Northeast Thelon Compilation Report to Baker Lake, Chesterfield Inlet and Rankin Inlet

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Strategy: Compile knowledge, fill gaps by new geoscience surveys, and build new maps for all or parts of 56D-E, 66A, B, C, F, G & H; to help stakeholders make decisions on mineral resource development.

2009, July 3 to August 30 activities:

- A field trip July 3-17 using helicopter from Baker Lake involved 3 GSC + 6 university + 9 industry + 1 DIAND geologists, transferred knowledge and decided research priorities.
- An airborne geophysical survey from July 15 to August 30 based in Baker Lake with no other touch downs filled data gaps between existing data sets shared by an 8-company consortium.
- Licenses were: NRI # 0301809N-M and KIA # KVL109B392.

2010, July 3 to September 4 activities:

- Main field work by 17 researchers from GSC and 5 universities: Carleton (Ottawa), McMaster (Hamilton), New Brunswick (Fredericton), Queens (Kingston), and Regina.
- A series of 2-3 person fly camps (a few tents) lasted 3 to 10 days in 7 different localities.
- Documented more than 2000 field stations with data and samples for gravity, magnetism, mineralogy, structure and geochemistry to help resolve three dimensional geoscience unknowns.
- The new data amplify summaries presented in posters and Power Points at communities, Nunavut Mining Symposium, and the Geological Association of Canada annual meeting in May (free GSC Open Files 6949, 6950 and 6962, Current Research papers by Tschirhart et al. and Peterson et al.; all published in 2011). 8 IOL subsurface land areas are covered by these studies.
- Jefferson met Hamlet Officials, HTOs & schools in Baker L., Chesterfield & Rankin inlets.
- Drums of helicopter fuel were cached in 5 places shown on the map, in berms with spill kits (example photograph in map). Fly camps were removed with no trace.
- Permits and licenses in place until 2012: NRI # 0301809N-M, KIA # KVL109B392, NWB # 3BC-NTC1012, INAC LUP# N2010N0013

2011, June 29 to August 14 activities:

- Final field work by 14 researchers from GSC and 4 universities: U of Ottawa, McMaster Hamilton, New Brunswick and Regina. Reports and maps are in preparation for 2011-2013.
- Most flying was from Baker Lake; four 2-10 person fly camps focused on 4 detailed areas.
- Documented >2000 more field stations with data and samples for gravity, magnetism, mineralogy, structure and geochemistry to test and expand 3-D geoscience hypotheses.
- Fly camps were removed with no trace and fuel berms removed or being sold as shown on map.

Scientific Results:

Multiple layered sequences of 2.7-2.0 billion year old (BY) volcanic, sedimentary and granitoid rocks were folded and refolded >4 times before being fractured in many other directions. Various intrusive and volcanic rocks cut and covered those older rocks at 1.83 and 1.75 BY. Volcanic and conglomeratic sandstone covered some of the above in a succession of pull-apart basins from 1.83 to 1.54 BY. Gold deposits are associated with deposition and folding of iron formation. Uranium deposits developed under the Thelon Formation sandstone where the older rocks were being fractured and altered by hot salty water at about 1.6 BY. Digital and paper maps and reports by the researchers will document new framework knowledge for prospective rock units, faults and folds.

2010-12 Logistics: Northeast Thelon Compilation Project, Geomapping for Energy and Minerals

66G 66H 56E

66B 66A 56D

Deep Rose Lake
Umiujalik Lake
A 3
A 2
A 1
Amer L.
A 6 not used
Sand Lake
Naujatuuq Lake
A 5 done from Itza L.
Sahara
Itza Lake
A 4
Meadowbank R.
417 L.
W 1 (Ukalik & Nipterk)
Meadowbank gold mine
65° N
Tehek Lake
Schultz Lake
Thelon River
Beverly Lake
Qamanaarjuk Lake
W 2 done from Baker Lake
Whitehills Lake
Aberdeen Lake
Island camp
Pork Chop L.
W 3
Arrowhead
Kiggavik
Siamese Lake
Square Lake
E.Aberdeen
Sleek L.
Bong
W 4 done from Kiggavik
Sleek
End Grid
Tatiggaq
Andrew L.
Jane
Judge Sissons L.
SW-37
Qavvik
W 5 done from Arrowhead
Thom Lake
Baker Lake
Long Lake
Thelon Game Sanctuary
Marjorie Lake
100° W
99° W
98° W
97° W
96° W
NAD 83, UTM Zone 14
Kilometers
0 6 12 18 24 30
Fly camp: completed, unused (A = Amer, W = Woodburn)
U occurrence, deposit
This rectangle: Mallery L. granite study: 63°50'N / 98°20'W
Sahara
Fuel cache: active, removed / for sale
IOL: surface, subsurface respectively
Natural Resources Canada
Ressources naturelles Canada
Canada