz and Goethite	0.30	0.24	0.26	3	80%	2.84	2.71	2.78?	2
DRILL HOLE S-126, P295 FILE NUMBER DH2951-045:										
79-81	Quartzite	0.05	0.04	0.04	5	75%	2.60	2.55	2.58	4
DRILL HOLE S-1042, P295 FILE NUMBER DH2951-046:										
112-117	Goethite Iron Fm.	0.28	0.21	0.26	6	90%	3.25	3.06	3.09?	4
125-208	Hematite-Goethite Iron Fm.	1.89	0.07	0.45	27	100%	4.04	2.70	3.28?	18
213	Siliceous Siltstone	0.12	0.10	0.11	3	100%	4.08	2.83	3.46	2
247-301	Hematite-Goethite Iron Fm.	0.22	0.06	0.14	9	"	3.36	2.62	2.87?	6
DRILL HOLE S-1043, P295 FILE NUMBER DH2951-047:										
49	Goethite-Magnetite Iron Fm.	0.19	0.18	0.19	3	80%	3.23	3.03	3.13	2
DRILL HOLE S-1044, P295 FILE NUMBER DH2951-048:										
2-11	Hematite-Magnetite.	0.35	0.17	0.26	6	100%	3.55	2.45	2.87	3
24	Siliceous Siltstone	0.05	0.04	0.05	3	90%	3.28	2.69	2.99	2

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
30-95	Purple Quartzite & Sediments	0.43	0.03	0.20	42	95%	3.74	2.60	3.04	28
DRILL HOLE 306, P295 FILE NUMBER DH2951-049: No geophysics measurements made.										
DRILL HOLE 18145, P295 FILE NUMBER DH2951-050:										
310-364	Altered Metagabbro	0.52	0.19	0.37	33	95%	3.02	2.36	2.63?	21
DRILL HOLE 18226, P295 FILE NUMBER DH2951-051:										
200-235	Clayey Saprolite	1.29	0.14	0.45	12	100%	3.67	3.38	3.53	2
240-310	Ox-Sil Iron Fm.	253	13.2	68.9	39	95%	3.86	2.70	3.22	25
DRILL HOLE 18132, P295 FILE NUMBER DH2951-052:										
177-255	Clayey Saprolite	0.60	0.03	0.25	36	90%	2.75	1.95	2.39?	22
255-290	Siliceous Breccia	5.52	0.11	1.22	24	100%	3.52	2.44	2.72	16
295-320	Altered Sil-Ox-Carb Iron Formation	65.3	2.20	19.0	21	100?	6.26	2.77	3.32	14
DRILL HOLE 18427, P295 FILE NUMBER DH2951-053:										
210-235	Saprolitic Siltstone	0.66	0.15	0.30	18	95%	3.17	2.41	2.93?	8
240-270	Graphitic-Pyritic Brecciated(?) Siltstone	0.35	0.02	0.11	21	90%	2.69	2.27	2.53	3
275-290	Goeth, Chert, Siliceous Sinter(?)	0.72	0.11	0.37	12	95%	3.43	2.53	2.97	8
295-319	Goethitic, Altered Sil-Ox Iron Fm.	13.2	0.78	6.38	18	90%	3.94	2.26	3.11	9
DRILL HOLE 18430, P295 FILE NUMBER DH2951-054:										
190-230	Saprolitic, Siliceous Siltstone (Breccia?)	0.44	0.09	0.34	27	95%	3.36	3.05	3.19	4

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
235-250	Graphitic, Pyritic Siltstone	0.10	0.03	0.06	12	100%	2.29	2.23	2.26	2
255-265	Goethitic, Chert-Silicate Iron Fm.	2.20	0.25	1.01	9	"	3.44	2.59	3.07	6
270-290	Silicate-Magnetite Iron Fm.	102	17.1	59.3	15	90%	3.19	2.52	2.96	10
315-335	Metabasalt? Meta-Andesite?	0.56	0.24	0.44	15	80%	2.74	2.37	2.56	10
DRILL HOLE 18228, P295 FILE NUMBER DH2951-055:										
DRILL HOLE 18435, P295 FILE NUMBER DH2951-056:										
DRILL HOLE 18146, P295 FILE NUMBER DH2951-057:										
DRILL HOLE 18218, P295 FILE NUMBER DH2951-058:										
171-305	Altered to Brecciated Iron Fm.	21.8	0.22	3.04	63	85%	4.12	2.59	3.26?	41
310-360	Mag-Sil Iron Fm.	155	7.43	91.7	33	95%	3.23	2.67	2.98?	22
DRILL HOLE 18221, P295 FILE NUMBER DH2951-059										
DRILL HOLE 18230, P295 FILE NUMBER DH2951-060:										
185-265	Saprolitic, Mylonitic, Metasedimentary Schist and Breccia	1.49	0.16	0.44	51	100%	3.74	2.31	2.86?	34
270-340	Brecciated, Goeth-Chert Iron Fm.	8.96	0.16	1.70	24	100%	3.47	2.61	2.89?	15

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³ HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
345-360	Metabasalt(?) Breccia	0.38	0.70	0.52	9	100%	2.90	2.48	2.79	6
365-385	Phylitic Siltstone	0.37	0.17	0.24	15	100%	3.01	2.57	2.74	10
390-405	Mylonitic Chlorite Schist w Sulfide	1.15	0.81	0.95	12	100%	2.92	2.78	2.83?	8
DRILL HOLE 18223, P295 FILE NUMBER DH2951-061:										
200-250	Saprolitic, Mylonitic, Metasedimentary Schist	0.38	0.10	0.20	33	100%	2.97	2.24	2.64?	22
260-300	Gray Schist	0.55	0.06	0.29	27	60%	3.27	2.54	2.79	14
DRILL HOLE S-1, P295 FILE NUMBER DH2951-062:										
62-105	Siltstone									
DRILL HOLE S-8, P295 FILE NUMBER DH2951-063:										
56-85	Siltstone									
DRILL HOLE S1131, P295 FILE NUMBER DH2951-064:										
DRILL HOLE S1006, P295 FILE NUMBER DH2951-065:										
DRILL HOLE S364, P295 FILE NUMBER DH2951-066:										
DRILL HOLE S346, P295 FILE NUMBER DH2951-067:										
DRILL HOLE S1060, P295 FILE NUMBER DH2951-068:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE S1054, P295 FILE NUMBER DH2951-069:										
DRILL HOLE S1053, P295 FILE NUMBER DH2951-070:										
DRILL HOLE S1045, P295 FILE NUMBER DH2951-071:										
DRILL HOLE S1046, P295 FILE NUMBER DH2951-072:										
DRILL HOLE S-1047, P295 FILE NUMBER 2951-073:										
DRILL HOLE S1048, P295 FILE NUMBER 2951-074:										
DRILL HOLE S1050, P295 FILE NUMBER 2951-075:										
DRILL HOLE S-361, P295 FILE NUMBER DH2951-076:										
DRILL HOLE 18600, P295 FILE NUMBER DH2951-077:										
DRILL HOLE 18400, P295 FILE NUMBER DH2951-078:										
DRILL HOLE MR-5, P295 FILE NUMBER DH2951-079:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE 1020, P295 FILE NUMBER DH2951-080:										
DRILL HOLE 280, P295 FILE NUMBER DH2951-081:										
DRILL HOLE 107, P295 FILE NUMBER DH2951-082:										
DRILL HOLE BM-11, P295 FILE NUMBER DH2951-083:										
23-253.7	Phyllite & Schist	230	0.38	37.2	30	90%	3.28	2.02	2.92	20
DRILL HOLE 18131, P295 FILE NUMBER DH2951-084:										
91-101	Chert Goet. Iron Fm.	0.07	0.06	0.07	3	90%	2.55	2.53	2.54	2
101-326	Mag. Sil. Iron Fm.	97.0	83.8	91.6	3	90%	3.10	2.88	2.99	2
326-355	Intrusive	0.38	0.34	0.36	6	90%	2.74	2.70	2.72	2
355-356	Mylonite						2.78	2.75	2.77	2
DRILL HOLE S360, P295 FILE NUMBER DH2951-085:										
105-172	Ch. Goe-Hem Iron Fm.									
DRILL HOLE BM3, P295 FILE NUMBER DH2951-086:										
39-76	Metagabbro	0.56	0.48	0.51	3	100%	2.67	2.64	2.66	2
76-79	Mylonite	0.69	0.56	0.61	3	90%	2.83	2.82	2.83	2
79-121	Mag. Sul. Iron Fm.	15.1	14.4	14.7	3	90%	3.49	3.05	3.27	2
121-126	Inter. Fel. Tuff	5.03	4.68	4.87	3	90%	2.83	2.79	2.81	2
126-217	Phyllite	6.89	5.38	6.11	3	90%	3.08	2.93	3.01	2
DRILL HOLE 18133, P295 FILE NUMBER DH2951-087:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
109-115	Chrt. Mag. Iron Fm.	0.24	0.21	0.22	3	90%	3.01	2.97	2.99	2
115-261	Phyllite	0.17	0.04	0.10	6	90%	2.62	2.55	2.60	4
DRILL HOLE 52, P295 FILE NUMBER DH2951-088:										
117-388	Chrt. Sul. Iron Fm.	2.90	2.68	2.77	3	90%	2.76	2.53	2.65	2
388-396	Metagabbro	0.38	0.30	0.35	3		2.88	2.72	2.80	2
DRILL HOLE G9, P295 FILE NUMBER DH2951-089:										
76-150	Mag. Sil. Iron Fm.	174	0.77	63.2	9	85%	3.50	2.71	3.08	6
DRILL HOLE AB9, P295 FILE NUMBER DH2951-090:										
67-77	Metagabbro	1.42	1.38	1.40	3	100%	3.03	2.96	2.99	4
DRILL HOLE PA4B3, P295 FILE NUMBER DH2951-091:										
44-49	Amphibolite	0.71	0.69	0.70	3	100%	2.95	2.93	2.94	2
DRILL HOLE G3, P295 FILE NUMBER DH2951-092:										
58-119	Metagabbro	60.6	53.3	57.9	3	100%	2.80	2.75	2.78	2
DRILL HOLE G2, P295 FILE NUMBER DH2951-093:										
113-168	Maf.-Fel. Tuff	0.68	0.28	0.39	9	90%	3.02	2.33	2.63	6
DRILL HOLE 61, P295 FILE NUMBER DH2951-094:										
70-113	Metagabbro	0.83	0.54	0.68	6	90%	2.81	2.64	2.73	4
113-219	Mag. Sil. Iron Fm.	17.0	15.6	16.4	3	80%	3.20	3.06	3.13	2
219-465	Phyllite	12.7	9.30	11.3	6	80%	3.13	2.79	3.02	4
465-493	Chrt. Mag. Iron Fm.	3.92	3.68	3.75	3	80%	2.95	2.88	2.92	2
DRILL HOLE 16, P295 FILE NUMBER DH2951-095:										

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
35-144	Chrt. Sul. Iron Fm.	22.1	0.50	7.67	9	90%	3.78	2.58	3.08	6
144-233	Mag. Sil. Iron Fm.	31.7	3.98	13.3	9	85%	3.88	2.77	3.23	6
233-253	Intermediate Tuff	0.57	0.53	0.55	3	100%	2.91	2.82	2.87	2
253-264	Metabasalt	0.50	0.49	0.49	3	100%	2.87	2.82	2.85	2
DRILL HOLE G4, P295 FILE NUMBER DH2951-096:										
47-50	Chrt. Goet. Iron Fm.	0.51	0.45	0.48	3	80%	3.21	3.05	3.13	2
50-164	Chrt. Sul. Iron Fm.	5.00	4.44	4.72	3	90%	2.86	2.81	2.84	2
DRILL HOLE G1, P295 FILE NUMBER DH2951-097:										
35-135	Chrt. Mag. Iron Fm.	19.5	12.7	15.8	6	90%	3.28	3.14	3.28	4
DRILL HOLE 43, P295 FILE NUMBER DH2951-098:										
254-329	Chrt. Sul. Iron Fm.									
329-381	Mag. Sul. Iron Fm.									
DRILL HOLE BM12, P295 FILE NUMBER DH2951-099:										
25-95	Tuff w. Sulfides	0.48	0.46	0.47	3	90%	2.59	2.57	2.58	2
95-106	Phyllite w. Sulfides	0.73	0.65	0.71	3	90%	2.79	2.64	2.72	2
106-174	Phyllite, Mag. & Sul.	541	538	539	3	90%	3.46	3.36	3.41	2
DRILL HOLE BM10, P295 FILE NUMBER DH2951-100:										
23-133	Metagabbro	1.20	1.10	1.14	3	90%	2.83	2.81	2.82	2
133-136	Schist, Mag. Pyr.	2.24	2.19	2.21	3	90%	2.88	2.83	2.86	2
136-146	Chrt. Sul. Iron Fm.	26.5	23.7	25.5	3	100%	2.97	2.90	2.94	2
146-190	Phyllite, Mag. Sul.	29.9	13.0	21.3	6	90%	3.50	2.87	3.15	4
190-243	Chrt. Sul. Iron Fm.	14.2	14.0	14.1	3	90%	3.12	3.07	3.10	2

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE 85, P295 FILE NUMBER DH2951-101:										
26-136	Hem. Sil. Iron Fm.									
DRILL HOLE 58, P295 FILE NUMBER DH2951-102:										
77-105	Tuff	0.39	0.36	0.38	3	90%	2.76	2.63	2.70	2
105-119	Intrusive	0.33	0.31	0.32	3	90%	2.84	2.81	2.83	2
119-171	Tuff	0.75	0.62	0.68	6	90%	2.79	2.69	2.75	4
171-240	Goet. Mag. Iron Fm.	13.3	12.2	12.9	3	90%	2.96	2.79	2.88	2
240-470	Sul. Iron Fm.	37.9	36.3	37.3	3	90%	3.29	3.27	3.28	2
470-491	Tuff w. Sul.	9.91	8.36	8.97	3	90%	3.16	2.64	2.90	2
491-498	Intrusive	0.39	0.36	0.38	3	90%	2.86	2.81	2.84	2
DRILL HOLE BM-1, P295 FILE NUMBER DH2951-103:										
35-170	Sil. Sul. Iron Fm.	1.68	1.58	1.62	3	90%	3.10	3.02	3.06	2
170-186	Mag. Sil. Iron Fm.	6.36	6.03	6.21	3	90%	3.11	3.09	3.10	2
DRILL HOLE 86, P295 FILE NUMBER DH2951-104:										
46-110	Metabasalt	0.66	0.53	0.60	3	90%	2.73	2.71	2.72	2
110-143	Chrt. Sul. Iron Fm.	1.87	1.63	1.76	3	90%	3.36	2.64	3.00	2
DRILL HOLE BM-6, P295 FILE NUMBER DH2951-105:										
55-78	Schist w. Pyr.	0.63	0.60	0.61	3	90%	2.65	2.61	2.63	2
78-112	Sul. Iron Fm.	11.7	10.3	10.9	3	90%	2.77	2.76	2.77	2
112-123	Phyllite w. Sul.	0.68	0.63	0.65	3	90%	2.97	2.88	2.93	2
123-136	Sul. Iron Fm.	18.8	18.3	18.5	3	90%	3.38	3.36	3.37	2

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
136-230	Chrt. Sul. Iron Fm.	26.1	2.82	14.1	6	90%	3.50	2.63	3.04	4
DRILL HOLE N-1, P295 FILE NUMBER DH2951-106:										
95-101	Arenite	0.10	0.07	0.08	3	90%	2.81	2.63	2.69	4
1101-125	Phyllite, Tuffaceous	21.8	1.14	11.2	6	90%	2.90	2.72	2.81	2
DRILL HOLE N-3, P295 FILE NUMBER DH2951-107:										
140-175	Phyllite & Chert	0.12	0.11	0.12	3	90%	2.88	2.54	2.71	2
DRILL HOLE N-2, P295 FILE NUMBER DH2951-108:										
132-162	Metagabbro	8.46	7.01	7.76	3	90%	2.87	2.82	2.85	2
DRILL HOLE 84, P295 FILE NUMBER DH2951-109:										
35-140	Phyllite w. Sul.	0.57	0.55	0.56	3	90%	2.77	2.64	2.71	2
140-145	Mag. Sul. Iron Fm.	0.92	0.84	0.88	3	90%	2.91	2.83	2.87	2
DRILL HOLE 83, P295 FILE NUMBER DH2951-110:										
40-108	Sericite Schist	0.35	0.31	0.33	3	90%	2.81	2.61	2.71	2
108-125	Phyllite w. Sul.	0.57	0.41	0.47	3	90%	2.67	2.66	2.67	2
DRILL HOLE S129, P295 FILE NUMBER DH2951-111:										
159-227	Chrt. Sul. Iron Fm.	0.36	0.26	0.32	3	90%	3.21	3.20	3.21	2
227-239	Phyllite	0.61	0.59	0.60	3	90%	2.65	2.59	2.62	2
DRILL HOLE 18134, P295 FILE NUMBER DH2951-112:										
128-133	Hem. Sil. Iron Fm.	0.55	0.45	0.50	3	90%	2.73	2.35	2.54	2
166-259	Sil. Sul. Iron Fm.	0.39	0.22	0.33	6	90%	2.69	2.62	2.66	2
259-292	Metabasalt						3.02	2.70	2.86	2
DRILL HOLE 18137, P295 FILE NUMBER DH2951-113:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
143-180	Phyllite w. Sul.	0.33	0.30	0.32	3	90%	2.67	2.63	2.65	2
180-220	Metabasalt	0.40	0.33	0.36	3	90%	2.83	2.82	2.83	2
DRILL HOLE 18129, P295 FILE NUMBER DH2951-114:										
188-190	Goet. Iron Fm.	0.55	0.52	0.54	3	90%	3.38	3.29	3.34	2
190-283	Mag. Sil. Iron Fm.	71.5	63.5	68.5	3	90%	3.25	3.06	3.16	2
DRILL HOLE DL-1, P295 FILE NUMBER DH2951-115:										
55-80	Tuff w. Sul.	37.1	37.0	37.1	3	80%	2.91	2.91	2.91	2
DRILL HOLE DL-2, P295 FILE NUMBER DH2951-116:										
30-90	Granite	0.16	0.13	0.15	3	100%	2.65	2.64	2.65	2
DRILL HOLE DL-3, P295 FILE NUMBER DH2951-117:										
29-50	Phyllite w. Mag.	0.49	0.45	0.47	3	90%	2.68	2.66	2.67	2
50-80	Tuffaceous Phyllite	97.6	95.8	96.6	3	90%	3.33	2.83	3.08	2
DRILL HOLE DL-4, P295 FILE NUMBER DH2951-118:										
40-80	Phyllite, Ser. & Mag	98.0	36.9	66.1	6	90%	3.33	2.66	2.88	4
DRILL HOLE DL-5, P295 FILE NUMBER DH2951-119:										
81-122	Metabasalt	11.3	10.8	11.1	3	100%	2.78	2.63	2.71	2
DRILL HOLE 236, P295 FILE NUMBER DH2951-120:										
109-130	Goet. Hem. Iron Fm.	0.82	0.79	0.80	3	90%	3.30	3.23	3.27	2
DRILL HOLE S238, P295 FILE NUMBER DH2951-121:										
137-150	Hem. Iron Fm.	0.79	0.69	0.73	3	90%	3.06	2.99	3.03	2
DRILL HOLE 240, P295 FILE NUMBER DH2951-122:										
232-247	Metabasalt	0.42	0.41	0.42	3	90%	2.83	2.78	2.81	2

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³ HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE S138, P295 FILE NUMBER DH2951-123:										
104-115	Hem. Iron Fm.	0.28	0.20	0.25	3	90%	2.88	2.80	2.84	2
115-135	Mag. Iron Fm	5.79	4.46	5.03	3	90%	3.39	3.30	3.35	2
DRILL HOLE S30, P295 FILE NUMBER DH2951-124:										
101-127	Mag. Sil. Iron Fm.									
127-154	Goet. Cht. Iron Fm.									
DRILL HOLE S45, P295 FILE NUMBER DH2951-125:										
117-255	Hem. Iron Fm.									
DRILL HOLE S46, P295 FILE NUMBER DH2951-126:										
115-190	Goet. Mag. Iron Fm.									
190-257	Hem. Iron Fm.	0.31	0.30	0.30	3	90%	3.19	2.77	2.98	2
DRILL HOLE S47, P295 FILE NUMBER DH2951-127:										
230-240	Chrt. Hem. Iron Fm.	0.45	0.42	0.43	3	90%	3.23	2.61	2.92	2
DRILL HOLE S48, P295 FILE NUMBER DH2951-128:										
108-253	Mag. Sil. Iron Fm.									
253-271	Hem. Iron Fm.	0.57	0.51	0.54	3	90%	3.63	3.21	3.42	2
271-288	Phyllite									
DRILL HOLE S49, P295 FILE NUMBER DH2951-129:										
170-195	Goet. Hem. Iron Fm.	0.57	0.55	0.56	3	90%	3.61	2.94	3.28	2
DRILL HOLE S50, P295 FILE NUMBER DH2951-130:										
90-180	Hem. Mag. Iron Fm.	59.6	55.3	57.3	3	90%	3.92	3.85	3.89	2
DRILL HOLE AB-28, P295 FILE NUMBER DH2951-131:										

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³ HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
141-154	Metavolcanics	0.37	0.36	0.36	3	90%	2.93	2.85	2.89	2
DRILL HOLE AB-27, P295 FILE NUMBER DH2951-132:										
209-219	Graphitic Argillite	0.40	0.37	0.38	3	90%	2.15	2.14	2.15	2
DRILL HOLE S204, P295 FILE NUMBER DH2951-133:										
113-175	Goet. Hem. Iron Fm.	0.16	0.13	0.14	3	90%	2.73	2.62	2.68	2
DRILL HOLE 206, P295 FILE NUMBER DH2951-134:										
112-147	Goet. Hem. Iron Fm.	0.23	0.19	0.22	3	90%	2.68	2.66	2.67	2
DRILL HOLE 207, P295 FILE NUMBER DH2951-135:										
110-115	Goet. Hem Iron Fm.	0.06	0.05	0.05	3	90%	2.70	2.53	2.62	2
138-143	Siltstone									
DRILL HOLE 208, P295 FILE NUMBER DH2951-136:										
247-282	Mag. Sul. Iron Fm.	0.27	0.23	0.25	3	90%	3.04	2.96	3.00	2
DRILL HOLE 210, P295 FILE NUMBER DH2951-137:										
96-121	Goet. Hem. Iron Fm.	0.34	0.30	0.32	3	90%	3.42	3.23	3.33	2
DRILL HOLE S211, P295 FILE NUMBER DH2951-138:										
103-110	Goet. Hem. Iron Fm.	0.77	0.73	0.75	3	90%	3.12	2.91	3.02	2
DRILL HOLE 215, P295 FILE NUMBER DH2951-139:										
97-112	Hem. Mag. Iron Fm.	22.3	19.2	20.4	3	90%	3.18	2.78	2.98	2
DRILL HOLE S225, P295 FILE NUMBER DH2951-140:										
272-277	Argillite	0.10	0.10	0.10	3	90%	2.96	2.79	2.88	2
DRILL HOLE S228, P295 FILE NUMBER DH2951-141:										
129-140	Phyllite	0.34	0.28	0.31	3	90%	3.76	3.50	3.63	2

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE S232, P295 FILE NUMBER DH2951-142:										
113-118	Mag. Hem. Iron Fm.	11.0	7.04	9.61	3	90%	3.09	2.91	3.00	2
DRILL HOLE 234, P295 FILE NUMBER DH2951-143:										
141-146	Goet. Mag. Iron Fm.	0.71	0.62	0.66	3	90%	3.50	2.91	3.21	2
DRILL HOLE S241, P295 FILE NUMBER DH2951-144:										
93-104	Mag. Sil. Iron Fm.	285	247	269	3	90%	3.56	3.55	3.56	2
DRILL HOLE S242, P295 FILE NUMBER DH2951-145:										
103-108	Mag. Sil. Iron Fm.	52.7	52.2	52.5	3	90%	3.21	3.20	3.21	2
DRILL HOLE 244, P295 FILE NUMBER DH2951-146:										
117-132	Goet. Hem. Iron Fm.	0.20	0.18	0.19	3	90%	3.46	2.70	3.08	2
DRILL HOLE S246, P295 FILE NUMBER DH2951-147:										
107-117	Goet. Mag. Iron Fm.	1.15	1.01	1.07	3	90%	3.41	3.05	3.23	2
DRILL HOLE 247, P295 FILE NUMBER DH2951-148:										
180-194	Hem. Mag. Iron Fm.	52.5	46.8	49.8	3	90%	3.26	3.12	3.19	2
DRILL HOLE S248, P295 FILE NUMBER DH2951-149:										
113-123	Goet. Hem. Iron Fm.	0.86	0.74	0.80	3	80%	3.11	2.59	2.85	2
DRILL HOLE S250, P295 FILE NUMBER DH2951-150:										
116-126	Phyllite	0.15	0.14	0.15	3	90%	2.67	2.63	2.65	2
DRILL HOLE S251, P295 FILE NUMBER DH2951-151:										
110-125	Goet. Hem. Iron Fm.	2.66	2.33	2.44	3	90%	2.97	2.97	2.97	2
DRILL HOLE S254, P295 FILE NUMBER DH2951-152:										
112-127	Goet. Hem. Iron Fm.	0.48	0.45	0.46	3	90%	3.27	3.12	3.20	2

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE S256, P295 FILE NUMBER DH2951-153:										
123-238	Goet. Mag. Iron Fm.	10.1	9.74	9.92	3	80%	3.72	3.25	3.48	2
261-273	Phyllite									
DRILL HOLE S257, P295 FILE NUMBER DH2951-154:										
236-251	Altered Gabbro	0.50	0.47	0.48	3	90%	2.99	2.99	2.99	2
DRILL HOLE 260, P295 FILE NUMBER DH2951-155:										
100-119	Goet. Hem. Iron Fm.	0.12	0.08	0.11	3	90%	2.74	2.69	2.72	2
DRILL HOLE S261, P295 FILE NUMBER DH2951-156:										
113-118	Hem. Mag. Iron Fm.	2.05	1.86	1.97	3	90%	2.60	2.49	2.55	2
DRILL HOLE S264, P295 FILE NUMBER DH2951-157:										
11-117	Chrt. Hem. Iron Fm.	0.51	0.38	0.44	3	90%	3.19	3.11	3.15	2
DRILL HOLE 265, P295 FILE NUMBER DH2951-158:										
88-103	Mag. Sil. Iron Fm.	216	186	205	3	90%	2.91	2.89	2.90	2
DRILL HOLE S268, P295 FILE NUMBER DH2951-159:										
110-120	Goet. Hem. Iron Fm.									
DRILL HOLE 270, P295 FILE NUMBER DH2951-160:										
97-107	Vein Qtz. w. Carb.	0.12	0.08	0.10	3	90%	2.73	2.62	2.66	2
DRILL HOLE S271, P295 FILE NUMBER DH2951-161:										
97-112	Goet. Hem. Iron Fm.									
DRILL HOLE S274, P295 FILE NUMBER DH2951-162:										
107-110	Hem. Mag. Iron Fm.									
DRILL HOLE S275, P295 FILE NUMBER DH2951-163:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
112-132	Hem. Mag. Iron Fm.	45.5	38.2	42.6	3	90%	3.97	3.28	3.63	2
DRILL HOLE S276, P295 FILE NUMBER DH2951-164:										
110-125	Chrt. Mag. Iron Fm.	261	234	245	3	90%	3.17	2.84	3.01	2
DRILL HOLE S279, P295 FILE NUMBER DH2951-165:										
101-121	Chrt. Hem. Iron Fm.	0.20	0.19	0.19	3	80%	2.63	2.22	2.43	2
DRILL HOLE S281, P295 FILE NUMBER DH2951-166:										
130-165	Goet. Mag. Iron Fm.									
165-175	Argillite									
175-210	Goet. Hem. Iron Fm.									
210-245	Phyllite									
DRILL HOLE S15, P295 FILE NUMBER DH2951-167:										
140-160	Mag. Sil. Iron Fm.	101	99.3	100	3	90%	2.91	2.78	2.85	2
DRILL HOLE 295, P295 FILE NUMBER DH2951-168:										
115-230	Hem. Mag. Iron Fm.	41.8	36.9	39.7	3	90%	3.54	3.48	3.51	2
DRILL HOLE 296, P295 FILE NUMBER DH2951-169:										
99-100	Mag. Sil. Iron Fm.									
DRILL HOLE 292, P295 FILE NUMBER DH2951-170:										
114-120	Hem. Sil. Iron Fm.	17.3	16.2	16.8	3	100%				
122-144	Hem. Mag. Iron Fm.						3.07	2.81	2.94	2
DRILL HOLE S118, P295 FILE NUMBER DH2951-171:										
107-117	Goet. Hem. Iron Fm.	0.34	0.31	0.33	3	90%	2.80	2.80	2.80	2

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DRILL HOLE 121, P295 FILE NUMBER DH2951-172:										
113-123	Goet. Hem. Iron Fm.									
DRILL HOLE 127, P295 FILE NUMBER DH2951-173:										
119-123	Goet. Hem. Iron Fm.									
DRILL HOLE S128, P295 FILE NUMBER DH2951-174:										
110-115	Chrt. Hem. Iron Fm.									

1. **DEPTH IN FEET,** Down hole depth or core interval where geophysical measurements were taken.

LITHOLOGY, Brief description of sampled lithology.

MAGNETIC SUSCEPTIBILITY, The magnetic attraction of the drill core as measured with an Exploranium G.S. Ltd. KT-5 magnetic susceptibility meter. Note that for readings less than ten the meter reads two places past the decimal point, for readings ten or greater than ten one place past the decimal point and for readings one hundred or greater than one-hundred it does not read a decimal fraction. Apparently sensitivity and repeatability increase at low magnetic susceptibilities.

NUMBER OF READINGS, This is the number of recorded magnetic susceptibility observations for the designated lithologic unit. Usually three observations were made for each recorded observation to eliminate erratic or anomalous observations.

PERCENT METER COVERED, In many places there was not enough core to cover the whole face of the meter therefore we include an estimate of the percentage of the meter face covered, a more accurate susceptibility can be extrapolated from this information.

DENSITY, Density was measured on a Mettler PE 360 balance with a bridge and water filled beaker for measuring the weight in air and buoyed up weight in distilled water. Water temperature was measured and a correction made. Some samples are porous and gradually fill with water resulting in an unstable weight measurement even after a considerable time, such densities are indicated by a question mark on the reading or in the average.

NUMBER OF READINGS, This is the number of recorded density observations for the designated lithologic unit.

2. Each sample site or drill hole is given a Project 295 file number. For outcrops there is an OTC prefix, then 295 to designate which project this work was funded under, then a sample number which is sequential for all samples measured. Rock dump samples have the prefix RD to designate their origin, then again the 295 project designation followed by the sequential sample number. For drill holes the pattern is somewhat different because the company drill hole number precedes the file number which has a DH prefix.

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³ HIGH	LOW	AVERAGE	NUMBER OF READINGS
125-130	Vein Qtz.									
DRILL HOLE S316, P295 FILE NUMBER DH2951-175:										
119-124	Phyllite & Siltstone	0.07	0.06	0.06	3	90%	2.62	2.60	2.61	2
DRILL HOLE S317, P295 FILE NUMBER DH2951-176:										
126-160	Goet. Hem. Iron Fm.	0.57	0.28	0.39	3	90%	2.61	2.54	2.58	2
DRILL HOLE S318, P295 FILE NUMBER DH2951-177:										
97-113	Goet. Hem. Iron Fm.									
DRILL HOLE S324, P295 FILE NUMBER DH2951-178:										
137-206	Hem. Mag. Iron Fm.	60.3	59.3	59.9	3	90%	3.52	2.68	3.10	2
DRILL HOLE S325, P295 FILE NUMBER DH2951-179:										
113-118	Hem. Mag. Iron Fm.									
DRILL HOLE S326, P295 FILE NUMBER DH2951-180:										
126-156	Goet. Hem. Iron Fm.	0.09	0.07	0.08	3	90%	2.62	1.45?	2.02?	2
174-194	Phyllite									
DRILL HOLE S327, P295 FILE NUMBER DH2951-181:										
135-140	Goet. Hem. Iron Fm.									
192-207	Hem. Mag. Iron Fm.									
DRILL HOLE S29, P295 FILE NUMBER DH2951-182:										
147-165	Argillite	0.67	0.63	0.64	3	90%	3.42	3.35	3.39	2
165-175	Chrt. Goet. Iron Fm.									
DRILL HOLE S33, P295 FILE NUMBER DH2951-183:										
110-140	Goet. Hem. Iron Fm.									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE S31, P295 FILE NUMBER DH2951-184:										
220-228	Siltstone	0.25	0.22	0.24	3	90%	2.55	2.52	2.54	2
DRILL HOLE S330, P295 FILE NUMBER DH2951-185:										
112-115	Goethite Iron Fm.	0.36	0.36	o.36	3	90%	3.17	3.07	3.12	2
DRILL HOLE S36, P295 FILE NUMBER DH2951-186:										
105-200	Hem. Mag. Iron Fm.						3.42	3.35	3.39	2
200-330	Goet. Hem Iron Fm.									
330-340	Argillite	0.23	0.22	0.22	3	90%				
DRILL HOLE S37, P295 FILE NUMBER DH2951-187:										
182-187	Phyllite									
DRILL HOLE S38, P295 FILE NUMBER DH2951-188:										
145-175	Goet. Hem Iron Fm.									
DRILL HOLE S39, P295 FILE NUMBER DH2951-189:										
130-142	Phyllite w. Chrt.	0.03	0.02	0.02	3	80%	2.65	2.55	2.61	4
DRILL HOLE S40, P295 FILE NUMBER DH2951-190:										
109-235	Hem. Mag. Iron Fm.	19.3	18.2	18.8	3	80%	4.25	3.25	3.75	2
295-300	Argillite									
DRILL HOLE S41, P295 FILE NUMBER DH2951-191:										
148-160	Goet. Hem Iron Fm.									
218-230	Hem. Sil. Iron Fm.						4.19	4.07	4.13	2
DRILL HOLE S42, P295 FILE NUMBER DH2951-192:										
185-210	Hem. Sul. Iron Fm.									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE S5, P295 FILE NUMBER DH2951-193:										
156-211	Goet. Hem Iron Fm.									
DRILL HOLE S6, P295 FILE NUMBER DH2951-194:										
115-145	Goet. Hem Iron Fm.									
DRILL HOLE S7, P295 FILE NUMBER DH2951-195:										
160-165	Goet. Hem Iron Fm.									
DRILL HOLE S43, P295 FILE NUMBER DH2951-196:										
105-150	Hem. Mag. Iron Fm.									
150-225	Goet. Hem. Iron Fm.									
225-250	Phyllite	0.27	0.23	0.26	3	90%	2.99	2.82	2.91	2
DRILL HOLE BM-2, P295 FILE NUMBER DH2951-197:										
157-350	Hem. Mag. Iron Fm.	13.5	11.5	12.4	3	90%	2.70	2.51	2.61	2
350-355	Phyllite									
DRILL HOLE 101, P295 FILE NUMBER DH2951-198:										
140-160	Basalt									
185-250	Sul. Iron Fm.									
260-275	Goet. Sil. Iron Fm.	0.92	0.86	0.88	3	90%	3.15	3.14	3.15	2
DRILL HOLE 102, P295 FILE NUMBER DH2951-199:										
250-327	Greywacke & Phyllite	0.28	0.27	0.27	3	90%	2.65	2.64	2.65	2
DRILL HOLE 103, P295 FILE NUMBER DH2951-200:										
124-128	Phyllite									
140-160	Hem. Mag. Iron Fm.									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
160-220	Chrt. Mag. Iron Fm.	445	433	440	3	90%	3.74	3.53	3.64	2
DRILL HOLE 104, P295 FILE NUMBER DH2951-201:										
209-230	Phyllite w. Mag.	0.37	0.32	0.35	3	90%	2.68	2.66	2.67	2
250-280	Hem. Mag. Iron Fm.									
DRILL HOLE S3, P295 FILE NUMBER DH2951-202:										
191-208	Goet. Hem. Iron Fm.	0.63	0.56	0.59	3	90%	3.93	3.21	3.57	2
DRILL HOLE S4, P295 FILE NUMBER DH2951-203:										
122-130	Chrt. Mag. Iron Fm.	2.26	1.61	2.01	3	90%	3.42	2.45	2.94	2
130-135	Goet. Hem. Iron Fm.									
DRILL HOLE S8, P295 FILE NUMBER DH2951-204:										
111-126	Goet. Hem. Iron Fm.	0.63	0.56	0.59	3	90%	3.48	3.46	3.47	2
DRILL HOLE S9, P295 FILE NUMBER DH2951-205:										
135-140	Goet. Hem. Iron Fm.	0.46	0.40	0.43	3	90%	2.73	2.70	2.72	2
DRILL HOLE S10, P295 FILE NUMBER DH2951-206:										
192-197	Carb. Sil. Iron Fm.	1.85	1.73	1.77	3	90%	3.36	3.35	3.36	2
DRILL HOLE S11, P295 FILE NUMBER DH2951-207:										
164-174	Goet. Lim. Iron Fm.	0.53	0.41	0.46	3	90%	3.42	3.29	3.36	2
DRILL HOLE S12, P295 FILE NUMBER DH2951-208:										
126-143	Carb. Mag. Iron Fm.	228	217	222	3	90%	3.60	3.55	3.58	2
DRILL HOLE S13, P295 FILE NUMBER DH2951-209:										
110-120	Goet. Hem. Iron Fm.	0.51	0.43	0.48	3	90%	3.61	3.31	3.46	2
DRILL HOLE S14, P295 FILE NUMBER DH2951-210:										

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
130-138	Chrt. w. Graphite	0.09	0.08	0.09	3	90%				
138-142	Sericite Schist Pry.									
190-200	Chrt. Hem. Iron Fm.						2.70	2.65	2.68	2
DRILL HOLE S21, P295 FILE NUMBER DH2951-211:										
155-250	Hem. Mag. Iron Fm.									
295-305	Phyllite & Hem. I.F.	0.14	0.13	0.13	3	90%	2.70	2.68	2.69	2
DRILL HOLE S22, P295 FILE NUMBER DH2951-212:										
106-155	Chrt. Mag. Iron Fm.									
DRILL HOLE S20, P295 FILE NUMBER DH2951-213:										
125-190	Phyllite w. Graphite	0.37	0.32	0.35	3	90%	2.80	2.77	2.79	2
DRILL HOLE S23, P295 FILE NUMBER DH2951-214:										
170-215	Mag. Sil. Iron Fm.									
DRILL HOLE S24, P295 FILE NUMBER DH2951-215:										
115-125	Mag. Sil. Iron Fm.	84.1	76.5	79.4	3	90%	3.35	3.32	3.34	2
DRILL HOLE S25, P295 FILE NUMBER DH2951-216:										
193-205	Hematitic Iron Fm.									
205-225	Phyllite	0.20	0.18	0.19	3	90%	2.51	2.49	2.50	2
DRILL HOLE S27, P295 FILE NUMBER DH2951-217:										
105-122	Hem. Mag. Iron Fm.	29.8	25.9	27.6	3	90%	3.63	3.56	3.60	2
122-123	Phyllite									
123-225	Hem. Mag. Iron Fm.									
DRILL HOLE MO-1, P295 FILE NUMBER DH2951-218:										

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
0-80	Glacial Sand & Gravel									
80-307	Sand									
DRILL HOLE MO-2, P295 FILE NUMBER DH2951-219:										
0-60	Glacial Sand									
60-307	Sand									
DRILL HOLE MO-3, P295 FILE NUMBER DH2951-220:										
0-85	Sand & Silty Sand									
DRILL HOLE R-1, P295 FILE NUMBER DH2951-221:										
69-207	Qtz. Schist w. Basalt	91.5	0.34	29.8	9	90%	3.12	2.60	2.84	8
DRILL HOLE PR-1, P295 FILE NUMBER DH2951-222:										
41-398	Ferruginous Sandstone	0.17	0.15	0.16	3	90%	2.46	2.42	2.44	2
398-434	Quartz Gneiss									
DRILL HOLE 201, P295 FILE NUMBER DH2951-223:										
0-97	Glacial Sand & Gravel									
97-180	Mag. Sil. Iron Fm.	5.71	5.54	5.61	3	80%	3.56	1.96	2.76	2
180-200	Metagabbro									
DRILL HOLE S253, P295 FILE NUMBER DH2951-224:										
91-108	Graph. Pyr. Iron Fm.	0.19	0.18	0.19	3	100%	2.42	2.38	2.40	2
DRILL HOLE S130, P295 FILE NUMBER DH2951-225:										
204-230	Tonalite									
DRILL HOLE S131, P295 FILE NUMBER DH2951-226:										

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
137-147	Goet. Hem. Iron Fm.									
DRILL HOLE S133, P295 FILE NUMBER DH2951-227:										
114-119	Goet. Hem. Iron Fm.	0.47	0.32	0.38	3	90%	3.43	3.37	3.40	2
DRILL HOLE S134, P295 FILE NUMBER DH2951-228:										
155-165	Goet. Hem. Iron Fm.									
DRILL HOLE S140, P295 FILE NUMBER DH2951-229:										
93-123	Mag. Sil. Iron Fm.	15.0	14.0	14.4	3	90%	3.07	2.99	3.03	2
DRILL HOLE S142, P295 FILE NUMBER DH2951-230:										
105-110	Goet. Hem. Iron Fm.									
DRILL HOLE S143, P295 FILE NUMBER DH2951-231:										
100-110	Sil. Carb. Iron Fm.									
DRILL HOLE S144, P295 FILE NUMBER DH2951-232:										
144-160	Hem. I.F., Argillite									
DRILL HOLE S146, P295 FILE NUMBER DH2951-233:										
102-119	Hem. Sil. Iron Fm.									
DRILL HOLE S148, P295 FILE NUMBER DH2951-234:										
153-170	Mag. Sil. Iron Fm.	0.50	0.43	0.46	3	90%	3.61	3.59	3.60	2
DRILL HOLE S149, P295 FILE NUMBER DH2951-235:										
111-118	Hem. Iron Fm.	0.28	0.19	0.24	3	90%	3.41	2.84	3.12	2
DRILL HOLE S150, P295 FILE NUMBER DH2951-236:										
108-118	Hem. Iron Fm.	0.69	0.59	0.63	3	90%	3.08	2.91	3.00	2
DRILL HOLE S151, P295 FILE NUMBER DH2951-237:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
116-121	Goet. Hem Iron Fm.	0.22	0.18	0.21	3	90%	2.93	2.84	2.89	2
DRILL HOLE S152, P295 FILE NUMBER DH2951-238:										
119-134	Hem. Mag. Iron Fm.	3.24	3.13	3.19	3	90%	3.03	2.91	2.97	2
DRILL HOLE S154, P295 FILE NUMBER DH2951-239:										
108-118	Phyllite & Hem. I.F.	0.24	0.23	0.24	3	90%	3.09	3.05	3.07	2
DRILL HOLE S155, P295 FILE NUMBER DH2951-240:										
110-115	Hem. Iron Fm.									
DRILL HOLE S156, P295 FILE NUMBER DH2951-241:										
101-116	Goet. Hem. Iron Fm.	0.23	0.20	0.21	3	90%	3.15	3.06	3.11	2
DRILL HOLE 158, P295 FILE NUMBER DH2951-242:										
121-125	Goet. Hem. Iron Fm.	0.30	0.27	0.29	3	90%	3.03	2.98	3.01	2
DRILL HOLE 160, P295 FILE NUMBER DH2951-243:										
125-135	Hem. I.F. & Phyllite	0.19	0.18	0.19	3	90%	2.55	2.47	2.51	2
DRILL HOLE 163, P295 FILE NUMBER DH2951-244:										
147-152	Hem. I.F. & Phyllite	0.26	0.25	0.25	3	90%	2.44	2.36	2.40	2
DRILL HOLE S166, P295 FILE NUMBER DH2951-245:										
123-128	Hem. Mag. Iron Fm.	1.21	1.15	1.19	3	90%	3.23	2.68	2.96	2
DRILL HOLE 168, P295 FILE NUMBER DH2951-246:										
104-119	Hem. Mag. Iron Fm.	7.11	6.25	6.58	3	90%	3.25	2.89	3.07	2
DRILL HOLE 172, P295 FILE NUMBER DH2951-247:										
119-127	Hem. Lim. Iron Fm.	0.42	0.38	0.40	3	90%	2.55	2.36	2.46	2
DRILL HOLE S173, P295 FILE NUMBER DH2951-248:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
123-133	Goet. Hem. Iron Fm.	0.58	0.56	0.57	3	90%	3.03	2.87	2.95	2
DRILL HOLE 179, P295 FILE NUMBER DH2951-249:										
125-130	Tuff & Phyllite									
DRILL HOLE 182, P295 FILE NUMBER DH2951-250:										
92-113	Mag. Sil. Iron Fm.									
DRILL HOLE S183, P295 FILE NUMBER DH2951-251:										
101-111	Hem. Sil. Iron Fm.									
DRILL HOLE 186, P295 FILE NUMBER DH2951-252:										
97-106	Mylonite									
DRILL HOLE S187, P295 FILE NUMBER DH2951-253:										
110-115	Goet. Hem. Iron Fm.									
DRILL HOLE 192, P295 FILE NUMBER DH2951-254:										
99-119	Hem. Mag. Iron Fm.									
DRILL HOLE 193, P295 FILE NUMBER DH2951-255:										
115-120	Altered Tuff									
DRILL HOLE S195, P295 FILE NUMBER DH2951-256:										
99-114	Hem. Mag. Iron Fm.									
DRILL HOLE S201, P295 FILE NUMBER DH2951-257:										
110-140	Hem. Mag. Iron Fm.									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE RS-2, P295 FILE NUMBER DH2951-258:										
203-245	Sedimentary Rocks									
245-258	Quartz Gneiss									
DRILL HOLE S331, P295 FILE NUMBER DH2951-259:										
103-158	Phyllite									
DRILL HOLE 265-1/1, P295 FILE NUMBER DH2951-260:										
142-173	Fine Grained Mafic									
DRILL HOLE LS-10, P295 FILE NUMBER DH2951-261:										
110-120	Granite									
DRILL HOLE LS-11, P295 FILE NUMBER DH2951-262:										
80-95	Weathered Granite									
95-103	Granite									
DRILL HOLE DRP-1, P295 FILE NUMBER DH2951-263:										
170-383	Quartz Schist									
383-410	Phyllite									
410-470	Chert & Dolomite									
470-506	Chert Breccia									
DRILL HOLE DRP-2, P295 FILE NUMBER DH2951-264:										
62-384	Quartz Schist									
384-606	Iron Fm.									
DRILL HOLE JW-1, P295 FILE NUMBER DH2951-265:										
124-150	Quartz Schist									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE RS-1, P295 FILE NUMBER DH2951-266:										
162-178	Sedimentary Rocks									
178-324	Quartz Gneiss									
DRILL HOLE 1016, P295 FILE NUMBER DH2951-267:										
65-70	Iron Fm. & Phyllite									
DRILL HOLE 1018, P295 FILE NUMBER DH2951-268:										
115-130	Goet. Phyllite									
DRILL HOLE 1019, P295 FILE NUMBER DH2951-269:										
20-25	Chrt. Hem. Iron Fm.									
30-35	Goet. Iron Fm.									
35-70	Goet. Hem. Iron Fm.									
72-105	Chrt. Mag. Iron Fm.									
108-148	Hem. Iron Fm.									
188-223	Goet. Hem. Iron									
233-292	Phyllite									
DRILL HOLE 53, P295 FILE NUMBER DH2951-270:										
105-125	Goet. Hem. Iron Fm.									
125-181	Goet. Sil. Iron Fm.									
DRILL HOLE S1, P295 FILE NUMBER DH2951-271:										
152-170	Chrt. Hem. Iron Fm.									
185-187	Mag. Sil. Iron Fm.									
DRILL HOLE MLCH-13, P295 FILE NUMBER DH2951-272:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
309-2461	Sedimentary									
2461-2504	Qtz. Sericite Schist									
DRILL HOLE KRCH-8, P295 FILE NUMBER DH2951-273:										
151-500	Qtz. Muscovite Schist									
DRILL HOLE 286-6/1, P295 FILE NUMBER DH2951-274:										
108-288	Gabbro									
DRILL HOLE ML-42C, P295 FILE NUMBER DH2951-275:										
167-210	Chrt. Sil. Sul. I.F.									
210-316	Chrt. & Marble									
DRILL HOLE 203, P295 FILE NUMBER DH2951-276:										
195-280	Chrt. Goet. Hem. I.F.									
280-315	Goet. Hem. Sul. I.F.									
DRILL HOLE 208, P295 FILE NUMBER DH2951-277:										
110-165	Hem. Sil. Iron Fm.									
165-210	Carb. Sil. Iron Fm.									
210-235	Hem. Sil. Iron Fm.									
DRILL HOLE ML-22, P295 FILE NUMBER DH2951-278:										
327-335	Qtz. Schist & Phy.									
385-500	Chrt. & Marble									
DRILL HOLE ML-55CA, P295 FILE NUMBER DH2951-279:										
199-350	Sedimentary Rock									
350-464	Chrt. & Marble									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE BM-3, P295 FILE NUMBER DH2951-280:										
162-434	Mag. Sil. Iron Fm.									
DRILL HOLE K3-2, P295 FILE NUMBER DH2951-281:										
35-500	Qtz. Schist									
DRILL HOLE 207, P295 FILE NUMBER DH2951-282:										
118-315	Goet. Mag. Sil. I.F.									
DRILL HOLE S1033, P295 FILE NUMBER DH2951-283:										
32-112	Goet. Mag. Iron Fm.									
DRILL HOLE S1034, P295 FILE NUMBER DH2951-284:										
20-140	Goet. Hem. Iron Fm.									
DRILL HOLE S15, P295 FILE NUMBER DH2951-285:										
48-115	Chrt. Goet. Iron Fm.									
DRILL HOLE S20, P295 FILE NUMBER DH2951-286:										
35-45	Phyllite									
DRILL HOLE S21, P295 FILE NUMBER DH2951-287:										
22-89	Chrt. Goet. Iron Fm.									
DRILL HOLE S1022, P295 FILE NUMBER DH2951-288:										
185-200	Goet. Hem. Iron Fm.									
DRILL HOLE S1031, P295 FILE NUMBER DH2951-289:										
125-130	Chert									
DRILL HOLE S1029, P295 FILE NUMBER DH2951-290:										
88-100	Hem. Mag. Iron Fm.									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS HIGH	LOW	AVERAGE	NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3 HIGH	LOW	AVERAGE	NUMBER OF READINGS
DRILL HOLE S1030, P295 FILE NUMBER DH2951-291:										
100-195	Goet. Hem. Iron Fm.									
DRILL HOLE S222, P295 FILE NUMBER DH2951-292:										
40-185	Goet. Hem. Iron Fm.									
DRILL HOLE S223, P295 FILE NUMBER DH2951-293:										
27-150	Goet. Hem. Iron Fm.									
DRILL HOLE S224, P295 FILE NUMBER DH2951-294:										
50-200	Hem. Mag. Iron Fm.									
DRILL HOLE S1036, P295 FILE NUMBER DH2951-295:										
44-94	Goet. Hem. Iron Fm.									
130-140	Goet. Hem. Iron. Fm.									
DRILL HOLE S1040, P295 FILE NUMBER DH2951-296:										
28-63	Carb. Mag. Sil. I.F.									
DRILL HOLE S1046, P295 FILE NUMBER DH2951-297:										
61-62	Ox. Sil. Iron Fm.									
DRILL HOLE S1033, P295 FILE NUMBER DH2951-298:										
15-30	Goet. Mag. Iron Fm.									
DRILL HOLE 276, P295 FILE NUMBER DH2951-299:										
70-150	Carb. Mag. Sil. I.F.									
160-222	Goet. Hem. Iron Fm.									
DRILL HOLE S720, P295 FILE NUMBER DH2951-300:										
20-25	Tuffaceous Chrt.									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
28-50	Goet. Mag. Sil. I.F.									
DRILL HOLE S-2-55, P295 FILE NUMBER DH2951-301:										
25-60	Chrt. Goet. Hem I.F.									
DRILL HOLE 10, P295 FILE NUMBER DH2951-302:										
150-275	Mag. Sil. Iron Fm.									
DRILL HOLE 204, P295 FILE NUMBER DH2951-303:										
235-278	Goet. Hem. Iron Fm.									
278-295	Mag. Sil. Iron Fm.									
DRILL HOLE 206, P295 FILE NUMBER DH2951-304:										
230-320	Metagabbro									
DRILL HOLE 205, P295 FILE NUMBER DH2951-305:										
205-215	Goet. Lim. Iron Fm.									
DRILL HOLE 202, P295 FILE NUMBER DH2951-306:										
170-175	Phyllite									
180-185	Goet. Mag. Iron Fm.									
185-195	Tuffaceous Phyllite									
DRILL HOLE BM-5, P295 FILE NUMBER DH2951-307:										
41-223	Graph. Sul. Iron Fm.									
DRILL HOLE G-6, P295 FILE NUMBER DH2951-308:										
60-110	Phyllite w. Graphite									
DRILL HOLE G-5, P295 FILE NUMBER DH2951-309:										
47-100	Graphitic Phyllite									

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
DRILL HOLE G-8, P295 FILE NUMBER DH2951-310:										
31-113	Goet. Mag. Iron Fm.									
DRILL HOLE BM-12F, P295 FILE NUMBER DH2951-311:										
38-79	Metavolcanics									
DRILL HOLE BM-4, P295 FILE NUMBER DH2951-312:										
28-30	Basalt-Andesite									
30-185	Chrt. Sul. Iron Fm.									
DRILL HOLE BM-2, P295 FILE NUMBER DH2951-313:										
42-149	Sul. I.F. & Tuff									
DRILL HOLE 87, P295 FILE NUMBER DH2951-314:										
75-92	Sul. Iron Fm.									
92-112	Sil. Chrt. Carb. I.F.									
DRILL HOLE 79, P295 FILE NUMBER DH2951-315:										
40-82	Sul. Iron Fm.									
82-156	Schist & Chrt. Cong.									
DRILL HOLE 78, P295 FILE NUMBER DH2951-316:										
41-64	Sul. Iron Fm.									
64-95	Sul. I.F. & Cong									
DRILL HOLE 73, P295 FILE NUMBER DH2951-317:										
41-135	Sul. Iron Fm.									
135-166	Sil. Iron Fm.									
DRILL HOLE 82, P295 FILE NUMBER DH2951-318:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
48-173	Sul. Iron Fm.									
173-196	Sil. Iron Fm.									
DRILL HOLE BM-7, P295 FILE NUMBER DH2951-319:										
85-145	Graph. Sul. I.F.									
DRILL HOLE SR-1, P295 FILE NUMBER DH2951-320:										
40-116	Qtz. Schist									
DRILL HOLE SR-3, P295 FILE NUMBER DH2951-321:										
38-53	Metabasalt									
53-74	Gabbro									
74-93	Qtz Sericite Schist									
DRILL HOLE SR-2, P295 FILE NUMBER DH2951-322:										
37-40	Phyllite									
40-67	Quartz Schist									
DRILL HOLE SL-1, P295 FILE NUMBER DH2951-323:										
60-127	Sericite Schist									
127-188	Sulfide Iron Fm.									
188-203	Sul. I.F. & Mag. Sch.									
DRILL HOLE CK-1, P295 FILE NUMBER DH2951-324:										
21-599	Sericitic Phyllite									
DRILL HOLE CK-2, P295 FILE NUMBER DH2951-325:										
7-568	Sericitic Phyllite									
DRILL HOLE CK-3, P295 FILE NUMBER DH2951-326:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^{3}			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
37-590	Sericitic Phyllite									
DRILL HOLE CK-4, P295 FILE NUMBER DH2951-327:										
45-899	Sericitic Phyllite									
DRILL HOLE CK-5, P295 FILE NUMBER DH2951-328:										
40-897	Sericitic Phyllite									
DRILL HOLE HM-1, P295 FILE NUMBER DH2951-329:										
40-170	Sericitic Phyllite									
170-220	Ser. Phy. & Marble									
DRILL HOLE MM-1, P295 FILE NUMBER DH2951-330:										
103-173	Amphibolite									
DRILL HOLE MM-2, P295 FILE NUMBER DH2951-331:										
100-145	Amphibolite									
DRILL HOLE EF-1, P295 FILE NUMBER DH2951-332:										
0-332	Sericite Schist									
DRILL HOLE MG-2, P295 FILE NUMBER DH2951-333:										
49-224	Sericity Schist									
224-391	Tuff. Phyllite									
DRILL HOLE MG-1, P295 FILE NUMBER DH2951-334:										
63-210	Phyllite & Marble									
210-220	Phyllite Schist									
220-449	Tuff. Phyllite									
DRILL HOLE MG-4, P295 FILE NUMBER DH2951-335:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:

DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
29-320	Phyllitic Schist									
320-464	Tuff. Phyllite									
DRILL HOLE MG-3, P295 FILE NUMBER DH2951-336:										
39-454	Ser. Phyllite Schist									
DRILL HOLE ML-27, P295 FILE NUMBER DH2951-337:										
25-140	Phyllite & Marble									
140-410	Amph. Qtz. Diorite									
410-500	Sericite Schist									
DRILL HOLE KRCH-6, P295 FILE NUMBER DH2951-338:										
67-500	Mafic Volcanics									
DRILL HOLE KRCH-7, P295 FILE NUMBER DH2951-339:										
42-775	Mafic Volcanics									
DRILL HOLE P-11, P295 FILE NUMBER DH2951-340:										
139-149	Amph Schist.									
DRILL HOLE P-12, P295 FILE NUMBER DH2951-341:										
225-227	Qtz. Gneiss & Schist									
DRILL HOLE PX-1, P295 FILE NUMBER DH2951-342:										
64-193	Sandstone									
193-277	Qtz. Schist & Gneiss									
DRILL HOLE P-9, P295 FILE NUMBER DH2951-343:										
229-239	Quartz Schist									
DRILL HOLE 264-7/2 R1, P295 FILE NUMBER DH2951-344:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM^3			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
167-203	Qtz. Schist & Gneiss									
DRILL HOLE 285-25/2 R1, P295 FILE NUMBER DH2951-345:										
30-75	Granite									
DRILL HOLE 18974, P295 FILE NUMBER DH2951-346:										
451-569	Argillite w. Carb.									
DRILL HOLE 3796, P295 FILE NUMBER DH2951-347:										
273-405	Argillite w. Carb.									
DRILL HOLE 4072, P295 FILE NUMBER DH2951-348:										
265-595	Argillite w. Carb.									
DRILL HOLE 3795, P295 FILE NUMBER DH2951-349:										
298-507	Argillite w. Carb.									
507-547	Chrt. Goet. Iron Fm.									
547-585	Quartzite									
DRILL HOLE 3987, P295 FILE NUMBER DH2951-350:										
240-260	Siderite Iron Fm.									
DRILL HOLE 18972, P295 FILE NUMBER DH2951-351:										
432-513	Argillite & Shale									
DRILL HOLE LV-2A, P295 FILE NUMBER DH2951-352:										
675-686	Hem. Mag. Sil. I.F.									
DRILL HOLE LV-1, P295 FILE NUMBER DH2951-353:										
362-372	Granite & Tonalite Gneiss									
DRILL HOLE 18695, P295 FILE NUMBER DH2951-354:										

PROJECT 295 MAGNETIC SUSCEPTIBILITY AND DENSITY FROM DRILL CORE, SAMPLE PULPS OR SAMPLE REJECTS:										
DEPTH IN FEET[1]	LITHOLOGY	MAGNETIC SUSCEPTIBILITY 10^{-3} SI UNITS			NUMBER OF READINGS	PERCENT METER COVERED	DENSITY IN G/CM³			NUMBER OF READINGS
		HIGH	LOW	AVERAGE			HIGH	LOW	AVERAGE	
341-371	Argillite w. Carb.									
DRILL HOLE TL-5, P295 FILE NUMBER DH2951-355:										
360-400	Graphitic Argillite									

1. **DEPTH IN FEET,** Down hole depth or core interval where geophysical measurements were taken.

LITHOLOGY, Brief description of sampled lithology.

MAGNETIC SUSCEPTIBILITY, The magnetic attraction of the drill core as measured with an Exploranium G.S. Ltd. KT-5 magnetic susceptibility meter. Note that for readings less than ten the meter reads two places past the decimal point, for readings ten or greater than ten one place past the decimal point and for readings one hundred or greater than one-hundred it does not read a decimal fraction. Apparently sensitivity and repeatability increase at low magnetic susceptibilities.

NUMBER OF READINGS, This is the number of recorded magnetic susceptibility observations for the designated lithologic unit. Usually three observations were made for each recorded observation to eliminate erratic or anomalous observations.

PERCENT METER COVERED, In many places there was not enough core to cover the whole face of the meter therefore we include an estimate of the percentage of the meter face covered, a more accurate susceptibility can be extrapolated from this information.

DENSITY, Density was measured on a Mettler PE 360 balance with a bridge and water filled beaker for measuring the weight in air and buoyed up weight in distilled water. Water temperature was measured and a correction made. Some samples are porous and gradually fill with water resulting in an unstable weight measurement even after a considerable time, such densities are indicated by a question mark on the reading or in the average.

NUMBER OF READINGS, This is the number of recorded density observations for the designated lithologic unit.

Sample #	Rock Type	Protolith	grade	pr. txt	Gn Sz	Fol'n	Alteration	Comments
2951-173	sheared? iron fm	iron fm			1		lim	deformed qz fibers
2951-174	oxid. iron fm	iron fm			1		hem	fibrous qz
2951-175	oxid. iron fm.	iron fm			12		hem-lim	
2951-176	iron fm	iron fm.						
2951-180	rextt'l chert	iron fm			1			
2951-181	Fe-silicate iron fm	iron fm			1			
2951-182	metagabbro	gabbro or diabase	gs		12		sauss; chl-kaol-sph	alt possib hydroth. (note kaol)
2951-183	metadiabase	diabase or basalt	ep.		23			

Sample #	Rock Type	Protolith	grade	pr. txt	Gn Sz	Fol'n	Alteration	Comments
2951-057	hematite-rich qz breccia							qz. sheared; hem fills fractures
2951-061	quartz	vein						strained
2951-063	hematite							fractures filled w/ remobilized hem and qz
2951-064	siltstone			3	1			some recryst.
2951-067	graphitic phyllite	metasediment?			1	2		
2951-069	metasiltstone or tuff	felsic tuff or volc-clastic			1	2	hem	hem replacing sericite
2951-072	"cherty" iron fm			3	1		hem	hem replaces chert
2951-074	"cherty" iron fm			3	1		hem	hem pseudomorphs after mt
2951-076	magnetite-carb-qz				23		hem	hydrothermal?
2951-078								
2951-083	phyllite	tuff	gs		1	2	hem, sph	fol. crenulated
2951-084	phyllite	tuff?			1	1		
2951-085	metasiltstone	tuffaceous? siltstone	gs	3	1	0		laminated; faint grading; weak spaced
2951-087	hematitic meta- siltstone			3	1	1		
2951-089	silts/ss			3	12	2	hem?	thin layered alternating ss/slts
2951-090	quartzite	quartz ss			12			strain w/ some recryst
2951-093	hematitic siltstone				1		sph	
2951-095	chlorite schist							
2951-097	feldspathic qzite	ss		3	12		weak ser.	
2951-099	Siltstone/ss.		greensc	3	12	2		layers folded; ax. pl. clvg
2951-101	lithic meta-tuff	probably trachytic	gs.	5	123	1		relict flow banding
2951-103	chlorite schist	Mg-Al rich sediment	amphib?			2	ilm-->leucox.	
2951-105	metasediment	??	low		1	1		strange assemblage
2951-107	metasiltstone		gs	3		2	hem	qz grains flattened in plane of fol.
2951-109	ferruginous sandstone				23			unmetamorphosed
2951-119	marble?	carbonate?		3	1			grain mount; laminated
2951-125	qtzite; hematite	iron fm?			1-2			grain mount
2951-127	hem w/ minor qz	iron fm?						grain mount
2951-129	hem + qzite	iron fm?			1		hem replacement	grain mount
2951-131	hem + qzite	iron fm?			1			grain mount
2951-133	hem + qzite	iron fm?			1			grain mount
2951-135	Fe-oxides	iron fm?					lim	grain mount
2951-137	Fe-oxides	iron fm?					lim	grain mount
2951-139	Fe-oxides	iron fm?					lim	grain mount
2951-143	Fe-oxides	iron fm?					lim	grain mount
2951-169	metagabbro	gabbro?	ep.amp		23		ep-sph	
2951-170	metagabbro	gabbro?	ep.amp		23		ep-sph	
2951-172	hematitic quartzite	iron fm	gs?		12		hem-lim	

Sample #	Rock Type	Protolith	grade	pr.	txtGn Sz	Fol'n	Alteration	Comments
2951-001	biotite amhibolite w/	(calcareous?) volcaniclastic	amphib		1-3	5	v.sl. ser; (carb?)	marble layers prob. primary; matrix carb
2951-002	carbonate-rich	interm. volcaniclastic?	amphibo		13	2	carb?, ser	carb primary?, remobilized
2951-003	foliated meta-granite	granite		1	123	2	ser	sheared, metamorphosed
2951-004	biotite-calcite schist	calcareous volcaniclastic?	amphibo		2	2		
2951-005	metagranite	granite	gs/amp		123	1	lt. ser; chl	recryst'd cataclastic
2951-007	iron formation?				12		hem + lim	veined with pyrite
2951-008	hematite						lim	
2951-009	iron formation				1			folded, w/ ax. pl. clvg
2951-011	granular iron formation				1	1	hem.	
2951-012	granular iron formation				1	1	hem.	
2951-013	quartz vein?						cc/Mn-ox	qz. fractured, recryst'd. Veined w/ cc &
2951-017	phyllite	pelite	greensc		1	3		crenulated, w. S2 fol.
2951-019	sericitic quartzite	siltstone	gs.		1	1		
2951-020	semischist	slts/sh.	gs.	3	1	1-2		
2951-022	metagabbro	gabbro (or dior.)	gs.		2		heavy sauss;	orig. plg 60%, 35% maf, 5%ilm
2951-023	tonalite				23		mod- hvy ser., chl.	
2951-024	Fe-oxide vein in qz.						lim after hem	
2951-025	qzvein w/ phyllite		low gs.				hem,lim	phyll. incl. in qz vein
2951-026	hornblende pyroxenite	ultramafic igneous			23		minor biot.	
2951-027	quartz vein?						hem; carb	
2951-028	metavolcanic	andesite?		1				
2951-029	metavolcanic	prob. andesite	epid.	1	12	12		sheared
2951-030	felsic metavolcanic	dacite?	upper	1	1		ser; some lim.	
2951-032	metagabbro	gabbro	epid.		23		sauss; leucox.	cut by vein of epid+cc
2951-033	metagabbro	mafic igneous	epid.		23		heavy sauss.; leucox.	
2951-034	amphibolite	mafic volcanic	amph.		1	1	sauss.+ diops., assoc	vein minerals: ep, qz, anhydrite?, Ca-metasom
2951-036	(meta?)diorite		amph?		23		ser, ep, sph	lg. poik plag.; cumulus text?
2951-038	monzodiorite				23	1	light ser.	
2951-040	monzodiorite				23		ser; chl	
2951-042	phyllonite	felsic volc. or volc-clastic	gs.		1	3		
2951-044	phyllonite	felsic volc or volc-clastic	gs.		1	3	hem.	strong replacement by hem
2951-046	qz vein + phyllite	tuff?	gs		1	0	kaol, hem	kaol alongvein bdry
2951-048	phyllite	fels. volc. or tuff	gs		1	2	v. fine hem	
2951-050	hematite+"chert"	"cherty" iron fm			1		hem replacement	
2951-051	limonite-qz breccia	iron fm						
2951-055	qz breccia	quartz vein						goethite fills breccia
2951-056	hematite-rich breccia	qz vein						

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
2951-175		50														30	19		1% ap	
2951-176		20													5	36	2		35% stilp, 2% mn	
2951-180		95														5				
2951-181		10													2	15				40% mn, 28% stilp
2951-182	50					1					10	10	15	4					10% kaol	
2951-183	44					1			35			5	10	3	2					

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
2951-061		100																		
2951-063		1														99				
2951-064		40														60				
2951-067								X										60% graphite		
2951-069		25						30								45				
2951-072		35														65				
2951-074																				
2951-076		20													30			mt 50%	minor minnesotaite?	carb may be manganiferous
2951-078																				
2951-083		20						70								5				
2951-084	5?	3						77								14		py 1%?		
2951-085	3	2						85										10		
2951-087		5						70								20			sph 5	
2951-089	tr	35		.5				60								5				hem finely dissem
2951-090	fsp	92						tr										3	tr. tourm.	
2951-093		18			?							30		2		50				
2951-095		15										80						5		
2951-097		70		23				2								4		1 mt	tr. tourm, zirc.	
2951-099		25						55								20			tr. zirc	
2951-101				10		1		79								10				
2951-103		24					20					50						Ilm 5	cord? 1	
2951-105						55									20				25% colorless	
2951-107		10			?			85								5				
2951-109	1	45		2		tr			tr				1			30			Rock frags: 20	rock frags mostly felsic plut.
2951-119		<5				10									80			5		
2951-125		49													1	50				
2951-127		5														95				
2951-129		40														55	5			
2951-131		50														50				
2951-133		52													3	25	20			carb colloform; algal?
2951-135		5													5	45	45			
2951-137		10													3	52	35			
2951-139		2													5					
2951-143		3				1									3	50	44			
2951-169	26					5			30				35	3					1% ap.	
2951-170	26					5			35				30	3					1% ap.	
2951-172		80														5	15			prim. stilp? replaced by
2951-173		50														20	27	3% py		
2951-174		10													10	15			65% stilp	

Sample #	Pl	Q	Qf	Kf	Fs	Bi	Ms	Ser	Hb	Cpx	Act	Chl	Ep	Sph	Cb	Hem	Lim	Opq	Other	Additional comments
2951-001	<5	30				30		tr	15				1		15			1% mt; tr. py, cp		rotated hb porphyroblasts.
2951-002		10				3		5	60				1	.5	20				.1 ap	
2951-003	20	30		35		5	10					.5							ap. tr	
2951-004		20				40							10		30			tr. mt		
2951-005	20	40		20		8	5					<1						mt 1; py 1		
2951-007		25														15	5		pyr. 40; mt 15; tr. po	
2951-008		19														70	10	mt 1		
2951-009		30														45	5	10 py, 10 mt		
2951-011		70														30				
2951-012		70														30				
2951-013		65													30				4 Mn-oxide; 1 apatite	
2951-017		25				X	x					x							5 fine dissem hem	
2951-019		75						23										2 (mt+hem)		
2951-020		30					69									1			tr. tourm.	
2951-022	34	2				2			13	2	12	10	20			tr		3 ilm; tr. py	2 sph	
2951-023	60	20				2			10			3	5					mt <1		
2951-024		57														40			3% ap.	
2951-025		85				2	7									2	3		.5 tourm	tourm. in phyll.
2951-026	2					.5			40	57					.5				tr. ap	
2951-027		74													5	20			1% minnesotaite?;	
2951-028																				
2951-029	20						3		50			20	5						2 sphene	
2951-030	25	50					1										2	2	20% zois.	
2951-032	33					3			40				30		tr			3 ilm?	.5 ap	
2951-033	2					3			50				41		1			3, altered ilm		
2951-034	30	x							70	x			x							
2951-036	30	5				10		x	50				3						2 sph	
2951-038	70	1		10		13			15	.5		tr	tr						zircon	
2951-040	55			12		1			20	tr		4	tr					5	2% ap	
2951-042		30					60											5 py; 5 fine		
2951-044	X	X		?			50													50% fr. rock is musc.
2951-046	?	X		?			50									20				hem finely dissem
2951-048	X	X		?			50									10			fine dissem. sph?	
2951-050		40														60				
2951-051																				
2951-055		70													1		29			
2951-056		20														80				
2951-057		80														20				