



## **Esperance Mineral Concentrate Circuit Enhancement Project**

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### **BACKGROUND**

Esperance Port has been handling bulk nickel concentrates since 1967. Much of the circuit currently used to handle the product is old and has been used for other purposes, including the loading of iron ore.

Concerns about the environmental performance of the circuit have generated the need to develop a world-class bulk sealed system for the export of nickel sulphide concentrate from Esperance Port.

A working group convened by the Office of Development Approval Coordination (ODAC) assessed all the technically feasible options for upgrading the existing circuit to manage the handling of bulk nickel concentrates at the Port. Six options were defined by the group.

The project selected includes the upgrade of existing assets to continue to handle nickel concentrates in the short term until a new storage facility and handling circuit can be built, which has a time frame of about two years.

An Alliance – known as the ESP Alliance – has been formed comprising representatives of the Esperance Port Authority and Bilfinger Berger Services (Australia) who will be responsible for delivering the project.

### **OBJECTIVES OF THE ESP ALLIANCE**

- Improve environmental compliance during the handling of concentrates at the Port of Esperance to meet the targets provided in the Port's Environmental License.
- Establish an alliance between the Esperance Port Authority and engineering consultant Bilfinger Berger Services to accelerate the delivery of the project and overcome high risk situations where there is time constraints that present challenges for traditional contract approaches.
- Deliver the project on time and budget.

### **COMPLETED WORKS**

Works undertaken by the Alliance that met the requirements of the Port's Environmental License and were completed by the March 31 deadline included:

- Air management system installed in Black Swan shed to provide negative pressure;
- Black Swan shed structure repaired;
- Concentrate conveyor galleries repaired;
- Conveyor galleries skirts, curtains and scrapers replaced on all inloading and outloading conveyors;
- Transfer towers upgraded to manage or eliminate dust emissions;

- Compliant plant and equipment operating in Black Swan shed;
- Remedial works carried out on kibble inloading infrastructure; and
- Upgrade of the dust management system on the concentrate circuit.

Works completed since April 1, 2009, include:

- Connecting pins changed to strengthen boom on Berth 2 shiploader.
- Wind guards constructed and fitted to the Berth 2 shiploader following the strengthening of the boom.

## **OUTSTANDING WORKS**

### **Ship Loader Chute**

The telescopic chute has been delivered to site and will be installed once access to the berth is available.

**OUTLOOK:** The chute will be installed and operational by August 31, 2009.

### **Conveyor Three (CV3) Upgrade**

The collection trays have been delivered to the Port. Installation will start early next week when the berth is free from shipping. A new seal belt arrangement is being installed on CV3 to cover all voids between wharf conveyor, (CV3) and the shiploader conveyor (CV5). The seal belt will mitigate dust emissions from the CV3 gallery.

**OUTLOOK:** This work is programmed to be completed by August 31, 2009.

### **New Tippler**

It is proposed to standardise the transport of concentrates into the Port in 30 tonne half height, sealed containers that can be transported by both road and rail. This will replace the current use of eight tonne kibbles that arrive into the Port by rail and side tipper road trains. The new containers will be emptied at the Port in a sealed system to effectively manage dust emissions.

The works include:

- Designing, constructing and commissioning a tippler that will receive 30 tonne half height containers by both road and rail;
- Installing dust control facilities in the tippler;
- Providing a hardstand area adjacent to the tippler to store and handle containers; and
- Providing a system that will enable full containers to be unloaded from rail wagons and trucks while empties are simultaneously loaded.

Because of the complexity of this project it is likely that the tippler will be built and commissioned off site, dismantled and then assembled and recommissioned at the Port.

## **Progress to August 14, 2009**

Work is progressing across all fronts to deliver the tippler by the end of August. Electrical, civil, mechanical and structural works are continuing.

The end tippler frame and hopper assembly, screw feeders and electrical sub boards have been delivered to the Port and are currently being installed.

**OUTLOOK:** The new tippler will be installed and commissioned by August 31, 2009.

## **Black Swan Shed Ventilation Upgrade**

While considerable work has been completed to improve the handling of nickel concentrates in the Black Swan storage shed to reduce nickel dust emissions, a dust and fume extraction system is to be installed on the shed.

This work will eliminate or significantly reduce fugitive dust emissions from the shed

The works include:

- Installing dust extracting measurers at identified emission points;
- Creating a negative pressure environment;
- Minimising dust flow;
- Installing new and modifying existing dust filtration equipment;
- Changing operational techniques; and
- Removing diesel fume particulates in filtration.

## **Progress to August 14, 2009**

The dust and fume extraction unit has been delivered to site. The baghouse unit was lifted into place on Tuesday, August 11, and installation of the unit is continuing.

**OUTLOOK:** The new fume and dust extraction system will be installed on the Black Swan Shed by August 31, 2009.

## **New Nickel Concentrate Storage Facility**

This project will deliver a new concentrate storage facility that will enable a number of customers to discharge mineral concentrates by road and rail in 30 tonne half height containers and to load the product on ships to Panamax size in all weather conditions.

The works include:

- Developing a design for an integrated storage facility that will receive, store and outload concentrates to a ship on Berth 2;
- Constructing the state-of-the art facility and associated conveyor systems that will eliminate fugitive dust emissions.
- Arranging the shed bay configuration to suit the in-go, out-go logistics as well as the permutations of product mix of five types of concentrate over a client base of at least seven parties.
- Installing a new shiploader.

**Progress to August 14, 2009**

The task force, comprises project management specialists Evans and Peck, engineering consultants BBS, business consultants KPMG and the Esperance Port Authority, has completed the Business Case study for the world class mineral concentrate facility.

The business case study has been submitted to the State Government for its consideration, and the Port has requested an opportunity to make a representation of the Report findings.

**OUTLOOK:** Delivery of the Business Case to the State Government is impending.