

## **Executive Summary**

### **1.0 INTRODUCTION**

Anabond proposes to set up a manufacturing facility to extract Tantalum and Niobium metal and its compounds at Elichur Village, Sriperumbadur Taluk, Kancheepuram District, Tamil Nadu, to meet the growing demand globally.

As per EIA Notification, the project requires Environmental Clearance from Ministry of Environment and Forest (MoEF) and NOC from State Pollution Control Board. Accordingly the company has appointed M/s. Chilworth Safety and Risk Management P Ltd, New Delhi to undertake Rapid Environmental Impact Assessment study (R-EIA).

Tantalum is a refractory material, dark, dense, ductile, very hard, easily fabricated, and highly conductive of heat and electricity. The metal is renowned for its resistance to corrosion by acids; in fact, at temperatures below 150°C tantalum is almost completely immune to attack by the normally aggressive aqua regia.

The report volume explicitly presents the activities at the proposed project, the infrastructural facilities available and those required the present baseline environmental and socio-economic settings of the study region. The report later identifies the pollution aspects of the proposed project in terms of air, water, soil pollution and socio economics. For the activities involved at the project site the report highlights the aspects of Environmental Management Plan presently adopted and additional aspects involved. Towards the end, based on the discussions and analysis of the above mentioned issues, the report finally presents the conclusion and recommendation for the existing project activity and product changes.

### **2.0 BACKGROUND OF THE PROJECT**

#### **2.1 WORLD TREND**

The world demand of tantalum capacitor metal at present is nearly 2200 tones. The projected growth rate is of 5 – 10%. Out of this almost 60% tantalum metal is consumed in electronic industries. The rest 40% of the tantalum consumption is in

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other industries like high temperature furnaces, chemical industries, tool industries, super alloys, etc. In the International level, only few Multi-Nationals dominate the field and there is no player from India.

## **2.2 INDIAN SCENARIO:**

Presently tantalum and its compounds are mostly being imported, with Nuclear Fuel Complex, Hyderabad meeting only a small fraction of demand of tantalum oxide.

## **2.3 PROJECT CONCEPT**

Anabond has identified the tantalum project as there is a tremendous export potential for these materials and can increase the export earnings fast and substantially. There are only few international companies and only one company from India involved in this business. Setting up a plant in India will result in cost competitiveness to the global market

## **3.0 TECHNOLOGY**

Initially NFC (Nuclear Fuel Complex, Hyderabad) and then C-MET (Centre for Materials for Electronics Technology, Hyderabad), has developed the process technology. Anabond has entered into an agreement with C-MET and acquired the technology for Tantalum metal powder, Tantalum Pentoxide, Niobium Pentoxide and Tantalum-Niobium carbide and has further improved the process, customized and scaled up.

## **4.0 SALIENT FEATURES OF THE PROJECT**

The proposed Anabond Tantalum project (Manufacturing of Structural and Capacitor Grade Tantalum and Niobium metal and its compound) is designed to produce 150 tones of metal powder per annum initially and after that the production will be gradually increases up to 220 tonnes. The company possesses 3.73 Hectare (9.21 acres) of land for the proposed project. The salient feature of the site location is given in table

**Table - 1 Salient feature of the site**

Name of the Company	Anabond Tantalum Private Limited (100% subsidiary of Anabond)
Location of the Project	Elichur Village, Sriperumbadur Taluk, Kancheepuram District, Tamil Nadu
Production Capacity & Products	150 MTPA Tantalum Metal powder (100 MTPA) Tantalum Pentoxide / K2-Salt(50 MTPA) Niobium Pentoxide (30 MTPA)
Land	Anabond already possess 9.21 acres of land which will be utilized for this project
Land for Green belt	33% of the total area
Project Cost	60 Crores
Capital and recurring cost earmarked for environmental protection measures	4 Crores
Raw material (For installed capacity – 150 MTPA)	Tantalite ore( as Ta <sub>2</sub> O <sub>5</sub> –30%, Nb <sub>2</sub> O <sub>5</sub> -5% in the ore) – 622 MTPA 40%Hydrofluoric acid – 1776 MTPA Con. Sulphuric acid – 632 MTPA Hydrochloric acid – 236 MTPA Tributyl phosphate – 61 MTPA Kerosene – 61 MTPA Ammonium Hydroxide – 154 MTPA Ammonium bicarbonate – 260 MTPA Sodium carbonate – 111 MTPA Potassium hydroxide – 95 MTPA Sodium – 101 MTPA Sodium chloride – 132 MTPA Calcium hydroxide - 877 MTPA Sodium hydroxide – 432 MTPA
Water requirement	108 m <sup>3</sup> / day
Sources of water	From Bore wells, in the site, up to the limits as per the guidelines of Tamil Nadu pollution control board Sourcing from government approved private agencies Recycling of process water with out treatment in the process Recycling of waste water after treatment
Pollution Management	ETP - Waster water treatment and recovery of water for process
Power requirement	2.0 MW
Power source	Government captive power plant/grid, with a standby Generator

Fuel requirement – HSD	50 KLPA
DG set	1000 KVA, 2 Nos
Applicability of EIA Notification 2006	Category A

## 5.0 Environmental Impact Assessment

The industrial plant is likely to create impact on the environment in two distinct phases:

- During the construction phase, which may be regarded as temporary or short term; and
- During the operation phase which may have long-term effects.

The construction and operational phase of the proposed project comprises of various activities, each of which may have an impact on some or other environmental parameters. Various impacts during the construction and operation phase of the industry have been studied to estimate the impact on the environment.

The potential positive and adverse impacts of the proposed activities of the Anabond Tantalum Private Limited facility on the existing environmental quality have been assessed. The impacts have been evaluated under the following:

- Impact on the air environment
- Impact on the noise environment
- Impact on the water environment
- Impact on the land environment
- Impact on the socio-economic environment

## 6.0 ENVIRONMENT MITIGATION MEASURES

Environmental Management Planning forms a basic criterion at the time of initiating any industrial project. Considering the operational procedures at the existing facility and the proposed one, it has been suggested that the management would carry out regular ambient air and water quality monitoring to ascertain the conformance of the air and water quality required at the work place and stack emission testing of the boiler to understand and achieve better fuel efficiency.

## **6.1 NOISE POLLUTION CONTROL SYSTEMS**

In order to control the noise pollution from the project, reduction in noise levels will be achieved through built-in design requirements of equipment, proper lay out design of the buildings and plant area, adding the sound barriers, use of enclosures with suitable absorption material etc. Provision of green belt will further help in reducing the noise levels. Adequate protective measures in the form of ear-muffs/ ear plugs/ masks shall be provided to persons, working in high noise levels to eliminate adverse impacts.

## **6.2 AIR POLLUTION CONTROL SYSTEMS**

The following measures has been planned to be envisaged for control of air pollution:

The process is totally closed loop and hence escape of vapours will be avoided. Potential recovery areas will be identified and will be recycled in the process.

Installation of dust suppression and extraction system in the ore milling area, to control fugitive dust.

The process vents and vacuum vents will be connected to the venturi scrubber followed by alkali scrubber.

The process stacks attached to scrubber, boilers and diesel generator will be provided with sufficient height as per state pollution control board guidelines for wider dispersal of pollutants, resulting in lower ground level concentrations.

Green belt (33% of total area) will be developed all around the plant area and in all the available spaces within the plant.

## **6.3 WATER POLLUTION CONTROL MEASURES**

While developing the water system for the project, utmost care has been taken to maximize the recycle/ reuse of effluents and minimize effluent generation.

At the process area, the source of waste water are wash water containing fluoride and sodium ions, spent acid with sulphate ions, spent soda solutions Ammonium

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fluoride, dilute potassium fluoride solutions and blow downs from utilities like steam boiler, cooling tower, softener plant etc. These waste effluents are collected in respective tanks as per grouping and treated. The treated water will be recycled in the process & waste treatment. No water will be discharged into the land.

Slag containing sodium fluoride, sodium chloride and potassium fluoride dissolved in water will be measured for permissible limits and discharged into sea based on approval from state pollution control board.

#### **6.4 SOLID WASTE**

Ore residue and complex cake containing useful radioactive substances will be sent to Indian Rare Earths as per the guidelines of AERB for their recovery and purification.

The Calcium sulphate generated from waste treatment will be sold to cement industry / HF industry or will be sent for landfill since it is insoluble in water.

Sodium fluoride generated from waste treatment is a saleable chemical, useful for foundry fluxes, will be sold off.

#### **6.5 INCINERATION**

Skimmed, degraded organic matter (Dibutyl phosphate) will be incinerated, and ash will be disposed as per guidelines of state control board.

Based on the analysis of the existing environmental conditions and the anticipated project activities, the likely impacts have been evaluated and discussed at detail in the report.

From the analysis it is observed that the proposed project operational activities may generate pollution aspects to moderate levels and the mitigate system proposed to be installed will control the implications on the environment within acceptable levels.