

# EXPLORATION AT PUHIPUHI

April 2016

Evolution acquired the Puhipuhi exploration permit in June 2015. We are now in the early stages of an exploration programme to find out whether there are gold and silver deposits at Puhipuhi that can be safely and economically mined by underground methods.

This fact sheet outlines the mineral exploration process and explains the range of activities that we may carry out as part of our work.

## What is Evolution doing at Puhipuhi?

Evolution is conducting an exploration programme at Puhipuhi to understand the geology and determine whether economic gold and silver deposits exist at a target depth of around 200 - 500 metres underground. At this early stage, it is uncertain if any such deposits exist and therefore, establishing a mine at Puhipuhi would be years away and may not occur at all.

The first step of our exploration programme has been a thorough environmental assessment of the permit area. This enables us to:

- understand any potential environmental risk associated with future exploration activities before they begin
- identify the most appropriate method to manage the risks and significantly reduce or remove the effect

We understand that some members of the local community are concerned about the environmental impact of our exploration activities and any potential future mining should the project ever proceed to that phase. If Evolution is unable to identify a way to conduct our activities safely and without harm to the environment, we will not proceed. Community engagement will occur throughout all phases of our project, including in relation to any environmental controls we propose to put in place.

Our initial work involves reviewing historic environmental data and conducting an environmental baseline study, which commenced in February 2016. Evolution has consulted members of the local community about the scope of this work in order to specifically address local concerns.

No exploration drilling will be conducted at Puhipuhi by Evolution before we complete assessments of potential environmental effects and identify appropriate controls, based on the outcome of the baseline study and in consultation with Tangata Whenua and the community.

See more in our fact sheets on **Environment** and **Mercury**.



## Key points

- Evolution is represented in New Zealand by New Zealanders.
- Evolution is conducting an exploration programme at Puhipuhi to understand the geology and find out whether there are gold and silver deposits that can be safely and economically mined by underground methods.
- Exploration typically takes 5-10 years. The results of each stage of the process determine whether the project progresses to the next stage.
- Establishing a mine at Puhipuhi would be years away and may not occur at all.
- The early stages of exploration involve low impact surface activities. If results indicate there may be viable gold deposits, drilling is required to verify this.
- Drilling will not commence until a full assessment of environmental effects, cultural & safety concerns and community consultation is undertaken.
- Areas disturbed by exploration will be restored to a condition that is the same as, or better than, before the activities began.
- Evolution will continue to consult with the community before and during each exploration stage.

## Evolution New Zealand

Evolution is represented in New Zealand by New Zealanders. The Puhipuhi project is staffed by New Zealand geologists with extensive experience in mineral exploration. We also employ an Office Administrator and various casual staff from the Whangarei and Whakapara areas. We are committed to employing locally and using local service providers wherever possible.

Evolution's New Zealand team is supported by a number of independent New Zealand technical experts and our Australian colleagues with in-house expertise in the fields of Geology, Environment, Health and Safety, and Community Relations.

## Mineral exploration

Mineral exploration is a set of processes that are followed to discover whether or not economic minerals occur in a particular area.

These processes can be broken down into stages and the decision whether to progress to the next stage is determined by the results of the previous stage. The exploration process can therefore take several years to complete.

Evolution Mining currently holds an active Exploration Permit over the Puhipuhi area (EP51985) and an additional Exploration Permit (EP60018) over adjoining areas (granted on April 13, 2016). Mineral Exploration Permits are granted and administered by the government through New Zealand Petroleum and Minerals.

## Low impact surface activity

The early stages of our mineral exploration programme will involve low impact surface activities as outlined below. Some of these activities have already commenced or have been completed.

**Stream sediment sampling** - samples of silt and clay (up to 2kg) are gathered by hand from sites along stream courses, generally at stream junctions.

**Rock sampling** - fragments of rock are chipped from rock faces using a small hand held hammer. These samples are up to 5kg in weight and are often collected during geological mapping.

**Geological mapping** - a geologist records the characteristics and distribution of various kinds of surface rock. These observations are plotted on a map which forms the foundation for interpreting of the geology of the area.

**Soil survey** - a geologist will collect up to 1kg of sub-surface soil, using a spade or hand auger. Auger holes are backfilled and sods replaced afterwards. Distance between samples vary from 25m to 200m apart.

**Passive ground geophysics** - a portable instrument is placed on the ground for a few minutes while it measures and records rock properties, such as gravity.

**Active ground geophysics** - resistivity surveying (pictured below) introduces a low-voltage current into the ground at two locations and then measures the electric field this forms in the ground at a range of locations away from these points. Evolution has recently completed a resistivity (CSAMT) survey over parts of the Puhipuhi area.



**3D modelling** - all of the data collected will be used to develop a 3D geological model of the area allowing our geologists to interpret the surface and sub-surface geology of the area and define the most probable zones where gold may occur.

**All areas rehabilitated** - when exploration activities are complete, or at various stages throughout the programme, disturbed areas will be restored to the same or better condition than before activities began.



## Drilling

If the results of our low impact surface activities indicate that there may be viable gold deposits, drilling is then required to better understand the geology and verify the results.

A decision on whether or not to take this next step at Puhipuhi will not be made until a full assessment of potential environmental effects, cultural and safety concerns has been undertaken. The community will be consulted to ensure that all relevant concerns have been appropriately addressed before drilling commences.

The drilling process involves using a drill rig to bore a 120mm diameter hole to varied depths at varied angles. The rig may take up to several weeks to complete work at a site. A drill site is typically restricted to an area measuring 10m x 10m. An initial drilling programme may comprise between three and ten drill holes. Additional drilling may then be planned if initial drilling results are positive.

If we decide to proceed to the drilling stage of exploration, water and drilling fluids would be contained to ensure no contaminants are released into the surrounding environment.

When drilling work is finished all equipment is removed and all sites are rehabilitated to the same or better condition than before activities began.

The drilling process results in core samples that can be studied and analysed. The photo (below) provides an example of core samples that have been extracted from a drill hole.



## Community engagement

We are committed to ongoing community engagement throughout our exploration activities at Puhipuhi – that involves listening to the concerns of the community, responding openly and transparently and using community feedback to inform decision making.

Evolution has a set of Community Principles that guide our behaviour when interacting with the community. These Principles can be found on our website. Our approach to community engagement involves:

- responding to your queries and understanding your concerns and how you would like to be engaged;
- identifying appropriate steps to mitigate any concerns;
- providing verifiable, scientifically-based information to address concerns where we can;
- letting you know how community feedback has been used to inform decision making;
- where possible, maximising local procurement, local employment and training opportunities; and
- identifying opportunities for community collaboration and partnership.

### Engaging with landowners

We are committed to respecting the property and rights of landowners, the aspirations and values they hold in relation to their land and their health and safety concerns.

### Cultural Heritage

We recognise the ancestral connection of Ngati Hau at Whakapara to the land and water within the Puhipuhi project area. We will seek their advice on Cultural Heritage matters in this area and work towards developing a Memorandum of Understanding to ensure that Evolution employees and contractors follow agreed protocols when conducting exploration activities.

### Environmental Baseline Study

Evolution has engaged independent Auckland-based consultancy Pattle Delamore Partners (PDP) to undertake a comprehensive environmental baseline study which commenced in February 2016.

Input from the local community, including representatives of Ngati Hau and neighbouring hapu, will be used to develop a set of monitoring procedures designed specifically for Puhipuhi and adjoining areas based on shared understanding of the local environment.

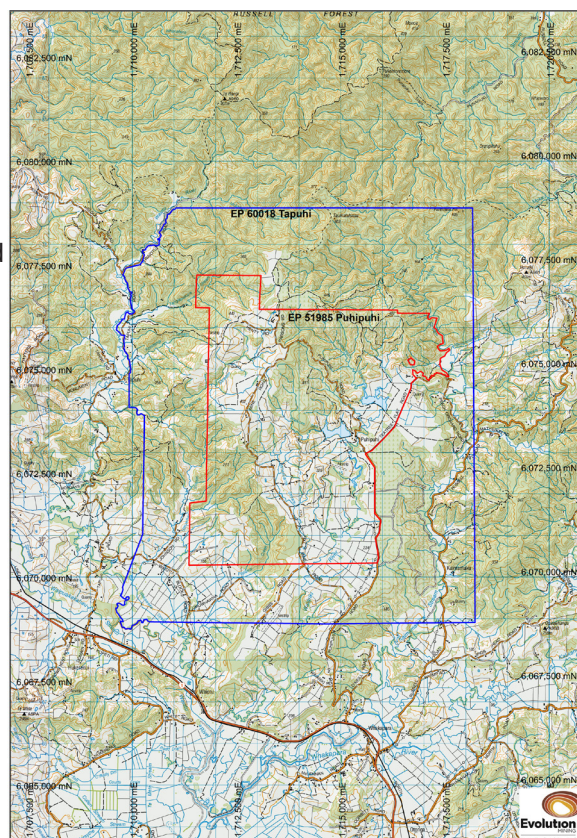
We will ensure that monitoring procedures meet all obligations under relevant New Zealand regulations and are aligned to Evolution's internal standards, procedures and protocols.



## Permits

The Crown Minerals Act 1991 provides for three levels of permits for investigation or extraction of Crown-owned minerals (outlined below). These permits are granted and administered by New Zealand Petroleum and Minerals. Applicants are assessed on a number of aspects including their technical and financial capability, compliance history and ability to meet applicable health, safety and environmental legislation.

- **Prospecting** - generally granted for one or two years for the purpose of conducting low impact prospecting to identify areas warranting more detailed investigation.
- **Exploration** - generally granted with conditions and obligations for a period of five years, after which the permit holder may be able to extend the term for a further five years but must reduce the permit area by more than half. Further appraisal extensions may also be applied for.
- **Mining** - these allow for the extraction and processing of Crown minerals. Planned mining activities would need to comply with the Resource Management Act (RMA) and local authority plans. Decommissioning and restoration plans are considered during the RMA consent process. Local authorities or the Environmental Protection Authority may hold a bond for the restoration process. Mining can only occur if access is granted by the landowner/occupier.



**Evolution currently holds an active Exploration Permit** over the Puhipuhi area (EP51985) and an additional Exploration Permit (EP60018) over adjoining areas (granted on April 13, 2016). Decisions on whether or not to apply for a mining permit would only take place after an extensive exploration and drilling program which will take a number of years to complete.

## Timelines

Exploration is an uncertain and dynamic process so we can't offer a fixed timeline for our activities at Puhipuhi at this stage. Our exploration permit is valid until October 2016 and can be extended if necessary.

The exploration process typically takes several years and there are many factors and decision points along the way, as each stage is determined by the results of the previous stage. Typically, the timeline from exploration to mining can take anywhere from 5 – 10 years, and sometimes more.

As the exploration process progresses, we will keep you informed about timeframes for specific activities and continue to consult the community before and during each stage.

## Likelihood of an exploration programme becoming a mine

We think it's important to understand that the presence of an exploration permit over an area of land is no guarantee that this will lead to a mine being developed.

It can take many years for a discovery to be made that is economically viable to mine, and many exploration programmes do not progress to a mining operation. That being said, Evolution wouldn't have purchased the Puhipuhi permit if we didn't think it offered potential, but at this stage it's uncertain whether we will eventually proceed to a mining phase at Puhipuhi.

The results of each exploration stage will ultimately determine our future at Puhipuhi and we will make sure the community is kept informed as we progress.

## A guide to landowner rights

### Rights of access

We need landowner or occupier permission to access land for any exploration activities other than minimum impact activities. For some classes of land, minimum impact activities require only notification rather than consent, however we will always seek consent before entering private land. Consent can be an informal agreement or a formal access arrangement. We will seek a formal written access arrangement if we wish to proceed to drilling on private or publicly-owned land.

### Access arrangements

An access arrangement is a commercial agreement between Evolution and the landowner/occupier and may cover:

- periods of access
- part of land and access routes
- method of exploration
- conditions
- protection of the environment
- compensation
- dispute resolution

Other matters important to the landowner/occupier may also be included in the agreement as appropriate.

*We have prepared this outline as a guide only. While accurate at the time of publication the information is general. You should seek specialist legal advice specific to your own situation if you are involved in a land access arrangement.*

## Need more information?

New Zealand Petroleum and Minerals of the Ministry of Business, Innovation and Employment operates the website [www.nzpam.govt.nz](http://www.nzpam.govt.nz) where anyone can download copies of permits and view a map showing all minerals permits and applications throughout New Zealand.

Additional information may also be found at [www.legislation.govt.nz](http://www.legislation.govt.nz)

## Contact us

We welcome feedback and questions from the community about Evolution's exploration activities at Puhipuhi.

**Phone** +61 02 9696 2900

**Email** [community.puhipuhi@evolutionmining.co.nz](mailto:community.puhipuhi@evolutionmining.co.nz)

**Mail** Level 30, 175 Liverpool Street  
Sydney NSW 2000

**Web** [www.evolutionmining.co.nz](http://www.evolutionmining.co.nz)

