Visit to Lynas Advanced Materials Plant

OIL, GAS AND MINING TECHNICAL DIVISION

by Ir. Razmahwata Mohd. Razalli

IEM participants at Lynas LAMP building

THE Oil, Gas and Mining Technical Division organised a visit to Lynas Advanced Materials Plant (LAMP) in Gebeng, Kuantan, on 23rd November, 2013.

The participants left Bangunan Ingenieur at 6.40 a.m. and arrived at LAMP at 11.30 a.m. We were met by Encik Amin Abdullah, Corporate Communications and Prof. Ismail, Safety Advisor. Dato' Mashal Ahmad, Lynas Malaysia Managing Director, subsequently joined the participants.

First, the participants were given a safety briefing. Then Dato' Mashal started the presentation by giving us a synopsis of his career and his experiences in plant operations. He then made a comparison of these experiences against LAMP processes. He mentioned that the current plant operates at ambient temperatures and pressures, compared with the high pressures and temperatures of an ammonia plant. He then went into details of the LAMP process, where the raw material (earth) is sent to a high temperature (800°C in, 200°C out) rotary kiln at vacuum conditions. The output is then cracked and leached with acid and sulfonated kerosene before being separated using solvent extraction.

Dato' Mashal pointed out that the plant was not subjected to CIMAH requirements as it was essentially a material refinery process. However, LAMP has voluntarily installed public monitoring facilities showing air emission and water quality.

Commercial details of the LAMP were next discussed. The plant is an upsizing of the La Rochelle rare earths plant in France. It has 380 employees (mostly chemical engineers) and 200 contractors. It was pointed out that the feasibility of a plant depended on the quantity of raw material, and the percentage of elements in the raw material. LAMP has been designed in two phases, which each phase producing 11,000 metric tonnes of product. The current design life is 20 years.

One potential concern is the amount of uranium and thorium in the waste, as these are typically found in rare earths. An example of the figures provided are from Mount Weld, West Australia, which is 17% rare earth, 32 ppm uranium and 1600 ppm thorium. It was pointed out that this composition was different from the raw materials used by Asia Rare Earth, which was 'amang' (tin tailing).

Participants at the briefing

Dato' Mashal Ahmad

We were told that, of the 3 by-products from the process (Neutralisation Underflow (NUF), Flue Gas Desulfurization (FGD) and Water Leach Purification (WLP)), only WLP had any significant radioactivity. Activity is at 6becquerel/gram. The WLP can be recycled to produce safe and commercial products.

After the presentation, a token of appreciation was presented to Dato' Mashal on behalf of the IEM, before lunch was served.

At 2.30 p.m., the participants boarded a bus to go on a tour of the plant. Major parts of the process such as storage, processing and packaging facilities were highlighted and described.

The visit ended at 3.30 p.m. and the participants arrived back in PJ at 7.00 p.m. ■

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