

REGISTRATION PURSUANT TO PART X OF THE ENVIRONMENTAL PROTECTION ACT

FREEPORT RESOURCES INC. SOUTH BEACH BULK SAMPLING (GARNET SAND) HUTTON GARNET BEACHES LABRADOR (14M/12)

MARCH 29, 2010

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ENVIRONMENTAL ASSESSMENT

REGISTRATION

March 29, 2010

1.0 THE UNDERTAKING

South Beach Bulk Sampling (Garnet Sand) Hutton Garnet Beaches, Labrador (NTS 14M/12, Iron Strand)

2.0 **PROPONENT**

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3.0 THE UNDERTAKING

3.1 Nature of the Undertaking

Introduction

The Hutton Garnet Beaches mineral exploration project is at an advanced stage and information is now being collected for the Feasibility Study. The deposits have unusually high concentrations of high quality industrial garnet naturally suitable for abrasive waterjet cutting. Environmental studies have been conducted (or logs kept) as part of fieldwork activities in 2000, 2001, 2004, 2005, and 2006, summarized in an Environmental Overview Report (2006). The Prefeasibility Report and Marketing Summary provides a project overview, at http://www.freeportresources.com/i/pdf/Library/Hutton/PRMS2004.pdf.

2010 Bulk Sampling

Freeport Resources Inc. proposes to collect a bulk sample of up to 2150 cubic metres of unconsolidated garnet sand from the surface of the South Beach deposit. The site of the proposed undertaking is located approximately 350 kilometres north of Nain, Labrador. Access to the site is by boat. No construction is required. The operation will consist of removal of sand for testing and to make garnet concentrates at an off-site processing facility. This project will be weather dependent, with bulk sampling scheduled to begin from mid July 2010, over a period of one to two weeks.

In summer 2009, a 2150 cubic metre bulk sample was approved at South Beach, but deferred to 2010 due to lack of available barges on short notice. On resubmission, project registration was required under the Environment Protection Act (SNL 2002, cE-14.2) due to extraction of more than 1000 cubic metres, although work is limited to the surface and will not result in a "tunnel, shaft, portal or cavern" (Environmental Assessment Regulations 35.(4)(j)).

The South Beach bulk sampling will have minimal environmental impact due to many factors, including:

- Short on-site work duration (1 to 2 weeks)
- Limited equipment (2-3 small to mid-size loaders)
- Small crew (about 17-20 people)
- No infrastructure (tug and barge as self-contained base camp)
- No stripping (garnet sand is a surface deposit)
- No chemicals or explosives are needed
- No disturbance of vegetation (sampling restricted to vegetation-free areas)
- Limited surface disturbance due to shallow sampling of high grade deposit

The bulk sampling at South Beach has been planned to minimize impacts on site aesthetics, fish habitat, and archaeological sites. It will take place between the high tide and dune line, where virtually no vegetation exists. The sand will be removed in shallow layers to a maximum depth of about 30 cm (12 inches), over about 0.7 hectares -- less than 5% of the total area of the beach. This approach will preserve its overall site contours and appearance. There is minimal possibility of sedimentation and negative impact on fish, because the garnet sand has very few fine particles (silt and clay size), the topography is essentially flat, and a 75m setback along the Helga River will be observed. A Historic Resources Impact Assessment Study (Stage 1) completed in 2007 identified existing historic resources and confirmed that work on the garnet beaches will not impact archaeological sites.

The bulk sampling includes site documentation ('before and after' bulk sampling) as well as follow-up monitoring. Field and environmental data related to the site, tides and weather will also be collected. All sample processing will be done at a commercial facility off site.

3.2 *Purpose/Rationale/Need for the Undertaking:*

The purpose of this project is to confirm logistics for commercial scale production. The bulk sampling is part of a mineral exploration program to more completely delineate the garnet deposits, fine-tune the processing method, further develop garnet products, and finalize the off-site pilot plant design. Information derived from the bulk sampling project will be used to complete the Feasibility Study.

4.0 DESCRIPTION OF THE UNDERTAKING

4.1 Geographical Location:

The Hutton garnet deposits are located about 350 kilometres north of Nain in a remote, uninhabited area of the Labrador coast, just south of Ryans Bay. The nearest community in Quebec is Kanqisualujjuaq (George River), about an hour by helicopter to the west. The proposed bulk sample will be collected at South Beach, on Mineral Licence 14541M, on Map sheet 14M/12 (see Maps 1, 2 & 3). There is no infrastructure at the site. The bulk sampling site is about 600 metres east of the border of the Torngat Mountains National Park. The mineral claims extend about two kilometres offshore, bounded by the Labrador Sea.



4.2 Physical Features:

4.2.1 Project Site Description

The site of the bulk sampling activity is a sandy beach exposed to wave action during storms and pack ice during winter. The site is accessible by boat or helicopter. To minimize physical and biological disturbance, the beach sand will be sampled to a depth of about 30 cm (12 inches) in non-vegetated areas seaward of the dunes. The 2010 work will not have a lasting visual impact; natural processes will quickly erase any remaining traces of work after the area has been recontoured to its approximate original profile at the end of the sampling activity. Follow-up site monitoring will be undertaken.



Map 2. Proposed Area of Interest, South Beach (14M/12)

Environmental Assessment - Registration Document Proposed Mineral Exploration, Hutton Garnet Beaches Freeport Resources Inc. March 2010 <u>Topography</u>: The site is composed of several flat-lying 'bayhead' beaches, where sand collects naturally between rocky headlands that project out into the ocean. South Beach has a surface area of exposed sand of approximately 185,000 square metres (18.5 hectares, or 46 acres), established by legal survey, while North Beach is approximately 1.6 times larger. Elevation at South Beach ranges between 0 m to 3 metres between the high water line and the dunes. A bedrock hill over 90 metres high separates the two beaches, with coastal mountains typically located several kilometres inland.

<u>Beach Formation</u>: The garnet beaches overlay a foundation of cobbles and boulders which impart structural stability. A large, shallow offshore garnet-rich deposit is the source of the sand. Wave action and currents transport sand to shore, with heavy particles (garnet) remaining while light particles (quartz and feldspar) are swept away. A recent report on the origin and conditions of the Hutton Beaches by Dr. Catto, a well-known beach geomorphologist, notes "Removal of sand from the active parts of the beach systems (forebeach) will have the least overall visual impact, as influx of sediment from the ocean will rebuild the beach and quickly erase all traces of work."

<u>*Water Bodies:*</u> Water bodies nearest the bulk sample site are the Labrador Sea, the Helga River, and several shallow wash-over areas which are sometimes partly dry in summer. To minimize any possible impact, no sampling with mechanized equipment will occur within 75 metres of the Helga River or below the high tide line. Miriam Lake is inland about 600 metres behind the bulk sampling area.

4.2.2 Existing Biophysical Environment

The proposed site is within the Alpine Tundra Ecoregion, described on-line at as http://www.env.gov.nl.ca/parks/library/pdf/Ecoregions/Lab_2_alpine_tundra.pdf. An Environmental Overview Report (2006) summarizes on-site reviews of the terrain types, topography, soils, and vegetation, terrestrial and aquatic habitats near South Beach. It includes a plant identification study of samples collected at the site, classified by shore, riparian or upland locations. Although very few animals have been seen at the site, wildlife species (and signs) encountered have been logged. The report recommended development of a comprehensive Environmental Protection Plan (EPP) to minimize disturbance to non-beach areas, protect freshwater resources and fish habitat, protect wildlife and historic resources, and prevent pollution and unnecessary environmental disturbances. An EPP has been used for all work at the site since 2005. The EPP approved for work in 2009 has been updated to apply to the 2010 program and submitted as part of the 2010 permit applications. Minimizing adverse environmental effects is possible with proper planning and application of standard practices and environmental protection measures.

<u>Vegetation</u>: The region is north of the tree-line and characterized by low-growing plants and shrubs. The backshore consists of a large, flat glacial outwash plain with low plants extending several kilometres inland. The sampling area is a sandy beach immediately adjacent to the ocean, with minimal impact on plant life expected.

<u>Wildlife Species</u>: The sandy foreshore areas are exposed to the ocean and subjected to harsh conditions, and are not considered critical habitat for any species. North and South Beach are in fairly close proximity, with similar conditions over a combined shoreline length of several kilometres. The short duration and limited scope of activities will minimize impact on wildlife.

<u>Mammals</u>: A number of mammal species occur in the area, such as polar bear, caribou, wolf, and small mammals such as arctic fox, red fox, arctic hare, and lemming. Marine mammals such as whale and seal occur. Several approved polar bear monitors will be part of the crew to address issues related to bears. Garbage and cooking will be limited to onboard the tug/barge so as to not attract bears to the site, with specific provisions included in the EPP.

Fish: Freshwater fish reported in the ecoregion include Arctic char, three-spine stickleback and ninespine stickleback. Atlantic salmon occurs occasionally and brook trout is rare. The proposed bulk sampling will not take place within a 75m buffer zone along the Helga River. It is important to note that the sandy area flanking the Helga is essentially flat and not prone to erosion, and the garnet sand itself has no fine sediment harmful to fish.

<u>Birds</u>: Based on incidental records of species provided by Parks Canada staff, red-throated loons, Canada geese, semipalmated plovers, least sandpipers, and Lapland longspurs could be expected in the general area. Other possible species in the region include merganser, herring gull, 'partridge' (rock ptarmigan), rough-legged hawk, and common eider. Sightings of raptors such as Peregrine Falcon and Bald Eagle are rare. As the bulk sampling will take place along the exposed beach area, conflicts with nesting birds are expected to be unlikely. Birds choose more sheltered locations for nests, and if any nests are encountered, they will be avoided. The work will be conducted in mid to late summer, which is not a peak migrating season.

4.3 Construction:

The proposed 2010 bulk sampling work does not require any construction on site. No permanent or semipermanent structures, roads, or marine transport facilities are proposed or required.

4.4 Operation:

The site is located on tidewater. A tug and two barges will support the bulk sampling activities and act as a self-contained base camp. A small landing barge will be used as a portable dock, and removed at completion of the work. A second barge will be stationed in slightly deeper water. A work boat may be used to transport crew from tug to shore.

<u>Bulk Sampling</u>: The proposed bulk sample of about 2150 cubic metres represents 5000 tonnes @ 2.3 cubic metres/tonne of garnet sand. As the garnet deposit is on surface, with no top soil or overburden, no stripping is required. The sand will be removed from above the high tide line to a depth of about 30 cm (12") below surface. This will preserve the general beach contours and appearance while minimizing disturbance. If need be, sampling areas will be re-contoured by smoothing the sand with a loader bucket at the end of work. The project manager and geological support will monitor and document the site activities. The action of waves, wind, storms and winter pack ice will remove any remaining traces of work at the sampling site. Waves and currents will transport and deposit more garnet sand along the shore, replenishing the deposit.

The sample will be collected from an "area of interest", extending about 250 metres on either side of the barge landing location, from the high tide line to the dune line. An undisturbed 75 metres buffer will be maintained south of the Helga River (see Maps 1, 2 & 3). The "area of interest" is much larger than the sample area needed to avoid areas with cobbles, pebbles or barren sand lenses, to be delineated on-site prior to sampling. Within this zone, actual bulk sampling will extend over a total area of 7250 square metres, or about 0.7 hectares.

<u>Equipment Use</u>: For bulk sampling, two to three mid-size loaders with a 2.5 to 3 cubic yard bucket (1.9 to 2.28 cubic metres) will be selected from available rental models in summer 2010 (Cat 930H to 938H or equivalent). This size is often used in small-scale commercial construction, as they can be precisely controlled, are relatively compact and light, with fast cycle times. Wheel loaders are preferred to tracks as they leave less visual evidence and are more available. The loaders will travel back and forth across the sand, to and from the barge. No heavy equipment will be used below the high tide line.



Map 3. Schematic Bulk Sampling Plan, South Beach (14M/12)

Environmental Assessment - Registration Document Proposed Mineral Exploration, Hutton Garnet Beaches Freeport Resources Inc. March 2010 One to two small bobcats (Bobcat T300 or equivalent) may be used for geological sampling and test pits unrelated to the bulk sample. One to two ATV's may be used for bear monitoring.

An excavator will deploy a portable steel ramp from the barge and it will not be used for sampling. As is often done in remote locations, the landing barge will be brought close to shore at high tide and beached as the tide goes out. Portable steel ramps will be used to access shore above the high water mark. An excavator (Cat 330 or equivalent) will use slings to lift and slide the ramp onto the shore. The excavator will drive down the ramp, and secure the ramp with sand and bulk bags if needed to respond to actual site conditions. The reverse procedure will be undertaken to demobilize the ramp. Some barges have self-operating hydraulic or winched ramps which therefore would not require use of an excavator.

<u>Site Safety</u>: Site safety is a key consideration, to be ensured by the Project Manager and the Transportation Management Director (marine surveyor). Access to the sampling zone will be restricted to eliminate people-equipment conflicts in the work area.

4.4.1 Potential Sources of Pollutants during Operation

Potential sources of pollutants are mainly related to use of land-based and marine equipment, such as accidental spill of fuel, airborne emissions and noise.

Equipment will be fuelled on board the barge, with spill kits at the fuelling location. There will be no onsite bulk storage of fuel or oil. Petroleum products will be handled as per *Storage and Handling of Gasoline and Associated Products Regulations*. Bio-oil will be used in the hydraulic lines of the loaders to mitigate potential environmental issues in the unlikely event of a leak. Vehicles and mechanical equipment will be maintained in good working order to prevent leaks and spills.

Airborne emissions are mainly restricted to exhaust fumes during equipment use over a few days. Noise caused by loaders during sampling will similarly be limited. All equipment will have appropriate emission controls and mufflers operating properly to minimize noise. All vehicles will follow a designated project route, with regularly inspected exhaust systems.

Water from the tug will be used to supply the crew and activities. The barges will be clean and certified by the Marine Surveyor prior to mobilization. As customary, barges use sea water for ballast, which is pumped in and out of the cells to adjust draft (or depth of water a barge draws). No ballast water will be brought from outside -- only seawater from the site will be used as ballast water and discharged at the site.

The Environmental Protection Plan approved by Nunatsiavut Government and the Province of Newfoundland and Labrador in summer 2009 included extensive provisions to address issues related to marine access by tug and barge. All marine equipment will be certified by a marine surveyor or equivalent prior to mobilization to the site. All vessels, helicopters, and other mobile equipment will be in good mechanical order and maintained according to manufacturer's recommendations, with all legally required licences and certification, as will the operators.

Garbage produced during the sampling activities by the crew will be kept on board the tug or barge in animal-proof containers to prevent attracting wildlife. It will be brought back on the return trip and disposed of in a legal landfill or waste disposal facility with the permission of the operator in accordance with the Waste Material Disposal Act.

4.4.2 Potential Causes of Resource Conflicts

Most if not all of the potential resource conflicts can be addressed by advance knowledge and coordination. The site is over two days away from Nain by longliner, which naturally restricts site access and limits accidental encounters with other people. As the operation is small, remote, and limited to a few weeks in duration, it is unlikely to conflict with any other activities in the area.

<u>Access Approval Required</u>: As South beach is situated on a parcel of Labrador Inuit Land (LIL), any visitors require advance access approval from the Nunatsiavut Government. This significantly reduces possibility of conflicting uses, as site activities are known and scheduled in advance.

<u>Tourism Resource</u>: Parks Canada information at <u>www.pc.gc.ca</u> notes most Torngat Mountains National Park (TMNP) users visit the base camp, about 125 km (78 mi) south of the sampling site. All visitors entering TMNP must register with the park administration office, providing travel dates and a detailed itinerary. Visitors must also deregister on departure.

Over half of the visitors to the park attend by cruise ship (2008 Human Monitoring survey). Cruise ships must remain well off shore due to shallow ocean depths near the Hutton beaches. Charted shipping lanes are about 5 kilometres offshore, significantly reducing the possibility of conflict, particularly as the work is of very short duration.

4.5 Occupations:

A crew of about 17-20 people is needed to complete the bulk sampling, geological work, operate the tug and barges, and carry out baseline surveys. Tug and barge crew are engaged as part of a contract for marine transport. Site labourers, a minimum of 2 approved polar bear monitors, and cook are hired by Aivek Holdings, expediter on the project, from men and women in Nain and Labrador in general.

- Project Manager (0212)
 Transportation Management Director (0713)
- Ships' Captain/ Navigator (2273 Deck Officers, Water Transport)
 First Mate (2273)
 Mechanic (optional) (2273)
 Cook (6242)
 Environmental Specialists (4161 Researchers)
 Consulting Geologists (2113)
 Polar bear monitors (6651 guard, security)
 4 Equipment Operators (H8 loaders, bobcats)
 Other Trades Helpers and Labourers (H8 material handling)
- 1 Helicopter Pilot (2271 Air pilots)

Freeport Resources Inc. is an equal opportunity employer, committed to involvement by any qualified persons. Freeport's management team has many women, including the president/CEO, two directors and a project geologist. An aboriginal company with ownership by a Nunatsiavut beneficiary will hire appropriate field crew (i.e. site labourers, bear monitors, and cook) from available men and women in Labrador. Qualified specialists will be engaged as required.

4.6 **Project-Related Documents:**

Freeport Resources Inc. 2009-2010. Environmental Protection Plan, Hutton Garnet Beaches, Labrador. Freeport Resources Inc., Richmond, BC, Canada, 18 pages.

Gerry Penney Associates. 2007. Historic Resources Impact Assessment (Stage 1), Hutton Garnet Beaches, Iron Strand, Northern Labrador. Archaeological Research Permits 05.46 and NG06.02. Report for Freeport Resources Inc., Richmond, BC, Canada, 37 pages.

Minaskuat Limited Partnership, 2006. Hutton Garnet Beaches: 2005 Environmental Overview, Hutton Project, Northern Labrador for Freeport Resources Inc., Richmond, BC, Canada, 24 pages, including "Northern Labrador Plants, Hutton Project 2005", 42 page plant study.

Geological Reports:

Catto, N. 2003. Origin, Sediments, and Dynamics of the Hutton Beaches, Labrador. Report for Freeport Resources Inc, Richmond, BC, Canada, 16 pages.

Hora, Z.D. and Hansink, J.D. 2004. Hutton Prefeasibility Report & Marketing Summary: Hutton Garnet Beaches, Northern Labrador. Report for Freeport Resources Inc., Richmond, BC, Canada, October 14, 2004, 39 pages. <u>http://www.freeportresources.com/i/pdf/Library/Hutton/PRMS2004.pdf</u>

5.0 APPROVAL OF THE UNDERTAKING

Several permits were obtained for the work in 2009, which was postponed to the 2010 field season. The list of required permits includes:

- Environmental Protection Act Release of the undertaking from environmental assessment
- Labrador Inuit Lands Work Plan approval, Nunatsiavut Government, Labrador
 - o initial approval June 25, 2009
 - o status: applications have been submitted for the 2010 program
- Permit to Alter a Body of Water, Department of Environment and Conservation, Water Resources Management Division
 - o initial approval August 6, 2009 valid to 6 Aug 2011
- Mineral Exploration Permit, Department of Mines & Energy, Province of NL
 - o initial acceptance August 2009
 - status: applications have been submitted for the 2010 program
- The 2010 bulk sampling will be referred to Fisheries & Oceans Canada (DFO) and Transport Canada (Navigable Waters Protection) for a determination of any requirements under their respective regulations.

Registration Document Submission Government Review and Decision Bulk Sample March, 2010 March-May, 2010 July-August, 2010

The bulk sampling should commence in mid-July to early August, during optimum summer weather conditions. Timing is also subject to availability of suitable barges, in high demand in summer months.

7.0 FUNDING

The funding for this project will be arranged by Freeport Resources Inc. A Junior Company Exploration Assistance Program grant application may be made to the Department of Natural Resources, Province of NL, in March, 2010, to offset part of the exploration costs.

8.0 SUBMISSION

March 29, 2010

Buda Clark

Name: Brenda Clark, MAIBC Position: President

Date