Tam Drilling
824147
1991

TM 91-1 (P-2) 28+00N / 9+75E 993m A.S.L.
Az. 110° Dip -60° Length 122.8m

Purpose: To test Cu/Au soil, chargeability, magnetic, and rock sample anomalies in the andesitic volcanics to the north of the diorite.

- sheared and faulted andesites - related to fault seen on surface
- thin interbedded ash tuff
- 2m wide quartz-carbonate vein
- alteration: propylitically altered andesites + silicification, talc-carbonates
- mag anomalies due to f.g. magnetite to 40%. in shear zone
- small cp. bearing zones; 15.6-16.8m, 1396 ppm; 111.6-112.2, 1640 ppm. These occur with up to 20% pyrite in silicified zones

TM 91-2 (P-1) 28+00N / 8+25E 1038m A.S.L.
Az. 270° Dip -45° Length 129.7m

Purpose: To test Cu/Au soil, chargeability, magnetic and rock sample anomalies in andesitic volcanics to the north of the diorite.

- andesites cross-cut by hornblende/plagioclase lamprophyre dyke
- alteration in andesites varies widely from low-grade chloritic pervasive alteration (propylitic) to intense silicification that destroys primary features.
- breccia with sericitic matrix, supporting angular to sub-rounded quartz, andesite, and lamprophyre dyke clasts. occurs towards end of hole.
- correlation between silicification and chalcopyrite mineralization, pyrite blebs and disseminations to 15%, ~1% mt
- Cu values to 0.49% (1.5m sample); 32m of 0.136% Cu, Au
- 0.9m sample from 53.5-54.4m ran 5.2 g/T ± from breccia zone containing 5% disseminated pyrite.

TM 91-3 (P-4) 26+19 N / 12+75 E 965 m A.S.L.
Az. 090° Dip -60° Length 121.9 m

Purpose: To test andesitic volcanics, diorite, and chargeability, mag, soil, and surface rock sample anomalies.

- andesites with narrow cross-cutting intervals of diorite
- massive, dark green andesites, variably altered.
- alteration ranges from hornfelsing, albitization, and propylitization with epidote, carbonate, and chlorite.
- mineralization consists of 3-8% finely disseminated pyrite with minor chalcopyrite (< 1%). Quartz-feldspar-epidote veinlet contains 5% molybdenite. Cp associated with alteration in andesites.
- Cu assays up to 0.24 % over 1m interval.

TM 91-4 (P-3) 25+00 N / 10+12 E 1024 m A.S.L.
Az. 110° Dip -45° Length 154.8 m.

Purpose: To test Cu / Au soil, chargeability, magnetic, and rock sample anomalies in andesitic volcanics and diorite.

- mainly andesites with cross-cutting diorite dykes
- interbedded chert; recrystallized with sugary texture and cross-cut by quartz veinlets. (14m thick)
- 3.7 m quartz vein containing chloritic altered clasts.
- andesites are chloritically altered and overprinted by weak to moderate silicification. Patchy sericitic alteration occurs with carbonate in places. Diorites are propylitically altered, with dissem. mt.
- andesites host mineralization - up to 20% py locally, 8% fine grained magnetite as disseminations and stringers, and up to 4% chalcopyrite.
- from 24.0m - 55.50 m, 31.5m of 0.116 % Cu

TM 91-5 (P-6) 23+93.5 N / 11+99 E 1017m. A.S.L.
Az. 090° Dip -65° Length 112.78m

Purpose: To test silicification, diorite, and andesitic volcanics, chargeability, mag, soil, and surface rock sample anomalies.

- mainly andesites with narrow interbeds of chert breccia and cross cutting trachyte dykes / flows.

- alteration consists mainly of variable amounts of silicification in the andesites. Strongly silicified andesites have little or no primary features left and may in fact be recrystallized cherts. Locally the andesite is brecciated and reheated with silica. Other alteration consists of chloritization, sericite, epidote, hematite, and albite. Quartz veinlets locally host up to 30% K-spar phenocrysts.
- mineralization consists of finely disseminated chalcopyrite to 3%; patchy magnetite zones, and pyrite to 10% locally. Several 3m samples assayed > 0.10% Cu and these were all from andesites.

TM 91-6 (P-7) 22+00 N / 1287.5 E 1010 m A.S.L.
Az. 095° Dip. -45° Length 153.0m

Purpose: To test silicification of diorite and andesitic volcanics. Also to test chargeability, mag, soil, and rock sample anomalies.

- andesites cross-cut by alkali feldspar trachyte.
- andesites variably altered; alteration suite includes chlorite, hematite, epidote, sericite, and silica.
- patchy zones of coarser, dioritic material occur within the andesite.
- alkali feldspar trachyte is weakly magnetic; has chilled margins
- mineralization: tr-1% chalcopyrite associated with silicified zones in andesites; magnetite patchy in the andesites and locally to 10-15%.
- 2.45 m averaged 1.15% Cu, 0.565 g/T Au, and 5.7 g/T Ag
  - this sample from bleached and intensely silicified fault zone in andesites.

TM 91-7 (P-8) 19+91.5 N / 10+41.5 E 1039 m A.S.L.
Az. 090° Dip -60° Length 126.8 m

Purpose: To test diorite in area of high chargeability, mag, soil, and rock anomalies.

- very narrow (<1m) intersection of silicified volcanics/chert at top of hole; rest of hole intersected diorite

and leucocratic diorite that is crosscut by an alkali feldspar dyke. Diorite is non-magnetic to moderately magnetic, due to disseminated magnetite (to 3%)
- alteration in diorite consists mainly of chloritization of mafics and sausseritization of plagioclase. Rare K-spar alteration zones are associated with quartz veinlets.
- rubbled intervals and brittle fault breccias common in upper part of hole.
- cp associated with quartz-carbonate stringers, as fine-gr. disseminations
- 12.0m of 0.114 % Cu, 0.049 g/T Au.

TM 91-8 (P-5) 23+87N / 9+20E 1075m A.S.L.
Az. 096° Dip -60° Length 120.4m

Purpose: To test silicification, chargeability, mag, soil, and surface rock sample anomalies in diorite and andesitic volcanics.

- hole intersected ~~andesite and~~ recrystallized chert from top to bottom.
- chert is fine grained, sugary and highly fractured and rubbled towards the top of the interval.
- alteration consists of quartz-carbonate-talc veining and/or plagioclase and sericite as veins and patches.
- mineralization is associated with veining; there is some disseminated mineralization within the chert.
- Chalcopyrite to 1%; malachite staining in upper 8.0m

TM 91-9 (P-9) 14+00N / 10+25E 1116m A.S.L.
Az. 090° Dip -45° Length 152.7m

Purpose: To test the chlorite-magnetite alteration zone

- hole intersected andesites and diorites, locally cross-cut by trachyte dykes. Andesites are fine grained, massive. Alteration consists mainly of chlorite, calcite, hematite (after Mt) and silicification. Local potassic alteration occurs in the andesites. Calcite veining and vein breccias occur in diorite and andesite. Several fault zones occur throughout the interval.
- mineralization is associated with silicification and

as disseminations, stringers, and along fractures. Pyrite is the main sulphide and occurs to 2%. Chalcopyrite locally occurs to 1% with pyrite. Magnetite (often altered to hematite) is patchy and occurs up to 5%. 3% molybdenite occurs in a quartz-carbonate veinlet near the end of the hole.

TM 91-10 (P-11) 12+00N / 11+50E 1146m A.S.L.
Az. 090° Dip -50° Length 132.28m

Purpose: To test chlorite-magnetite alteration, andesitic volcanics, and silicification with coincident chargeability, Cu/Au soil, magnetic, and rock sample anomalies.

- Hole intersected diorites, cross-cut by trachyte dykes. Diorites generally fine-grained, propylitically altered. Local potassic alteration is associated with quartz and/or magnetite stringers. Trachytes are aphanitic with 15% plagioclase phenocrysts and 5% quartz eyes in a K-spar matrix, sometimes with biotite phenocrysts. Mineralization occurs within diorite; sulphide content ranges from <1% - 4% and consists of pyrite and chalcopyrite. Chalcopyrite has highest concentrations where it is associated with ~~quartz~~ silicification and/or magnetite, and occurs locally to 4% as fine grained disseminations.
- several intersections > 1000 ppm Cu; 1.0m sample with 3395 ppm Cu

TM 91-11 (P-10) 12+00 N / 8+00E 1178 m A.S.L.
Az. 115° Dip -45° Length 149.35m

Purpose: To test chlorite-magnetite alteration, andesitic volcanics, and silicification coincident with chargeability, mag, soil, and rock sample anomalies.

Hole intersected diorite from top to bottom. Unit is fine grained, propylitically altered and varies in colour from green to brown. Locally core is sheared or brecciated and rubbled zones occur. Propylitic alteration is pervasive; mafics are chloritically altered and patchy epidote occurs. Plagioclase is altered to carbonate and carbonate stringers have brownish alteration envelopes. Mineralization is mainly pyrite, <2%, occurring as fine grained stringers, patches, and disseminations. Trace to 1%

Cp as fine grained disseminations within diorite, as stringers and blebs and sometimes associated with quartz-carbonate stringers and veinlets. Trace molybdenite occurs with (in) alteration envelopes around carbonate stringers.
- several 3.0m intersections with Cu values > 1000ppm occur
- highest value 2514 ppm over 5.20m.

TM 91-12 (P-12) 9+93N / 9+59E 1226 m A.S.L.
Az. 090° Dip -70° Length 97.23 m

Purpose: To test chlorite-magnetite alteration, andesitic volcanics, and silicification with coincident chargeability, mag, soil, and rock sample anomalies.

- Hole intersected diorites overlying chert and strongly altered volcanics. Diorite is dark green, fine to medium grained with patches of very fine grained, andesitic-looking lithology. These patches are probably due to alteration. Alteration assemblage is chlorite-zoisite (?)-calcite, with some sericite. Clays are common in fault zones.
- Underlying chert is intruded by diorite and is fine grained and recrystallized. The unit shows evidence of late hydrothermal activity - microfracturing, brecciation, open-space filling textures etc. and the intrusive patches are intensely chlorite-sericite altered. Some vugs are lined with cubic fluorite crystals. Altered volcanics at end of hole are dull green, aphanitic, and clay altered.
- Mineralization consists of 1-5% pyrite as disseminations, veinlets, blebs; chalcopyrite locally to 5% as blebs and disseminations associated with qz veinlets and/or pyrite. Trace Molybdenite.
- Cu assays up to 3408 ppm over 3.0m; several 3m intersections >1000 ppm.

TM 91-13 (P-13) 10+10 N / 11+22E 1169 m. A.S.L.
Az. 270° Dip -45° Length 102.4m

Purpose: To test chlorite-magnetite alteration, andesitic volcanics, and silicification coincident with chargeability, mag, soil, and rock sample anomalies.

Hole intersected diorites crosscutting andesitic volcanics. Diorites are generally fine grained and sometimes gradational to andesite. Alteration varies from argillization to propylitization and is weak to moderate. Local silicification and sericitization occur and fractures are hematite stained. Some open-space textures occur and small veins have cubic fluorite crystals lining walls.

- Volcanics appear to be andesitic and are green, grey, buff coloured and fine grained. Chloritic alteration is dominant but there is some sericitization and silicification, as well as carbonates. Quartz, calcite, and fluorite stringers crosscut the unit.
- Mineralization is pyrite, occurring as disseminations and stringers to 4%.
- One intersection >1000 ppm Cu, occurring in andesites with 3% disseminated and stringer pyrite.

TM 91-14 (P-19) 2+00N / 17+50E 1090m. A.S.L.
Az. 070° Dip-55° Length 123.75m

Purpose: To test Permian sediments and andesitic volcanics for stockwork and/or sediment hosted disseminated mineralization.

This hole intersected a sequence of interbedded sediments with one very narrow (<1m) interval of andesite. Sediments varied from argillite to wacke, with some chert beds. Fault and hydrothermal breccias occur throughout. Alteration consists of silicification and quartz stockworking plus clays, chlorite, ± sericite, and carbonates. Argillites are locally weakly graphitic. Fining sequences suggest tops may be downhole.

Mineralization is usually between 1-3% disseminated and stringer pyrite. Narrow quartz veins have higher concentrations of pyrite, and trace chalcopyrite is associated with quartz-carbonate stringers in one interval.

- Highest Cu value was 693 ppm, at top of hole, corresponding with 99 ppb Au.

TM 91-15 (P-23) 4+00S / 12+55E 1202 m A.S.L.
Az. 090° Dip -50° Length 152.7m

Purpose: To test diorite intruding Permian sediments with chargeability and mag highs, and weak to strong Au soil geochem for stockwork and/or sediment hosted disseminated mineralization.

- Interbedded sediments, cross cut by trachyte and feldspar porphyry dykes. Intrusives are clay, chlorite, and carbonate altered. Contact between intrusives and underlying package of sediments is fault, partly healed with quartz-carbonate. Sediments range from fine-grained cherty argillites to sandstone and conglomerate. Although intrusives occur mainly at top of hole, the sediments are cross-cut by trachytic dykes.
- Hydrothermal breccias occur in feldspar porphyry and in sediments. Quartz-carbonate veins occur throughout much of the hole mainly in the sediments.
- Mineralization consists of trace to 1% pyrite, disseminated and as stringers and along fractures.
- Highest Au value was 412 ppb occurring in a 0.11 m wide interval in feldspar-porphyritic dyke.

TM 91-16 (P-18) 2+00N / 7+75E 1360 m. A.S.L.
Az. 270° Dip -45° Length 166.12m

Purpose: To test mag anomaly and chargeability anomaly at depth below siliceous cap; anomalous soil and rock geochemistry.

- Hole intersected a sequence of interbedded chert, tuff, and andesite that is cross-cut by feldspar-porphyritic dykes.
- andesites are fine to medium grained, green, massive and commonly silicified. Chloritization and/or sericitization occur locally. Fine grained grey cherts are gradational into cherty ash tuffs and there are narrow intervals of fine to medium grained sericitic tuffs.
- hydrothermal brecciation occurs throughout and usually is silica-healed. Zones of stockwork silicification may in fact be recrystallized and fractured cherts.

Several intervals in this hole are so strongly altered that their lithology is not distinguishable. These are generally chloritized and contain up to 40% magnetite, similar to the chlorite-magnetite alteration seen on surface.

- Mineralization is abundant in this hole and locally pyrite occurs to 40% as disseminations and veins/veinlets. Some of the pyrite may in fact be marcasite. Trace chalcopyrite occurs locally, as well as magnetite in patches to 30%.
- Highest values from this hole were 1.0 g/t over 2.78m, 1.78 g/t over 0.20m, 2.85 g/t over 3.51m, 1.82 g/t over 2.01m, 1.08 g/t over 0.85m.