Aim of the Project

The proponent applying for the Environmental authorisation, by way of a Basic Assessment (BA), is Rand Refinery Limited. The proponent proposes the construction and operation of a Copper and Nickel Recovery Plant at their existing refinery works located in Germiston. The proposed Copper and Nickel Recovery Plant will recover Copper and Nickel from a matte produced by the existing Electric Arc Furnace (EAF). In terms of the National Environmental Management Act (No 107 of 1998) Regulation No. R. 386 (21 April 2006), the project requires a BA to obtain environmental authorisation.

Background Information

Location

Rand Refinery Limited is located off the M2 highway in Germiston, east of the Johannesburg Central Business District.

The proposed Copper and Nickel Recovery Plant will be located within Rand Refinery Limited’s existing site, in Refinery Road, Germiston Ext 4, Erf 1080.

The Rand Refinery Limited site falls within the jurisdiction of the Ekurhuleni Metropolitan Municipality. For the location of the Rand Refinery Limited’s site, including the proposed Copper and Nickel Recovery Plant, refer to Figure 1.

Existing Land Use

The current land use of the Rand Refinery Limited Site is industrial.

Surrounding Land Uses

The land use surrounding Rand Refinery Limited is industrial and undetermined.

What does the Project entail?

The construction and operation of the proposed Copper and Nickel Recovery Project will comprise of:

- A milling circuit;
- An oxidising kiln;
• A leach vessel;
• An off gas scrubber for the oxidising kiln and leach vessel;
• A thickener;
• An ion exchange system and precipitation vessel;
• Acid storage tank
• Catholyte and anolyte tanks
• Lime mixing tank for scrubber
• Copper electrowinning circuit;
• Nickel recovery circuit; and
• The modification and upgrade of the raw materials handling facility.

**Process Overview**

The existing Electric Arc Furnace (EAF) located on Rand Refinery Limited site is currently being used to recover precious metals from low grade ore, scrap personal computers, electronic equipment, precious metal bearing slags and electrode slimes.

As by-products the EAF produces a slag which is granulated and sold to a metal recovery company and a matte which typically contains copper, nickel, iron, sulphur, lead as well as traces of gold, silver and platinum group metals (PGM).

Previously, the matte was sold to an overseas client; however changes in the economic climate as well as regulatory changes have made this impractical, thus Rand Refinery Limited have sought to extend their current processing facilities to include the proposed Copper and Nickel Recovery Plant.

In this Plant the copper metal and nickel carbonate will be recovered from a matte. The process can be summarised as follows:

- **Milling** - The matte will be crushed and milled to a fine powder;
- **Oxidizing kiln** - The milled matte will then be roasted in the presence of the air to oxidize all the material present (note, this is not a dead roast process but rather complexing the sulphide to sulphate for easy leach. The roast is done at lower temperatures thus minimising SO2 generation);
- **Leaching** - The oxidized matte will then be leached to extract the copper, nickel and iron;
- **Off gas scrubber** – to scrub the emissions from the oxidising kiln and leach vessel prior to the release to atmosphere, using a lime solution;
- **Thickener** -When leaching is complete, the liquor is drained to a thickener. The overflow is transferred for further processing, and the underflow is recycled to the existing EAF;
- **An ion exchange system and precipitation vessel** - The liquor contains high quantities of iron and this is removed by lime precipitation through the iron precipitation vessel which produces an iron hydroxide cake that is recycled to the existing EAF. The filtrate passes onto the copper electro-winning stage;
- **Copper electrowinning circuit** – The copper in the filtrate is deposited on the stainless steel cathodes, the cathodes are removed and flexed causing the copper to fall off. After electro-winning the electrolyte with the copper removed (barren solution) passes to nickel recovery circuit;
- **Nickel recovery circuit** - The nickel is removed from the barren solution using ion exchange columns. The nickel ions are captured by the cationic exchange resin. The resin is regenerated using sulphuric acid and the nickel sulphate produced is then reacted with sodium carbonate in a tank to precipitate nickel carbonate. This is then filtered in a cake and bagged;

**Key Milestones**

The following key milestones are anticipated:

- March 2009 to October 2009 – Obtain environmental authorisation.
- October 2008 to November 2009 – Construction activities.
- November 2009 – Operation.

**Environmental Authorisation**

In terms of the National Environmental Management Act (No 107 of 1998) Regulation No. R. 386 (21 April 2006) the project has the following listed activities that require environmental authorisation:

**Regulation 386 (Basic Assessment Required):**

**Activity 1**
The construction of facilities or infrastructure, including associated structures or infrastructure, for:

(o) the recycling, re-use, handling, temporary storage or treatment of general waste with throughput capacity of 20 cubic metres or more daily average measured over a period of 30 days, but less than 50 tons daily average measured over a period of 30 days.

**Activity 7**
The above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of
more than 30 cubic metres but less than 1000 cubic metres at any one location or site.

Activity 25
The expansion of or changes to existing facilities for any process or activity, which requires an amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of emissions, pollution or effluent.

What is a Basic Assessment?
Environmental assessments are used by authorities to obtain an objective view of the potential environmental and social impacts that could arise during the construction, operation and closure of proposed projects.

It is a legislative requirement in terms of the National Environmental Management Act (No 107 of 1998) Regulation No. R. 386 (21 April 2006) that a Basic Assessment be conducted, which must:
- Identify the potential impacts of the proposed development;
- Illustrate the issues, concerns and suggestions raised by I&APs; and
- Outline the measures that must be taken to avoid or reduce negative impacts, and enhance positive impacts.

Process to be followed
The Public Participation Process
The steps of the public participation process that will take place during the Basic Assessments are outlined below.

Announcing the opportunity to comment
Stakeholders will be informed about the Basic Assessments and the proposed project by means of letters, newspaper advertisements and on-site notices.

This Background Information Document, along with an invitation to participate in the process, will also be placed at selected public places that are easily accessible to stakeholders. During April/May 2009, stakeholders will have the opportunity to comment and raise potential issues of concern. The issues raised will be captured in an Issues and Response Report.

Draft Basic Assessment Report
The Draft Basic Assessment Report together with the Issues and Response Report will be made available for comment by Interested and Affected Parties during July/August 2009. This report will contain a preliminary description of the proposed projects, its potential impacts and a record of all of issues raised by stakeholders. The comment period will be three weeks. After the comment period, Final Basic Assessment Report will be prepared, incorporating inputs received during the comment period.

Specialist Studies
The following specialist studies have been identified thus far:
- Air quality impact assessment; and
- Technical Review.

Public review of the Draft Environmental Management Plans
The Draft Environmental Management Plans, attached to the Draft Basic Assessment Report, will be made available for public review during July/August 2009. Stakeholders will have three weeks to review the Draft Environmental Management Plans, to verify that the issues they have raised are adequately addressed, and to submit any further comments.

Any additional issues raised by Stakeholders will be captured in the Final Report, which will be submitted to the authorities.

Final notifications
Once the authorities have issued the environmental authorisations, stakeholders will be notified of the authorities’ decisions and of the procedure to follow should they wish to appeal the environmental authorisations.

Relevant Authorities
The authorities responsible for administering and implementation of the above legislation are:
- The Gauteng Department of Agriculture, Conservation and Environment;
- The Ekurhuleni Metropolitan Municipality
- Department Environmental Affairs and Tourism; and
- The Department of Water Affairs and Forestry.

How can you get involved?
- Register as an Interested and Affected Party by completing the attached comment response form;
- Propose ideas to solve problems that arise during the consultation process;
- Voice your concerns about proposals and their potential impact; and
- Assist with information that will contribute to a thorough study.
Figure 1: Location of the proposed Copper and Nickel Recovery Project
REGISTRATION / COMMENT FORM

PROJECT REFERENCE NO: GAUT 002/08-09/N1121
COPPER AND NICKEL RECOVERY PROJECT

PLEASE COMPLETE AND RETURN THIS FORM SO THAT WE HAVE YOUR COMPLETE CONTACT DETAILS

Closing date for comments: 5th May 2009

<table>
<thead>
<tr>
<th>PARTICULARS OF STAKEHOLDER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td><strong>Postal Address</strong></td>
</tr>
<tr>
<td><strong>Street Address:</strong></td>
</tr>
<tr>
<td><strong>Post code:</strong></td>
</tr>
<tr>
<td><strong>Tel:</strong></td>
</tr>
<tr>
<td><strong>E-Mail</strong></td>
</tr>
<tr>
<td><strong>Cell:</strong></td>
</tr>
<tr>
<td><strong>Fax</strong></td>
</tr>
<tr>
<td><strong>Language Preference</strong></td>
</tr>
</tbody>
</table>

COMMENTS

DATE: _____________________________

If you are aware of any people who should be contacted in this process, please provide their details here:

Please add additional pages if required.

Return to: Glen Louwrens
Terra Pacis Environmental
PO Box 41409
Craighall, Johannesburg 2024
Tel: (011) 781 7800
Fax: (011) 781 7711
Email: glen@terrapacis.co.za
The Roles and Responsibilities of the Stakeholder

Registered stakeholders have the right to bring to the attention of the competent authority any issues that they believe may be of significance to the consideration of the application. The rights of stakeholder are qualified by certain obligations, namely:

- Stakeholders must ensure that their comments are submitted within the timeframes that have been approved by the GDACE, or within any extension of a timeframe agreed by the applicant or Environmental Assessment Practitioner (EAP);
- A copy of comments submitted directly to the competent authority must be served on the applicant or EAP; and
- Any direct business, financial, personal or other interest that they might have in the approval or refusal of the application must be disclosed.

The roles of stakeholders in a public participation process usually include one or more of the following:

- Assisting in the identification and prioritisation of issues that need to be investigated;
- Making suggestions on alternatives and means of preventing, minimising and managing negative impacts and enhancing project benefits;
- Assisting in or commenting on the development of mutually acceptable criteria for the evaluation of decision options;
- Contributing information on public needs, values and expectations;
- Contributing local and traditional knowledge; and
- Verifying that their issues have been considered.

In order to participate effectively, stakeholders should:

- Become involved in the process as early as possible;
- Register as a stakeholder;
- Advise the EAP of other stakeholders who should be consulted;
- Contribute towards the design of the public participation process (including timeframes) to ensure that it is acceptable to all stakeholders;
- Follow the process once it has been accepted;
- Read the material provided and actively seek to understand the issues involved;
- Give timeous responses to correspondence;
- Be respectful and courteous towards other stakeholders;
- Refrain from making subjective, unfounded or ill-informed statements; and
- Recognise that the process is confined to issues that are directly relevant to the application.