

**J. TUACH GEOLOGICAL CONSULTANTS, INC.  
DIAMOND DRILL CORE LOG**

Sheet No. 1

LATITUDE \_\_\_\_\_  
 DEPARTURE 10,089.73N 11,455.81E  
 ELEVATION 3838.12  
 DIP AT COLLAR -90°  
 BEARING \_\_\_\_\_  
 TOTAL DEPTH 1688' CORE SIZE Ax  
 REMARKS \_\_\_\_\_

| Tests<br>Depth | Dip   | Magnetic<br>Bearing | Corrected<br>Bearing |
|----------------|-------|---------------------|----------------------|
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |
| _____          | _____ | _____               | _____                |

Project No. \_\_\_\_\_ Hole No. 1582  
 Property Buchans - Middle Branch  
 NTS \_\_\_\_\_ Grid Name Mine Grid  
 Date started 1956 Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_  
 Logged by J. Harris - 1996

| Depth & Lithology | Description                                                                                                                                                                                                                                                                                                                                                                 | Alteration                                                                                         | Mineralization                 |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------|
| 0 - 181'          | - Overburden                                                                                                                                                                                                                                                                                                                                                                |                                                                                                    |                                |
| 181 - 215'        | - Mafic and felsic tuffs? strongly foliated - sheared<br>- Quartz - sericite ± chlorite schist<br>- Foliation generally at 45 - 50° but locally folded<br>- (similar unit at top of 1605 to east)<br>- Some local crosscutting carbonate veining<br>- Some gouge at base of unit                                                                                            | Moderate sericitic and chloritic alteration. Local moderate silicification remobilized by shearing | Finely disseminated Py. 2 - 5% |
| 215 - 226'        | - Mafic volcanic - basalt<br>- Green and red (hematitized) amygdular basalt - fragmental<br>- Pink and white calcite filled amygdules<br>- Appears to be shearing - fault at about 220' - above fault mainly green chloritic and lightly amygdoidal<br>- Below - hematitized and very amygdoidal - like Sandy Lake Fm.<br>- Mostly not foliated but 2 - 3" foliated at base | Chloritic and hematitic alteration                                                                 |                                |
| 226 - 274'        | - Arkosic conglomerate<br>- Large clasts of quartz feldspar porphyry at top<br>- Quite heavily hematite veined - fracture infill<br>- Variety of clast types                                                                                                                                                                                                                | Hematite alteration - some weak silicification at top                                              |                                |

**HOLE NO.** 1582

**J. TUACH GEOLOGICAL CONSULTANTS, INC.**  
**DIAMOND DRILL CORE LOG**

Sheet No. 2

| Depth & Lithology | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Alteration                                                                                                             | Mineralization                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 274 - 229'        | - Mafic volcanic - Sandy Lake Fm.<br>- Amygdoidal - calcite, fragmental - as for 220 - 226'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | About 50 - 60% hematitized - remainder is chloritic                                                                    |                                                                                                         |
| 229 - ~ 309'      | - Arkose - grit and pebble conglomerate<br>- 6" silicified breccia and shear at base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Hematite veined throughout                                                                                             |                                                                                                         |
| 309 - 362'        | - Dacitic crystal tuff (probable ore horizon lithology - Thurlow)<br>- Abundant plagioclase, a few quartz and a few lithic fragments in a green chloritic and sericitic groundmass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Chloritic and sericitic alteration of groundmass - hematite alteration and fracture infill - local weak silicification |                                                                                                         |
| 362 - ~ 429'      | - Felsic volcanic - rhyolite and rhyolite breccia - altered<br>- May be tuff locally<br>- Red - pink or green colour<br>- Faulting at 398'<br>- 417 - 429 - finer fragmental appearance probably tuff<br>- 423 - 423.5' - carbonate quartz vein breccia - shear?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Hematitized and locally sericitic, feldspars commonly altered to sericite. Becomes less hematitized below 200'         | Disseminated hematite near top - 362 - 380<br>Below 380 - local disseminated and fracture Pyrite 1 - 2% |
| 429 - ~ 501'      | - Felsic volcanic - dacitic tuff and some altered rhyolite<br>- 435 - 495 - Core is missing<br>- 431.5 - 432 - brecciated - sheared with carbonate cement - foliation @ 50 - 60° to the core<br>- 432 - 433.5 - bleached and altered rhyolite<br>- 433.5 - 435 - sericitic dacite tuff?<br>- 495 - 500 - weakly altered rhyolite<br>- 500 - 501 - dark green chloritic and sericitic dacitic tuff                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Moderate sericitic alteration                                                                                          | Minor Pb-Zn in calcite - quartz vein @ 431.5<br>Minor Pyrite                                            |
| 501 - 633'        | - Unusual fragmental rocks - Ski Hill formation - Thurlow<br>- Mainly coarse sediments and/or volcanic breccia<br>- Contain assorted angular and rounded clasts - for the most part looks sedimentary i.e. debris flow type<br>- Clasts of mafic volcanic, rhyolite, pyritic siltstone, granodiorite and granite altered pyritic rock and mafic dyke<br>- Some of these rocks i.e. Pyritic siltstone and some of the rhyolite are like units in the Buchans River Fm. i.e. later than Ski Hill Fm.??<br>- 501 - 513 - Mainly chips and small pebbles of mafic volcanic with some rhyolite etc. in a silty to sandy matrix. Hint of bedding at ~ 45° to core - some dacitic tuff and possible shearing in upper 2'<br>- 513 - 633 - Coarser fragmental with wider range of fragment types - overall mafic appearance. Abundant mafic fragments - fine grained, magnetic and black fragments are likely mafic dyke. Abundant mainly rounded granite clasts 523 - 540 - some large, some granitic clasts throughout | Foliated - sheared at ~ 50° to the core at 511 - 512'                                                                  | Pyrite <1% mainly in clasts                                                                             |

HOLE NO. 1582

**J. TUACH GEOLOGICAL CONSULTANTS, INC.**  
**DIAMOND DRILL CORE LOG**

Sheet No. 3

| Depth & Lithology   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Alteration                                                                                                                                                              | Mineralization |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 501 - 633' (cont'd) | <ul style="list-style-type: none"> <li>- A few amygdoidal mafic volcanic clasts, common porphyritic rhyolite clasts</li> <li>- Tightly packed fragments with very little matrix - matrix may be tuffaceous locally</li> <li>- 533 - 535 - finer chips - similar to 501 - 513</li> <li>- 561.5 - 563 - sheared and foliated at 60 - 70° to the core - percentage of mafic clasts increases downward</li> <li>- 521 - 631 - mainly hematitized amygdoidal basalt</li> <li>- 631 - 633 - 1' lost core - chloritic - may be sheared/faulted</li> </ul>                                                                                                                                                                                                                                                                                          | Local epidote alteration - local black chloritic alteration on fractures<br>Carbonate veining and fracture infill<br>601 - 611 - some silicification of matrix with Py. |                |
| 633 - 785'          | <ul style="list-style-type: none"> <li>- Mafic fragmental - possible flows locally - (more typical Ski Hill - Thurlow)</li> <li>- Hard - dark green to purple, commonly strongly magnetic</li> <li>- Amygdoidal with calcite and silica infill</li> <li>- Commonly Plag. phyr - also some pyroxene</li> <li>- Rock is very hard and almost rhyolitic in appearance</li> <li>- 658 - 660 - somewhat bleached and sheared, epidote - silica cement</li> <li>- 645 - 646 and 647 - 648.5 - pinkish quartz - carbonate feldspar (pegmatite) veins along core</li> </ul>                                                                                                                                                                                                                                                                         | Local silica flooding between fragments                                                                                                                                 | Minor Py.      |
| 785 - 810'          | <ul style="list-style-type: none"> <li>- Rhyolite intrusive - Plagioclase phenos. throughout</li> <li>- Pinkish brown to pale green tint</li> <li>- Chilled irregular intrusive contacts - some xenoliths of overlying mafic</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Weak sericitic alteration                                                                                                                                               | Very minor Py. |
| 810 - 837'          | <ul style="list-style-type: none"> <li>- Mafic dyke - fine grained dark green to black</li> <li>- 832 - 835 - brecciated, quartz - carbonate cement</li> <li>- 835 - 837 - porphyritic (Ski Hill) basalt</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 818 - 819 - strong epidote/silica? alteration<br>824 - 831 5' core lost                                                                                                 |                |
| 837 - 862'          | <ul style="list-style-type: none"> <li>- Felsic volcanic</li> <li>- Pale grey brown altered rhyolite?</li> <li>- Tiny and faint plagioclase phenocrysts - some of pink k-spar</li> <li>- 852 - 862 - dark colour - less altered and harder - also &lt; 50% core recovery</li> <li>- 849 - 850 - fault? breccia - silica cement</li> <li>- Poor core recovery throughout</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          | epidote and sericitic alteration common                                                                                                                                 |                |
| 862 - 1168'         | <ul style="list-style-type: none"> <li>- Mafic fragmental ± flows - (Ski Hill - Thurlow) as for 633 - 785</li> <li>- 896 - rounded cobble of granodiorite</li> <li>- ≈ 869 - 871 - some fault gouge and breccia</li> <li>- Locally porphyritic with plagioclase and some pyroxene</li> <li>- Calcite and silica filled amygdules</li> <li>- Magnetic</li> <li>- @ 951' - foliated (sheared) at 40 - 45° to the core with epidote</li> <li>- 964 - 965' - weakly foliated 45 - 50° to the core</li> <li>- 1025 - 1026 - silica - carbonate vein breccia</li> <li>- 1038 - 1045 - carbonate and minor silica cemented breccia</li> <li>- 1113 - 1114 - calcite veining</li> <li>- 1119 - 1122 - calcite veining and vein breccia along core</li> <li>- 1134 - 1136 - weakly foliated/sheared at ≈ 40 - 45° to the core - sericitic</li> </ul> | Local epidote alteration<br>909 - 910 silica flooding to vein breccia<br>Some sericitic alteration of feldspars                                                         |                |

HOLE NO. 1582

**J. TUACH GEOLOGICAL CONSULTANTS, INC.  
DIAMOND DRILL CORE LOG**

Sheet No. 4

| Depth & Lithology | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Alteration                                                                                                                                                                                                  | Mineralization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1168 - 1201'      | - Rhyolitic dyke/sill - brownish to pink - similar to 785 - 810                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1201 - 1208'      | - Mafic dyke - fine grained - dark green - magnetic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1208 - 1248'      | - Mafic fragmental - basalt - as above<br>- Non-magnetic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1248 - 1272'      | - Mafic dyke - dark green to black - magnetic<br>- Amygdoidal with calcite and chlorite infill                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1272 - 1402'      | - Mafic fragmental, basalt - Ski Hill?<br>- Dark to medium green - white and pinkish calcite filled amygdules<br>- Some thin lighter alteration rims on fragments<br>- Matrix much like green dacitic tuff locally<br>- Below 1330 - more sedimentary look - also rare rhyolitic clasts<br>- Locally magnetic, not as hard, definite Ski Hill rocks above dyke                                                                                                                                                                                                                                                                                                                                                                              | Some sericitic alteration of feldspars<br>Chloritic matrix locally                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1402 - 1431'      | - Mafic dyke with xenoliths - zones of above mafic volcanic dyke is locally weakly porphyritic and/or amygdoidal<br>- Possible shearing @ 1421' - maybe drilled along or close to contact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1431 - 1688'      | - Mafic fragmental - similar to 1272 - 1402' fewer amygdules<br>- Becomes somewhat bleached and altered below 1440'<br>- pale green and almost felsic looking locally<br>- locally foliated at $\approx 60^\circ$ to the core<br>- Occasional jasper fragments<br>- 1534 - 1539 - felsic unit - maybe rhyolite but could be alteration of mafics<br>- Calcite and some silica filled amygdules increase down hole<br>- Also commonly plag. phyrlic with plagioclase altered to sericite<br>- 1554 - 1598 - rock is more massive and only locally fragmental - flow? also only rarely amygdoidal from 1598' and down, becomes gradationally less altered and more amygdoidal<br>- Pyroxene phenocrysts below 620' - more massive basalt flow | Some hematitic alteration down to 1440. Patchy sericitic and chloritic alteration - black chlorite on fractures and locally throughout - less alteration below 1505<br><br>overall alteration is not strong | 1448 - 1484 moderate alteration to 1% Py. stockwork Pb-Zn - cpy, best about 1" @ $\approx 1458'$<br>1484 - 1505 moderate alteration - some network black chlorite - local stockwork Pb-Zn, Cu (short zones) overall to 1% <1% Pyrite throughout<br>1583 - 1584 - fragmental with grains or disseminations of Pb-Zn and altered Pyritic clasts - narrow debris flow or local alteration<br><br>@ 1576 - some Pb-Zn stockwork mineralization with quartz - looks like it was moved but host rock is the same |
|                   | 1688' - E.O.H. -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

HOLE NO. 1582