INTERNATIONAL MINERALS

Exporting 5Mtpa of Concentrates from Cape Preston

1. INTRODUCTION

International Minerals is proposing to export 5Mtpa of magnetite concentrate through its port at Cape Preston. This will be in addition to 7Mtpa of pellets. The general plan is to filter the concentrate at the concentrator/pellet plant, transport the concentrate to the port by conveyor and stack using the same stackers as the pellet materials – since the pellets and concentrate will be batch transported by the same conveyor.

When a concentrate ship arrives concentrate will be reclaimed by the planned pellet reclaimers and transported by conveyor to the shiploader. The moisture of the concentrate will be closely controlled to ensure that the Transportable Moisture Limit is not exceeded.

2. CONCENTRATE

The IM concentrate is ground magnetite with a nominal sizing of 80% passing 28micron. While this is a fine powder when dry – in reality the concentrate is never dried and is produced as a filter cake with a moisture of 8.5 to 9.0% moisture. In this form it is dust free, freely flows through chutes and is easily transported by conveyor.

The photograph above is a similar concentrate pile from the ABM magnetite operation in Tasmania. While rain in Tasmania means that there is little drying of concentrate, in the Pilbara the yard area will have yard sprays to maintain the surface moisture to prevent surface drying and nuisance dusts. The core of the pile will not dry out and will retain its dust free nature.

Similar concentrate materials are transported throughout Australia – magnetite, in particular, is transported to most coal mines in rail wagons. Other concentrates are copper concentrates from Mt Lyell and lead and zinc concentrates from Rosebery transported through Burnie, copper concentrates through Port Hedland and lead and zinc through the Gulf of Carpentaria from Century zinc.

The advantage of the magnetite concentrate is that it is an oxide concentrate which means that it does not oxidise with time like the sulphide concentrates and hence remains in a free flowing state.

Its dust free nature can be seen in the following photograph – again taken from ABM in Tasmania – the load in the photograph is being discharged from a Front End Loader for reslurrifying and is in the process of being dumped.

The concentrate is produced at a moisture in the range of 8.5 to 9.0% and has a TML (Transportable Moisture Level) of approximately 10% and the intention will be to maintain the moisture level below the TML in the region of the filtered moisture level.

3. METHOD OF OPERATION

3.1 ABM Operation – a working operation

Because of its free flowing nature the plan is to reclaim the concentrate and ship load using conventional shiploading equipment. This has been carried out by ABM and its forerunner Savage River Mines for 15 years – shipping 10,000t shipments of concentrate from the NW coast of Tasmania to Newcastle and Gladstone for use in

the coal industry. Concentrate is placed on the stockpiles using truck transport and then the conventional reclaimers are used to load the vessels at the rate of 2,000tph.

Some minor modifications are made to the chutes to install slip-in low slip polyurethane liners rather than the rock box style needed for pellets but these modifications are completed in less than 8 hours and loading is completed in the normal manner.

3.2 Plan for IM

The plan for International Minerals is that the concentrate will be stockpiled in a dedicated stacking area to a nominal tonnage of 250,000t which will be subsequently reclaimed using a bucket wheel reclaimer. Each batch of material from the overland conveyor will be spread over the pile to blend the pile but also to continually dampen the concentrate and minimize the water loss. Once any layer is buried under succeeding layers it is not expected that further water loss will occur.

The plan is to stockpile at least two vessels of concentrate – upto 200,000tonnes but provision will be included to peak at 400,000tonnes to match any shipping schedule.

Water sprays will be directed over the piles to maintain the moisture with any runoff collected by downstream cut off drains which will direct any run off to a surface tank for the settlement of the water and any suspended solids. Any collected solids will be returned to stockpile while the water will be used as part of the spile spray water system.

3.3 Comparison with other operations

3.3.1 ABM Magnetite through Port Latta and Magnetite through Burnie

This is very similar to the IM operation and ship from their own shiploader using the same system as described though the concentrate is stockpiled by truck dumping rather than stacker.

They export 10,000t shipments – at one stage on a monthly basis.

A second Tasmanian mine now has a substantial magnetite export business which they ship through Burnie on the NW coast of Tasmania. This is loaded by conveyor onto the ship and although the Port is in the centre of town there are no issues with shiploading.

3.3.2 Century Zinc

Century Zinc export zinc concentrates from Karumba in the N.W.Queensland in 10,000t shipments. These are barged from the shore to deeper water and transhipped

to the larger vessels. The concentrate is nominally sized at 80% below 20micron but when damp is regarded as dust free.

3.3.3 Mt Keith – exported through Esperance

Mt Keith exports half of its production through Esperance as a nickel concentrate after delivery by rail. The ship loading is via conveyor with no particular issues as far as handling properties or nuisance issues.

3.3.4 Copper Concentrates from Mt Lyell, PB/Zn from Rosebery

These concentrates, nominally 80% below 45micron are trucked by road to a rail head near Rosebery and then carried by rail to Burnie for transhipment to ocean going vessels to a number of Australian and overseas destinations. Most of the concentrate is exported to India at present.

The ships are loaded by conveyor from storage sheds on the Burnie wharf. A similar arrangement is used for Pb and Zn concentrates from Rosebery en route to the Risdon smelter.

3.3.5 Pb/Zn and Ag concentrates from Elura to Newcastle

Finely ground Pb/Zn concentrate are railed from Cobar in central NSW to Newcastle where the concentrates are offloaded and loaded onto ocean going vessels by conveyor. The concentrate is shipped to Hobart and Europe.

3.4 Review of Features

This brief review shows that the export of concentrates – Cu, Pb, Zn and Ni are quite common in Australia and take place at a number of city based Ports as well as other more remote ports. Shiploading is usually by a conveying system – though conveyor loading may be by FEL or reclaimer. An operation very similar to that proposed by IM is already operating at Port Latta in Tasmania – though at a smaller scale than proposed.

Most of the loading operations maintain a closer watch on moisture levels to balance between the safe transportable limit and the level at which dust is caused. Several of these operate within populated areas with apparently little impact suggesting that dust control is a relatively minor issue.

In the case of the remote operations at IM then the stacking/reclaimer operations are expected to operate with minimal dust despite the long conveyor length's and large stockpile. The engineering of the transport issues are a relatively minor problem, easily controlled and managed.

Water run off from the stockpile area will be directed into in ground tanks where the water will be cleaned before reuse and any recovered magnetite recycled for reuse.