

## Field Report -Pebble Copper/Gold Exploration Project-

Personnel: Patricia Bettis (ADNR/MLW) and  
Jeff Estensen (ADNR/OHMP)

Site Visit Date: September 6, 2007

APMA No.: A076118

**Inspection Type**

- Complete:
- Partial:
- Follow-up:
- Response to complaint:

**Weather Conditions**

- Temperature: **Approx 50-55 F**
- Wind: **S 15 kts**
- Precipitation and types: **None**
- Visibility: **> 10 miles**
- Sky Conditions: **100 % overcast 1000 feet**
- Ground conditions: **Damp**

**Wildlife Observed**

- Bear:
- Caribou:
- Moose:
- Waterfowl:
- Fish:
- Other: **Raven, numerous unidentifiable birds**

**Water level Frying Pan Lake**

- Observed inflow: Yes  X  No \_\_\_\_
- Observed outflow: Yes  X  No \_\_\_\_

**Comments:**

Small lakes around Iliamna were observed to be dry or had noticeable low water levels.

**Recommendations:**

- Provide NDM with a name list and photographs of all agency personnel who will be taking part in the state site inspections. Included in this list should be personnel professional expertise and experience in or around mining operations. This would help NDM staff with safety training and make monitoring visits go more smoothly.
- Prior to visits, request from NDM to provide monitoring staff with updated operations map for the Pebble exploration projects. Also, inform monitoring staff of any new developments or changes in operational plans.

**Actions Needed:**

- Establish a permanent benchmark elevation for monitoring recharge of unnamed pond located within NE $\frac{1}{4}$ NE $\frac{1}{4}$  Section 27, Township 3 South, Range 35 West, Seward Meridian. Pond was water source for several rigs including rig no. 6, (see location map and figure 3).

Well/Site No.: Not Numbered

Activity: Rigging Up

Rig: No. 5

Date: September 6, 2007

Condition of Drilling Site

- Distance from water body: **125 ft.**
- Location of fuel storage: **On pad.**
- Sorbent Pads Present or Not: **NA**
- Tundra Mat: **Yes**
- Pipe off Tundra: **Yes**
- Litter: **None**
- Activity: **Rigging up**
- Trash Containment:
- Sanitary Facilities:
- Any spills or staining, or 'none' for that matter:  
**None**
- General impression of site: **Clean. No disturbance to tundra other than sump pit and trench.**

Drilling Activity

- Drill additives in use (list): **NA**
- Water discharged: **NA**
- Water recirculation: **NA**
- Artesian zone encountered: **NA**

Sump Pit

- Location: **Next to rig.**
- Discharge trench: **Yes. Approx 6 inches deep and 10 inches wide, measured 54 ft from platform to sump pit (Figure 1).**
- Dimension pit: **Max 6 feet in depth, 2 to 5 feet in width.**
- In use: **No.**

Sump Pit Cont'd

- Location and extent of discharged material?
- Topsoil, muck, tundra stockpiled: **Yes**
- Location of secondary sump pit:
- Hose color:

Drill Water Supply

- Stream/Lake/Pond: **Kettle Pond (Figure 2)**
- Location: **SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> and NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> Sec. 27, T3S, R35W, S.M. (see location map)**
- Adequate water flow and depth for fish passage in streams? **NA**
- Evidence of significant impacts to riparian vegetation or stream banks? **There was no sign of drawdown from water use from this lake. No impact to stream bank observed.**
- Relative water level? **High.**
- General impression of water body, i.e. clear, turbid, tannic colored, etc.? **Good. Clear waters in shallow portions of lake. No indication of pollution or sedimentation.**
- Intake structure: **Not set up yet.**
- Structure clear of debris: **NA**
- Mesh size: **N/A**
- Submerged: **NA**
- Pump location to source: **Not set up**
- Catch basin for fuel supply: **NA**
- Sorbent Pads Present or Not: **NA**
- Hose color: **NA**

Well/Site No.: 7374

Activity: Drilling

Rig: No. 4

Date.: September 6, 2007

- Condition of Drilling Site**
  - Distance from water body: **125 ft.**
  - Location of fuel storage: **On pad.**
  - Sorbent Pads Present or Not: **Yes**
  - Tundra Mat: **Yes**
  - Pipe off Tundra: **Yes**
  - Litter: **None**
  - Trash Containment: **Yes**
  - Sanitary Facilities: **Yes**
  - Any spills or staining, or 'none' for that matter: **None**
  - General impression of site: **Clean. No disturbance to tundra other than sump pit and trench. Over flow water (clean) discharged directly to tundra.**
- Drilling Activity**
  - Drill additives in use (list): **Unknown**
  - Drill water discharged: **Yes to sump system.**
  - Water recirculation: **No**
  - Artesian zone encountered: **Unknown**
- Sump Pit**
  - Location: **Down slope of rig to the south.**
  - Discharge trench: **Yes. Approx 6 inches deep and 10 inches wide.**
  - Dimension pit: **Not measured.**
  - In use: **Yes.**
  - Location and extent of discharged material?
- Sump Pit Cont'd**
  - Evidence that the settling sump pit had overflowed (Figure 3).**
  - Topsoil, muck, tundra stockpiled: **Yes**
  - Location of secondary sump pit: **NA**
  - Hose color: **NA**
- Drill Water Supply**
  - Stream/Lake/Pond: **Kettle Pond (Figure 2)**
  - Location: **SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> and NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> Sec. 27, T3S, R35W, S.M. (see location map)**
  - Adequate water flow and depth for fish passage in streams? **NA**
  - Evidence of significant impacts to riparian vegetation or stream banks? **No impact to stream bank observed.**
  - Relative water level? **High. No sign of drawdown from water use from this lake.**
  - General impression of water body, i.e. clear, turbid, tannic colored, etc.? **Good. Clear waters observed. No indication of pollution or sedimentation.**
  - Intake structure: **In use. Intake cover box missing, (Figure 4). However, it was quickly covered when staff was made privy of it.**
  - Structure clear of debris: **Yes.**
  - Mesh size: **0.25 inches**
  - Submerged: **Yes.**
  - Pump location to source: **Approx. 50 feet.**
  - Catch basin for fuel supply: **Yes.**
  - Sorbent Pads Present or Not: **Yes.**
  - Hose color: **Yellow**

Well/Site No.: 7376

Activity: Standby waiting to abandon

Rig: No. 6

Date: September 6, 2007

Condition of Drilling Site

- Distance from water body: **approx 230 ft.**
- Location of fuel storage: **On pad.**
- Sorbent Pads Present or Not: **Yes**
- Tundra Mat: **Yes**
- Pipe off Tundra: **Discarded pipes on tundra.**
- Litter: **Present**
- Spill Indications: **None**
- Trash Containment: **Yes**
- Sanitary Facilities: **Yes**
- Any spills or staining, or 'none' for that matter: **None.**
- General impression of site: **No disturbance to tundra other than sump pit and trench. Water source significantly drawn down.**

Drilling Activity

- Drill additives in use (list): **NA**
- Drill water discharged: **NA**
- Water recirculation: **NA**
- Artesian zone encountered: **Unknown**

Sump Pit

- Location: **Directly east of rig.**
- Discharge trench: **Yes. Approx 6 inches deep and 10 inches wide.**
- Dimension pit: **Not measured.**
- In use: **No**
- Location and extent of discharged material? **Discharged contained to pit and secondary pit.**

Sump Pit Cont'd

- Topsoil, muck, tundra stockpiled: **Yes**
- Location of secondary sump pit: **To the southwest.**
- Hose color: **White.**

Drill Water Supply

- Stream/Lake/Pond: **Kettle Pond (Figure 5)**
- Location: **NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> Sec. 27, T3S, R35W, S.M. (see location map)**
- Adequate water flow and depth for fish passage in streams? **NA**
- Evidence of significant impacts to riparian vegetation or stream banks? **No impact to stream bank observed.**
- Relative water level? **Significant drawdown of surface water elevation level observed.**
- General impression of water body, i.e. clear, turbid, tannic colored, etc.? **No indication of pollution or sedimentation.**
- Intake structure: **Still in place.**
- Structure clear of debris: **NA**
- Mesh size: **NA**
- Submerged: **Yes.**
- Pump location to source: **< 50 feet**
- Catch basin for fuel supply: **Yes**
- Sorbent Pads Present or Not: **Yes**
- Hose color: **Yellow**

**Abandoned Drill Site No.: 7368**

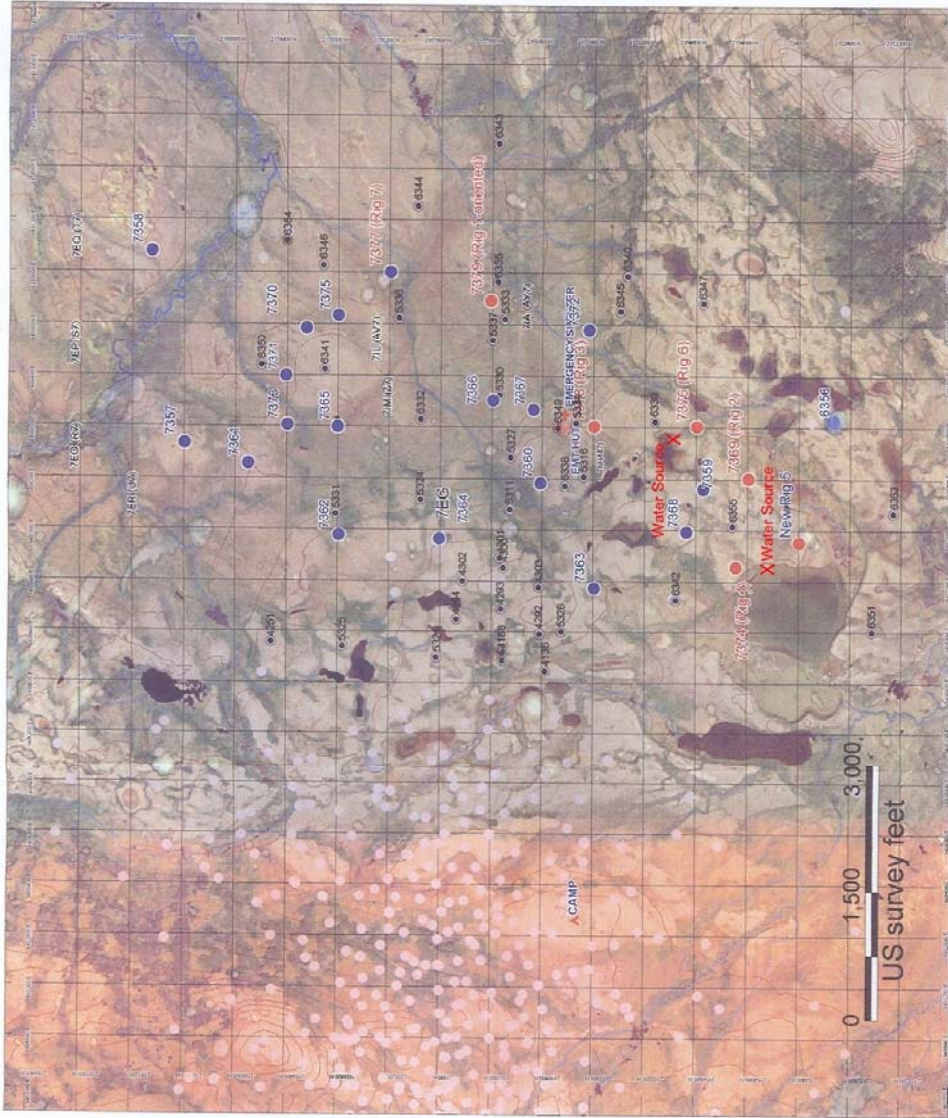
**Date: September 6, 2007**

- Plugged: **Yes.**
- Cemented: **Unknown.**
- Standing pipe: **No. Wooden stake marked the location.**
- Sump pit filled in: **Not used. Drilling water discharge was on tundra (prior to change in operation that required sump pit use).**
- Water discharge trench filled in: **Yes.**
- Site re-vegetated: **No.**
- Artesian water present: **No.**
- Any spills or staining, or 'none': **None observed.**
- Comments: **Reclaimed site (RCS) 7368 had a more visible footprint with bare soil observed, (Figure 6). However, there was indication of reclamation work in progress.**

**Abandoned Drill Site No.: 6355**

**Date: September 6, 2007**

- Plugged: **Yes.**
- Cemented: **Unknown.**
- Standing pipe: **No, wooden stake marked location site.**
- Sump filled in: **Not used. Drilling water discharge was on tundra (prior to change in operation that required sump pit use).**
- Water discharge trench filled in: **Yes.**
- Site re-vegetated: **Yes.**
- Artesian water present: **No.**
- Any spills or staining, or 'none': **None observed.**
- Comments: **The site footprint was slightly visible (Figure 7) and re-vegetation was evident (Figure 8).**



- Current DDH
- Completed DDH
- ✚ EMT - MEDPORT
- ▲ CAMP

**Pebble Project**  
 NORTHERN DYNASTY MINES INC.

Date:	September 05, 2007
Author:	BBB
Office:	Seattle, WA
Scale:	1:5000

Pebble Drillhole Locations

Projection: Alaska Albers, Units: UTM, Datum: NAD 83, Spheroid: GRS 1912, US Survey Feet  
 File Path: \\Pebble\GIS\MapDocs\090507\090507.dwg



Figure 1. Rig no. 5 on new site. Trench leads from rig to sump pit.



Figure 2. Water source for drill site no. 7374 and for rig no. 5 new drill site.  
Note pumping station for the water in the foreground. Rig no. 5 visible in the left background.





Figure 3. Signs of sump overflow on drill site no. 7374.



Figure 4. Water intake structure for drill site no. 7374 and for rig no. 5 new drill site.  
Note cover missing on intake box.



Figure 5. Water source for drill site no. 7376, note the low water level.

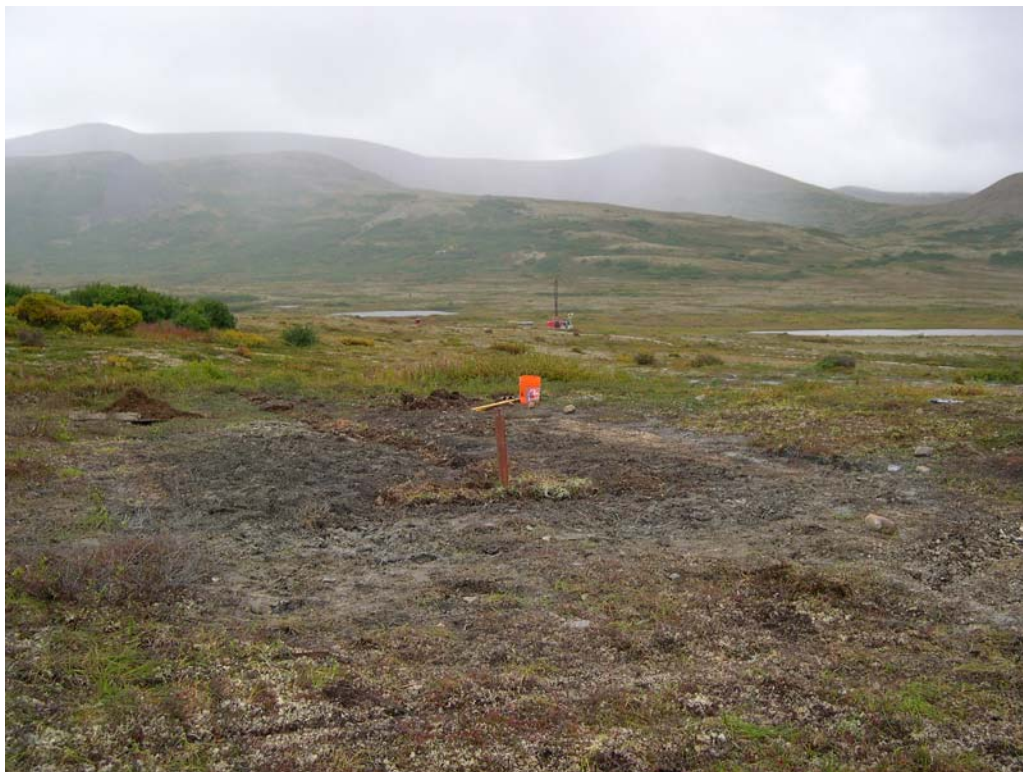


Figure 6. Reclamation site 7368.



Figure 7. Reclamation Site no. 6355.



Figure 8. Reclamation site 6355 showing revegetation.