Introduction to Prospecting

Session Five – Prospecting
Prospecting

The first step in mineral exploration... is research.

- Research
- Supplies
- Start Walking
- Take Samples & Notes

Record it!
Research Resources

• Read previous Assessment reports.
• They may outline a mineral trend that could help you select a target.
• All requirements for writing an assessment report can be found in the *Assessment Report Handbook – A Guide to Writing Assessment Reports for Mineral Claims on Crown Land in Nunavut*, released in 2005 through INAC.
Government Maps & Reports

• Government maps provide all kinds of data pertaining to not only geology, but all research throughout Nunavut.
• Companies’ websites may contain maps, reports, highlighted assay results, etc.
Annual Mining Reviews

- Describe all exploration and production projects from the previous year (summary)
- Comes out every January
- Can be found at: [http://cngo.ca/exploration-overview/](http://cngo.ca/exploration-overview/)
The Nunavut Map Viewer is an online tool updating changes to land tenure in Nunavut.

All claims in Nunavut can be found, including who owns them and their expiry dates.

If the Viewer is down or unreachable, the INAC Mining Recorder can be reached at (867)-975-4275.
Nunavut Geoscience is an online resource which gives access to geological, mineral and assessment information in Nunavut.

Nunavut Minerals (NUMIN) is a database which contains all company assessment reports completed in Nunavut, which have passed their confidentiality period.
Equipment

- Rock Hammer
- Field Notebook (Rite-in-the-rain)
- Compass
- GPS & any maps you might have
- Hand Lens
- Sample Bags
- Sample Tags
- Camera
- Your research...!
- Claim tags & stakes (you never know...)
- Pens and/or pencils
Global Positioning System

- A GPS uses satellite connections to pinpoint your location on the planet.
- The most common (and modern) coordinate system is the Universal Transverse Mercator (UTM) grid.
Global Positioning System

Baker Lake (Zone 14W)
Global Positioning System

Instead of latitude & longitude, most people set their GPS coordinate system to UTM. These coordinates are displayed as ‘easings’ and ‘nortings’.

14 W  641,829 mE  7,134,948 mN
GPS

- To be effective, a GPS must acquire as many satellite signals as possible.
- ±3 m is a typical margin of error for a standard GPS.
- A GPS is not a substitute for a map & compass, or overall good navigational skill.
- Very useful in areas of high magnetite or iron bearing rocks.
Waypoints are used to mark sample locations, locations of photos, topographic markers and areas of interest.

Can also be used to accurately outline your property or staked claim.

Write down your waypoints.

Can manually enter waypoints from a map where you may have outlined an area you wish to prospect, or found in an old report.

Re-name your waypoints accordingly.

Tracks are used to track where you’ve been.

Should be saved every day on your computer – Basically a record of your day to day activity, which will help with your final report.
Tips & Tricks

How to take a picture in the field!

• Essential elements in your picture *must* include:
  • Scale
  • Clarity
  • No shadow
Tips & Tricks

What’s wrong with this picture?
Tips & Tricks

Any *common* item can be used for scale. such as a scale card, your hammer, a compass or a pen.
Map & Compass

- Topographic maps show the topography and physical features of an area.
- Map coordinates are given in latitude/longitude and UTM NAD83.
- Common map scales range from 1:50,000 to 1:250,000.

Map Scale
- The scale on a map allows you to measure a distance on a map and translate it to a physical distance on the ground.

Map Legend
- All features on a map are represented by symbols.
- Symbols are organized into a legend, which is typically shown on the bottom or right side of a map.
- Pretty straightforward.
**Contour Lines**

- Contour lines represent the elevation.
- Lines are typically spaced at a set difference in elevation from each other.
- The closer the lines, the steeper the terrain; the further apart, the flatter.
- ‘Index’ lines to indicated your elevation above mean sea level (ASL).
National Topographic System (NTS)

- NTS Sheets cover the entire country.
- Topographic maps are available for every square meter of Canada.
- Combined with UTM coordinates, NTS are essential for locating your property.
- PDFs of topo maps can be found free on Geogratis.
National Topographic System (NTS)

- Regional areas are represented by numbers. Each regional area is separated into a ‘lettered’ area.
- Each letter contains max 16 sub-areas.

Baker Lake is within NTS 66/A08.
**Topographic Maps**

- Several tools needed to interpret a topo map, but they’re all on the map itself!
Area and scale
NTS sheet
UTM Zone
Coordinates

UTM Coordinates

Lat/Long Coordinates

Prospecting
Magnetic Declination

- Earth has two *stationary* poles – North and South. They are called geographic poles.
- Earth has also two *magnetic* poles – North and South, but they wander.
- Topographic and geologic maps give a *magnetic declination* to compensate for the change in Earth’s magnetic field.
- Map lines are oriented to *true north* (i.e. the stationary poles).
- A *magnetic declination* is given so your compass can be adjusted to *magnetic north*.
- This is especially important in the North.
Magnetic Declination

- The physical difference between geographic North and magnetic North.

- The magnetic field is created by the Earth’s solid and liquid iron core – magnetic dynamo.

- The core is constantly in flux, therefore the poles are constantly on the move.
The Earth’s dynamo is in such a state of flux, that the magnetic poles periodically reverse themselves.
Map & Compass

Magnetic Declination

- Natural Resources Canada (NRCan) has an accurate magnetic declination calculator online. ([http://geomag.nrcan.gc.ca/calc/mdcal-en.php](http://geomag.nrcan.gc.ca/calc/mdcal-en.php))

- Always adjust your compass!
Map & Compass

*Magnetic Declination*

- All compasses will have a dial to compensate for the magnetic declination for your area.
Sampling

Taking Samples

• Sampling is essentially the reason why you’re prospecting.
• Having samples analyzed tells you whether you have anything worthwhile on your project.
• Most common form of sampling while prospecting is simply grab sampling.
• In situ vs. float from yesterday.
• Organization of your samples is key!
• What you’ll need:
  • Sample bags
  • Sample tags
  • Tie straps
  • A marker
Sending your samples for analysis

- Each sample you take must:
  1. Be labeled (year, initial, project name, sample number eg) 2018-AC-NG-01
  2. Described following the sample sheet standard
  3. Its location must be recorded in both your GPS and notebook.
  4. Properly packed in a sample bag.
- The assay lab must be able to interpret your organization to ensure each sample is analyzed properly.
Sending your samples for analysis

- Once your samples are collected and organized, you send them to an assay laboratory.
- An assay lab will analyze your sample for whatever you ask for.
Assay Reports

- You will get a paper and/or digital report with results from each sample.
- You can then match up any samples with promising results to their locations on a map.
- Begin to outline mineralization!
Claim Staking

*Staking a Claim*

- Staking a mineral claim in Nunavut gives you exclusive rights to explore in a certain area.
- Assessment reports are *required* for a staked claim, and work must be completed each year in order to keep that claim.
- All staking forms, report assessments and permitting are handled by INAC.
• Stake your claim.
Claim Staking

How to Stake a Claim

• There are a whole set of regulations for staking a claim.
• A single claim must not exceed 1,250 hectares.
  • A 500 m x 500 m block is referred to as a unit.
• 1 hectare = 10,000 m²
• The boundaries must be in multiples of 500 m.
• Claims require three types of posts.
  • Corner posts.
  • Boundary posts.
  • Witness posts.
• Corner posts must be staked in order, starting with the northeast corner and proceeding clockwise.
• Boundary posts must be set up every 500 m, and must be numbered sequentially in the same clockwise direction. Reset numbers after each corner post.
• Witness posts are used when there is an obstruction.
• Boundary posts must be marked (no tag necessary) with NBP, SPB, EBP, WBP.
CLAIMS
SIZE, BOUNDARIES AND MARKING OF A CLAIM
23. (1) The area of a claim must not exceed 1250 hectares, and must not include any lands referred to in section 5.

(2) Every claim must, as nearly as possible, meet all of the following specifications:

(a) it is rectangular in shape;
(b) its boundaries run north, south, east and west astronomically;
(c) the length of each boundary is 500 metres or a multiple of 500 metres;
(d) the length of the longest boundary is not more than five times the length of the shortest.

24. (1) On payment of the applicable fee set out in Schedule 1, the Mining Recorder must issue a set of four identification tags, with the following inscriptions, for use in identifying the corners of a claim — “NE 1” for the northeast corner, “SE 2” for the southeast corner, “SW 3” for the southwest corner and “NW 4” for the northwest corner.

(2) On payment of the applicable fee set out in Schedule 1, the Mining Recorder must issue a set of four reduced-area tags for use in marking the corners of a reduced-area claim referred to in section 52.

(3) Each identification tag in a set must contain a unique identification number for the set.
Map Selection Staking

- Map staking is in the process of ‘staking ground’ online instead of physically on the land.
- Stay tuned.. It will happened in a few years.
Reporting

Assessment (Work) Reports

- All your work leads up to a report.
- Most prospecting reports can be filed as *Simplified Reports* (for projects costing under $20,000).
- Certain criteria are **necessary** for a report to be approved.
Reporting

Assessment (Work) Reports

- Review the Nunavut Mining Regulations, specifically concerning *Simplified Reports*, which outline the requirements of an assessment report for projects under $20,000.
Nunavut Prospectors Program

- NPP Funding designed to assist with the financial burden of prospecting in Nunavut.
- Guidebook is a good resource to get yourself started with prospecting, as well as contacts for other offices (i.e. other GN offices, AANDC, etc.), assay laboratories and useful websites.
- Resident Geologists are here to help, even if you’re not involved in the program – Call with any questions!
Nunavut Prospectors Program

NPP Funding

• The NPP grant application is required to receive any financial help for your work.
• The more information provided, the easier the process.
• Must be a registered prospector with a license.
• Must be over 18 years of age and a Nunavut resident.
• Grants are awarded in two instalments;
  • Initial payment up to 75% of total amount awarded.
  • Final payment is the remainder, pending a final report from you!
Nunavut Prospectors Program

NPP Funding

- The funding includes financial assistance for food, equipment, sample assays and assistant wages.
- Food can be bought for your program, up to $40/person/day.
- You can pay an assistant up to $100/day for 30 days, however you cannot pay yourself wages.
- Reports filed for your work are kept confidential for a period of 3 years from being received by the GN.
- All expenses must be accounted for, so keep your receipts, even if you’re not sure you need them!
Nunavut Prospectors Program

**NPP Funding**

- Precise project location will help determine amount of financial aid to be granted.
- Details including the commodity you’re prospecting for will help Resident Geologists assist you with your project.
- If no final report is submitted, **you are required to return the grant to the GN.**
- Any money that goes unused **must be returned to the GN.**
Nunavut Prospectors Program

**NPP Guidelines**

- The Department will have an updated set of Guidelines to help you through the process of the NPP.
- As well as a guide for the NPP, the Guidelines contain basic geology information, a sample Final Report and other useful information.
- The Guidelines also contain contact information for the GN, regional Inuit associations and assay laboratories.
- Useful websites are also listed to help with your research, such as the GN Assessment Report Database and AANDC.
What Did We Learn…?

- Resources for Prospecting
- Supplies for Prospecting
- Mineralization
- How to Take a Picture
- Map & Compass
- Taking Samples
- Staking A Claim
- Reporting

TOMORROW: FIELD DAY!!!