





# The Etango Project

# BACKGROUND INFORMATION DOCUMENT For the Draft Amendment of the 2009 Environmental and Social Impact Assessment Report

# INTRODUCTION

Bannerman Mining Resources (Namibia) (Pty) Ltd (Bannerman) received Environmental Clearance in March 2010 for its plan to establish the Etango Uranium Project that lies within the Namib Naukluft National Park, 41km east of Swakopmund (*Figure 1*). Environmental Clearance was based on the Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan which were developed by A. Speiser Environmental Consultants cc with a team of 14 specialists between October 2007 and December 2009. The Environmental Clearance for the location and design of infrastructure ancillary to the Etango Project (including an access road, a water pipeline and power lines) was granted by the Ministry of Environment and Tourism in July 2011.

Bannerman has expanded the mine design following further exploration and research on processing technologies. ASEC and Environmental Resources Management have amended the 2009 ESIA Report to determine the potential positive and negative impacts that the updated Project may have on the biophysical and social environment.



Figure 1. Location of the Etango Project

## MAIN CHANGES IN THE AMENDMENT ESIA

- Extended specialist studies to include the latest project updates (including the Oshiveli and Onkelo deposits, amendments made to Waste Rock Dump placements and the Heap Leach Residue Facility;
- Incorporation, wherever possible, of the recommendations from the Uranium Rush Strategic Environmental Assessment (SEA) regarding cumulative impacts to the Erongo Region;
- Revised visual, air quality and noise studies incorporating additional Project data; and
- Extended groundwater monitoring and hydrogeological groundwater modelling investigation.

This has improved the understanding of the Project's impact on the receiving environment and findings have been incorporated into the mine design, the ESIA and the Environmental and Social Management Plan.

# **BRIEF PROJECT DESCRIPTION**

Bannerman is progressing with a Definitive Feasibility Study due to be completed at the end of March 2012.

- The updated resource estimate is made up of a measured and indicated mineral resource of 148.7 million pounds U<sub>3</sub>O<sub>8</sub>, and an inferred mineral resource of 63.9 Mlbs U<sub>3</sub>O<sub>8</sub> (using a cut-off grade of 100 ppm U<sub>3</sub>O<sub>8</sub>).
- The mining will follow a conventional open pit drill, blast, load and haul truck and excavator/shovel operation, standard for most hard-rock mining operations. Blasting is recommended at lunchtime, three to four times a week.
- Uranium extraction will be by heap leaching using drip irrigation of dilute sulphuric acid on a fixed footprint on/off pad.
- The Life of Mine is at least 14 years, and an optional Stage 4 pit could extend the mine's life to approximately 17 years. The final pit will be approximately 6km in length (N-S), 1km wide (E-W) and at its deepest, approximately 380m deep. The average waste to ore strip ratio is 3.5:1.
- The final footprint of the proposed mine, including pit, waste rock and leach residue dumps, heap leach pad and plant is approximately 39 square kms.
- Water for the construction phase will require a total of approximately 200 Ml, with a monthly peak of 27Ml and will be trucked in to site if the desalination plant and the Southern pipeline are not in operation. During operations, up to 5 million m<sup>3</sup> of (desalinated) water may be required annually.
- The maximum power installed at the proposed mine and process plant is approximately 41MW, with the constant load expected to be less than 39MW
- Construction would take approximately two to three years and operations are expected to begin in 2015, depending on a number of external parameters.

• The construction workforce will average approximately 800 people, peaking to 1,200 to 1,500 at times. During operations, just over 1,000 people will be employed directly by the mine and its contractors. The mine workforce will be transported to and from the mine and Swakopmund, Walvis Bay, Arandis and environs.

# UPDATES TO KEY INFORMATION ON IMPACTS

# Surface water/geohydrology

Three aquifer systems were identified within the project area. Groundwater sampling has confirmed the relatively high background of uranium and other daughter elements in the regional groundwater. The ratios of U<sup>234</sup> and U<sup>238</sup> indicate that the Swakop River alluvium is unaffected by pollution from upstream sources.

Groundwater modelling results suggest that:

- Groundwater levels, as a result of pit dewatering, will recover extremely slowly (in excess of a 100 years), but groundwater drawdown is relatively localised, at its maximum an area of approximately 14km<sup>2</sup>.
- The extent of contamination by uranium and sulphate, for a range of design and management options, was only marginally influenced by the seepage rate (and hence the water content) of the Heap Leach Residue Pad, whether this Residue Pad was lined or not.
- For the worst-case scenario modelled (no liner under the Residue Pad, a high (15%) water content, and no neutralising chemical reactions occurring) uranium concentrations remain within a maximum of 1km from the Heap Leach Pad, after 60 years. Simulated sulphate concentrations stay significantly below background (existing) concentrations.
- Modelling results suggest that it is unlikely for any contamination plume to reach the Swakop River alluvium and the palaeochannels.

The main recommendations incorporated into the revised design are:

- Avoid obstructing surface drainage lines where possible;
- Locate Waste Rock Dumps to the south of the Swakop River catchment so run-off flows into the Tumas Catchment;
- Ensure that mine infrastructure (particularly the Heap Leach Residue Facility) can withstand and contain runoff from a 1:50 year rainfall event;
- Line the Heap Leach Pad;
- A liner on the Heap Leach Residue Pad is not a requirement; rather the water content of the Heap Leach Residue Facility should be maintained as low as possible (~9%);
- Routinely monitor groundwater quality and levels to manage potential impacts and to continuously refine model input; and

• Continued testing of samples to test the Acid Rock Drainage potential of the Ripios material, and neutralizing potential of waste rock, to verify the model results.

#### Air quality

The SEA found that the source of 82% of background concentrations of  $PM_{10}$  (very fine dust which is potentially harmful) and dust fallout in the region was from natural windblown dust while vehicles contribute approximately 13%. The impact assessment was done by modelling how the common emissions from mining would be dispersed. Mitigation measures considered for each phase include water sprays and/or dust suppressants and dust extraction hoods at crushing, screening and, wherever feasible, transfer points.

#### Radiation exposure

The radiological safety and impact study evaluated exposure conditions to tourists through the air and to resident farmers through the air and groundwater. Model results suggest that public exposure to radiation is well below recognised international limits. Nevertheless, the mitigation measures to reduce dust levels must be applied to reduce radiation doses to an absolute minimum. Bannerman will continue to implement and update its Radiation Management Plan, as required by law.

#### Biodiversity

The main impacts include a loss and fragmentation of habitats, reduced plant and soil crust productivity, interference with animal movements, possible blocking of surface flows in ephemeral water courses and increased poaching. These impacts can all cumulatively reduce the populations of animals in the area.

The mine could potentially destroy up to an estimated 10% of the habitat (and therefore population) of a newly discovered gecko species which is ecologically and taxonomically unknown. Similarly, mining will impact on the total population of numerous identified, unidentified and unknown invertebrate species some of which are classified as endangered. This impact is therefore major and remains so even with mitigation measures, as the Precautionary Principle requires that a worst case scenario, which could critically raise the risk of extinction of some invertebrates, is assumed to be the case until further information proves otherwise.

Mining will reduce the populations of Swakopmund Commiphora (*Commiphora oblanceolata*) that occurs in the Onkelo and Oshiveli deposit areas and their rescue and relocation should be considered. Proposed mitigation measures can help reduce the severity of these impacts.

#### Visual

The mine will be visible from the C28, the Welwitschia Flats, parts of the Swakop River, the Moon Landscape viewing point and from the D1991 southbound. For most activities, the visual impacts can be reduced through mitigation. The exceptions are the lights at night which will probably alter the current dark sky sense of place and

placement of certain Waste Rock Dumps. Bannerman is proposing lunchtime blasting whenever possible, to minimise disturbance to its workforce, neighbours and tourist activities in the area.

#### Noise

During construction and operations the extent of the noise impact will be well below guideline limits. It is most unlikely that any of the continuous noise emissions will be 'audible' at the Welwitschia Plains. Mitigation measures can reduce noise emissions considerably.

#### Sense of Place

Sense of place is formed from a combination of attributes such as space, visual, noise and biodiversity. The combined impacts (both direct and indirect) of all the activities taking place in and around the proposed Etango site have the potential to profoundly alter the way people perceive and use this section of the National Park. The visual specialist study showed that lowering the current main viewpoint of the Moon Landscape by a few metres will shield the view of the waste rock dump. It is proposed to upgrade the Moon Landscape viewpoint, i.e. providing benches, signage and shade.

#### KEY CONCLUSIONS FROM THE ADDITIONAL/UPDATED ESIA STUDIES

The mitigation strategies adopted have reduced the impact of the expanded mine layout and design, and do not significantly change the impact assessments from the original ESIA. No major changes are recommended for the Environmental and Social Management Plan.

Cumulative impacts in the Erongo Region will be controlled and reduced only through the combined efforts of all the mines in reducing their individual zones of influence. To this end, it is of vital importance that Bannerman contributes significantly to the implementation of the Strategic Environmental Management Plan as defined in the Central Namib Uranium Rush SEA. Further mining should be managed in such a way that it does not detract from the elements which define significant landscape character specifically relating to the eco-tourist industry within the region and the country.

#### MORE INFORMATION IS AVAILABLE

The Draft Amendment Environmental Impact Assessment Report is available on: www.erm.com/bannerman\_etango and www.asecnam.com or for viewing at the Swakopmund Library, Woermann House; the Walvis Bay Public Library, Arandis Rössing Foundation Library and the Windhoek National Library. A summary of all assessed environmental and human impacts is given in the Executive Summary.

## WE WELCOME COMMENTS FROM STAKEHOLDERS

The public is invited to comment on the draft Amendment ESIA Report and to attend the **Public Open Days anytime between from 16h00 – 19h00**. There will be no formal presentation but several Bannerman personnel and ESIA specialists will be there to explain and answer questions.

Windhoek:	Monday 13th February 2012 at the Namibia Scientific Society, (cnr. John
	Meinart & Robert Mugabe Sts, opp. National Theatre)
Arandis:	Tuesday 14 <sup>th</sup> February at Arandis Town Hall
Walvis Bay:	Wednesday 15 <sup>th</sup> February at Protea Hotel Pelican Bay, Esplanade
<b>Swakopmund</b> :Thursday 16 <sup>th</sup> February at the new Swakopmund Town Hall (cnr. Rakotoka & Daniel Kamho Sts)	

Kindly submit all comments at the Open Days or send them to:

A. Ashby: <u>aaplm@mweb.com.na</u>, Fax: 061 233679 or SMS to 081 803 6431 or P.O. Box 11513, Windhoek, before 29<sup>th</sup> February 2012.