Esperance Mineral Concentrate Enhancement Project

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 consultants Bilfinger Berger Services to accelerate the delivery of the project and overcome high risk situations where there is time constrains that present challenges for traditional contract approaches.

- Deliver the project on time and budget.

ALLIANCE BOARD

An Alliance Leadership Team, which will operate like a Board of Directors, has been recently established to oversee the project. The Alliance Leadership Team comprises representatives from the Esperance Port Authority (Dennis Parsons, CEO and Devinder Grewal, Commercial Manager), and Bilfinger Berger Services (Mark Wheeler and Andrew Firmin).

The Board held its first meeting on Wednesday, January 14, when it determined the following:

- Election of Officers
- Dispute resolution procedures
- Alliance responsibilities and charter
- Alliance Board meeting and procedures
- Appointment of the Alliance project team and project manager
- Determination of Direct Cost Target date (budget agreement)
- Authorisation limit, terms and conditions for sub-contractors
- Agreement execution, including arrangements for management and funding.

Furthermore an Alliance Management Team was established comprising Neil Pearson (Esperance Port Engineer), and Gary Chiplin and Daryl Smith from Bilfinger Berger Services. Further personnel will be added to this team when required. The Management Team will be responsible for delivery of the projects.

PROPOSED WORKS

The proposed scope of works relates to nine separate projects, each being handled by an individual project team under the flexible management umbrella of the Alliance.

The scope of works include

1. Ship loader remedial works

This work will eliminate or significantly reduce fugitive dust emissions from a number of sources associated with the ship loader located on berth two:

- From the conveyor that leads to the ship loader;
- From three transfer points along this part of the circuit to the ship loader;
- From the top the loading chute; and
- From a ship's hold.

The works include:

- Sealing conveyors and transfer points;
- Installing additional scrapers, skirts and washing systems to keep belts clean and to minimise carryback of product; and
- Installing a fit-for-purpose chute that may include dust extractors and negative pressure.

2. Dust management system upgrade

This work will eliminate or significantly reduce fugitive dust emissions from other locations on the concentrate circuit .

The works include:

- Installing dust extracting measurers at identified emission points;
- Creating negative pressure environments;
- Minimising dust flow;
- Installing new and modifying existing dust filtration equipment; and
- Changing operational techniques.

3. Conveyors, chutes and transfer points remedial works

This work will prevent or minimise fugitive dust from conveyors, chutes and transfer points along the concentrate circuit.

The works include:

- Installing or modifying primary, secondary and tertiary scrapers on the circuit;
- Installing or modifying belt washing systems;
- Enclosing conveyor belts;
- Optimising transfer chute configuration; and
- Installing or modifying skirts and dust curtains on transfer points.

4. New plant and equipment procurement

Plant used in the concentrate circuit are front-end loaders to handle concentrates in the storage sheds and forklifts that move kibbles/containers carrying kibbles from rail wagons and discharge the contents into the tippler.

This project will consider the following before the equipment is purchased:

- Exhaust emissions;
- Fitness for the project;
- Fuel Consumption;
- Cost of remote control; and
- Cost of purchase.

5. Tippler installation project

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 are railed into the Port and road trains whereby the product is discharged using side tippers. 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 offsite, dismantled and then reassembled and recommissioned at the Port.

6. **Kibble remedial works**

Concentrates will continue to be delivered to the Port in eight tonnes kibbles until the tippler has been installed and commissioned at the Port (Project 5).

The works include:

- Maintaining and cleaning of kibbles to prevent fugitive dust from escaping the unloading bay;
- Repairing or changing loose fitting or damaged tarps on the kibbles;
- Cleaning spillage immediately with vacuum trucks and road sweepers; and
- Maintaining dust extractor system on existing hopper to minimise or eliminate dust emissions at point of discharge of concentrate from kibbles

7. General installation works

This project deals with a range of works that do not require detailed design work.

The works include:

- Recladding of storage facilities and conveyors modules; and
- Replacing of scrapers and skirts in conveyor circuits.

These works will be undertaken by work team under the direction of the project manager.

8. New facility project

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 the size of a Panamax 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 two; and
- 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.

9. Commercial management to minimise dust emissions

The control of fugitive dust at the Esperance Port begins at the mine site where the concentrate is produced. This project deals with the commercial arrangements between the Port and customers that relate to quality of the concentrate delivered to and stored at the Port.

The work includes:

- Ensuring that concentrates delivered to the Port are –
  Odour free
  pH neutral
  Moisture controlled
  Particle size limited
  Storage time minimised.

Protocols will be prepared that will need to be adhered to by the concentrate exporter that will meet these criteria.

Current Actions

1. Personal inductions for consultants and contractors.
2. Risk management assessments.
3. Agreed Direct Cost Target as well as conclusion of Alliance contract beyond "interest".
4. Detailed plant inspections, measurements, costings and procurement processes actioned.
5. Detailed costing being prepared for construction of tippler and new ship loader interstate.
6. Demountable offices for consultants and contractors sourced and established on site.
7. Briefing of consultants for the provision of specialist advice and services.
8. Commencing 12 hour dayshifts, six-day a week until interim works delivered.