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## Esperance Mineral Concentrate 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 (up to the current upgrade) 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 (Stage 1) until a new storage facility and handling circuit can be built (Stage 2), 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 are 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 Licence's deadline of March 31 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 by the August 31 deadline 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;
- Telescopic chute fitted to the ship loader on berth two;
- Conveyor three on berth two enclosed;
- New tippler constructed to handle half height 30-tonne sealed containers; and
- Ventilation system in the Black Swan Shed upgraded.

Dry commissioning of the Stage One upgraded concentrate circuit occurred in August, and the circuit was used for the first time on Thursday, 10 September 2009. Loading was initially slow, but the rate increased after minor issues were resolved

## **OUTSTANDING WORKS**

Although all dust emission reduction works were completed by the 31 March and 31 August 2009 deadlines to satisfy DEC Licence requirements, a number of projects are still being progressed to finalise Stage One of the Mineral Concentrate upgrade project.

The remaining works include:

### **1. Construction of a container hardstand area adjacent to the new container tippler.**

#### ***Current Situation***

Engineering design of the container hardstand area is continuing. A drainage report is being prepared which will be forwarded to BBS designers. Once the design is approved by the ALT tenders will be called for the construction of the hardstand area.

Golder and Associates completed the geotechnical design of the hardstand area in December 2009. The report will be produced in the second week of January and will then review by BBS designers and AMT for future civil design work to proceed.

### **2. Structural modifications to the CV11 iron ore conveyor supports to enable access to tippler from the new hardstand area.**

#### ***Current Situation***

Investigation of the soil strength adjacent to the CV11/18 transfer tower is being assessed. The results will be forwarded to BBS Design Engineers for final remodelling.

### **3. Upgrade of the Port's waste water system.**

#### ***Current Situation***

This project will be separated into four parts: the Waste Water Treatment Plant, the light vehicle wash down facility, the heavy machinery wash down facility and the storm water systems.

The current Waste Water Treatment Plant will remain in the same location but will be upgraded to improve the treated water production capacity.

The proposed upgrading of the current light vehicle wash down facility near the Store is being reviewed to improve its environmental compliance.

The development of a heavy machinery wash down facility is being considered. The possible location is in the area between Shed 3 and 4.

EPSL Environmental Department is preparing draft specifications improvements to storm water management. The specifications will be reviewed before seeking engineering.

#### **4. New Nickel Concentrate Storage Facility (Stage Two)**

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.

#### ***Current Situation***

The business case study prepared for this project has been submitted to the State Government for its consideration.