

Appendix 2: Checklist for loading operations of copper and nickel by Rotabox

1. PURPOSE

To ensure the community and the environment are protected from emissions of dust, odour and noise from shiploading Nickel and Copper Concentrates via a Rotating Container System at the Port of Esperance and to clearly identify responsibilities to achieve this.

2. OPERATIONS

Export of nickel and copper concentrates is conducted using a Rotabox loading system to empty enclosed containers inside the ship's hold. The nickel and copper sulphide concentrates are trucked from Independence Group's (IGO) Nova Nickel Mine (approximately 120 km east of Norseman) in sealed shipping containers to a storage facility at SPE. Shuttle trucks will each carry two containers with a maximum capacity of 38 tonnes for each sealed container.

Containers used to transport the nickel and copper concentrate from Nova Nickel Mine will be free of leaks and structurally fit for purpose. Containers will be stored in designated hardstand areas either at Berth 2 or Berth 1 (formerly Black Swan Shed Pad (BSSP)) prior to ship loading.

The containers attached to the Rotabox will be lowered into the ship's hold using the Port's container crane. Four misting fans will be operational, one approximately in each corner of the vessels Hold. Once inside the Hold, the lid will be automatically lifted and the container rotated to unload the concentrates. The concentrates are treated with lime to reduce the potential for odour and self-heating, and are sufficiently moist to reduce dust. The container lid will be secured whilst the container is within the ship's Hold and the empty container will be returned to the berth, inspected and cleaned of any loose product prior to transport back to an adjacent storage facility.

3. RELATED RECORDS

- Environment Management Plan: Shipments of Nickel and Copper Concentrates via a Rotating Container System at the Port of Esperance (D17/8494)
- SPE Environmental Licence L5099/1974/14

Please note the following:

1. If there is unacceptable spillage remaining in the opinion of SPE, the Stevedore is required to contract the cleaning contractor for as long as required.
2. Each Step must be completed prior to the next in chronological order.
3. Loading to vessel cannot commence until Pre-start-up checks have been completed.
4. Within business hours the Environment Team will represent SPE, out of business hours it will be the Terminal Supervisor. ;
5. Cost of storage and disposal of all excess washwaters generated during operations must be accepted by the stevedore.
6. Wash waters in rainwater tanks on east end of Berth 2 accumulated during the loading operations will be managed by Environmental Services/SPE/IGO.
7. As much time as is required to conduct the task appropriately will be allocated to the berth clean.
8. Failure to complete many of the steps below will result in a formal investigation and appropriate outcomes of responsibility.

Vessel Name:	Loading dates:	Stevedore
Pre Start-up Checks		
Task	Completion (initial)	Responsibility
Complete the dust plans for day and night shift (Refer to Figure 1)		Stevedore
Conduct inspection on Berth 2 and confirm the berth is clean and fit for loading copper/nickel product.		SPE
Notify Cleaning contractor of requirement to clean stormwater pits on Berth 2		SPE
East end of Berth 2: Ensure Berth outlet valve for stormwater is shut (valve shown in closed position in Figure 2. If open, close using a large adjustable spanner.		Cleaning Contractor
East end of Berth 2: Vacuum dry landward rainwater tank and liaise with Environmental Team on reuse or disposal of water		Cleaning Contractor
East end of Berth 2: Valves 1 to 4 in position to divert Berth 2 run-off to the empty landward wastewater tank (refer to Figures 3 and 4). If tank becomes full arrange for transfer of waters to treatment facility east of Shed 5.		Cleaning Contractor
All service lids in operating area where there is potential spillage are sealed watertight		Cleaning Contractor
Water from all stormwater pits within the catchment of stored containers or the operations (refer to Figure 6) are emptied and treated at the facility east of Shed 5		Cleaning Contractor
Check integrity of containers and external contamination if any containers cannot comply, they should not be used		Stevedore
During Operation Checks		
Task	Completion (initial)	Responsibility
Complete the dust plans for day and night shift (Refer to Figure 1)		Stevedore
Check integrity of containers and external contamination during handling, if any containers cannot comply, do not use		
Ensure four misting fans in each corner are operational in the hold at all times during loading		
In the event of dust being observed in the upper half of the hold implement additional controls including extra fans or enforcement of a wind loading arc (loading only in offshore winds)		
If a text message being received from one of the E-samplers around Berth 2 (refer to Figure 7) warning of high dust levels measured, visually assess dust levels in the hold to determine if additional controls including extra fans are required		
If dust leaves the hold at any time, loading operations are stopped immediately		
In the event of stronger than usual odour being detected at the hold, notify the SPE Environmental Team immediately to assess if the odour is leaving the boundary towards the community		
Thick rubber matting is to be used on the berth to reduce the noise of containers banging on the berth (Note: Applicable only when landing containers directly on berth two hardstand)		
Following unloading, loose material on leading edge corners of empty containers are recovered (vacuuming preferred method), contained and dealt with appropriately		
Visible spillage in the operating area is recovered and contained ASAP and before rainfall, during every hold or shift change		
Any oil or fuel spills to be cleaned up using the yellow spill kits on the berth		
Check integrity of containers and external contamination during handling, if containers cannot comply, do not be use		
Post Vessel Unloading Checks		
Task	Completion (initial)	Responsibility
Stevedore's to ensure rotabox is cleaned of any product residue		Stevedore
Notify SPE cleaning contractor of requirement to conduct berth sweep and to clean stormwater pits.		Stevedore
Wet sweep the berth in the area enclosed by yellow line in Figure 5. Recover all wash waters including the stormwater pits in the catchment of containers/operations (Figure 6) into a controlled waste carrier.		Cleaning Contractor
Provide copy of controlled waste docket to the SPE Environment Team, dispose at the licenced receiving facility at Myrup		Cleaning Contractor

Dust Day Shift Plan for Rotabox Operations for Nickel and Copper Concentrates

Name of Product:

DATE	SHIFT PLAN			
	Are foggers working effectively? Y/N [†]	Is product moisture higher than DEM [#] ? Y/N [*]	Is wind forecast >10 kts in red zone during loading? If so, are misting fans installed and working effectively before loading commences? Y/N [†]	Are there other activities occurring onsite that may increase dust at B2? N/Y ^{**}
06:30 - 09:00				
09:00 - 12:00				
12:00 - 15:00				
15:00 - 18:30				

*Note: If the answer is no to above questions do not commence loading - contact the PoE Environment Department

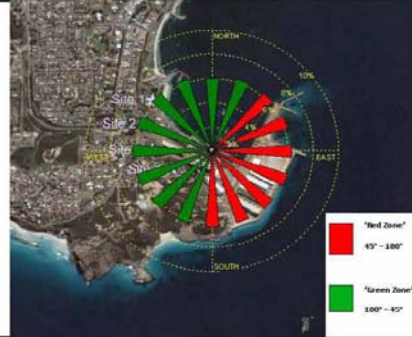
**Note: If the answer is Yes contact the Environment Department as dust notifications may need to be ignored

[#]DEM for Copper is 1.9%; DEM for Nickel is 2.4%

Wind Forecasts: <http://www.bom.gov.au/places/wa/esperance/forecast/detailed/>

Stevedore Signature on completion: _____

Date: _____



	SHIFT SUMMARY			
	Were the foggers adjusted to control dust during loading?	If visible dust left the hold, was loading stopped?	Did the onsite wind measurements show wind >10kts in the red zone? If so were misting fans installed and working effectively during loading?	Were dust notifications received, investigated and actioned?
06:30 - 09:00				
09:00 - 12:00				
12:00 - 15:00				
15:00 - 18:30				

Wind Confirmation: <http://eps1.com.au/NickelWindMonitor.asp>

On completion please send to: port.environment@southernports.com

Dust Night Shift Plan for Rotabox Operations for Nickel and Copper Concentrates

Name of Product:

DATE	SHIFT PLAN			
	Are foggers working effectively? Y/N [†]	Is product moisture higher than DEM [#] ? Y/N [*]	Is wind forecast >10 kts in red zone during loading? If so, are misting fans installed and working effectively before loading commences? Y/N [†]	Are there other activities occurring onsite that may increase dust at B2? N/Y ^{**}
18:30 - 21:30				
21:30 - 00:30				
00:30 - 03:30				
03:30 - 06:30				

*Note: If the answer is no to above questions do not commence loading - contact the PoE Environment Department

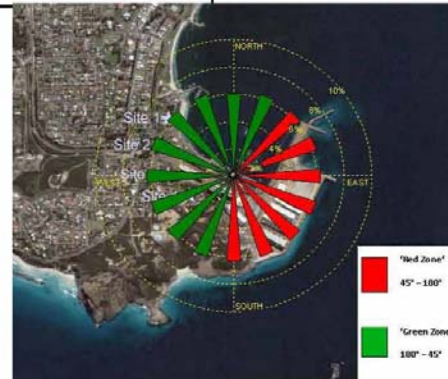
**Note: If the answer is Yes contact the Environment Department as dust notifications may need to be ignored

[#]DEM for Copper is 1.9%; DEM for Nickel is 2.4%

Wind Forecasts: <http://www.bom.gov.au/places/wa/esperance/forecast/detailed/>

Stevedore Signature on completion: _____

Date: _____



	SHIFT SUMMARY			
	Were the foggers adjusted to control dust during loading?	If visible dust left the hold, was loading stopped?	Did the onsite wind measurements show wind >10kts in the red zone? If so were misting fans installed and working effectively during loading?	Were dust notifications received, investigated and actioned?
18:30 - 21:30				
21:30 - 00:30				
00:30 - 03:30				
03:30 - 06:30				

Wind Confirmation: <http://eps1.com.au/NickelWindMonitor.asp>

On completion please send to: port.environment@southernports.com

Figure 1: Dust Plans and Summaries for Day Stevedore Shift



Figure 2 Berth outlet valve shown in closed position to divert water to tanks

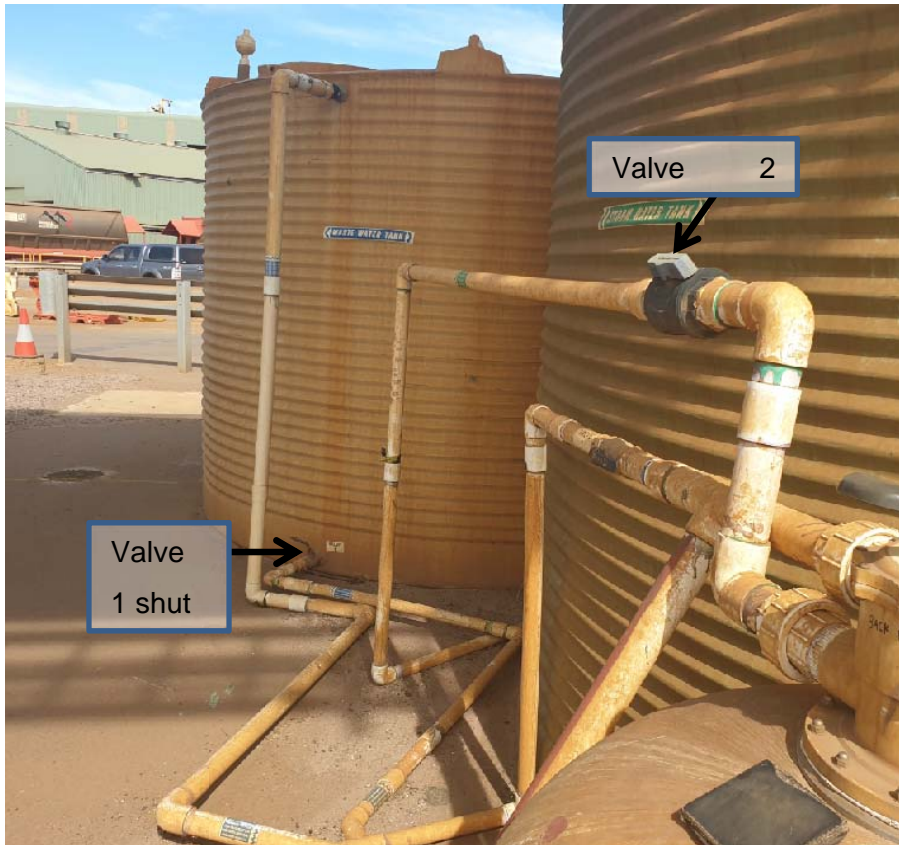


Figure 3 Valves 1 and 2 in position to divert Berth 2 run-off to the empty wastewater tank

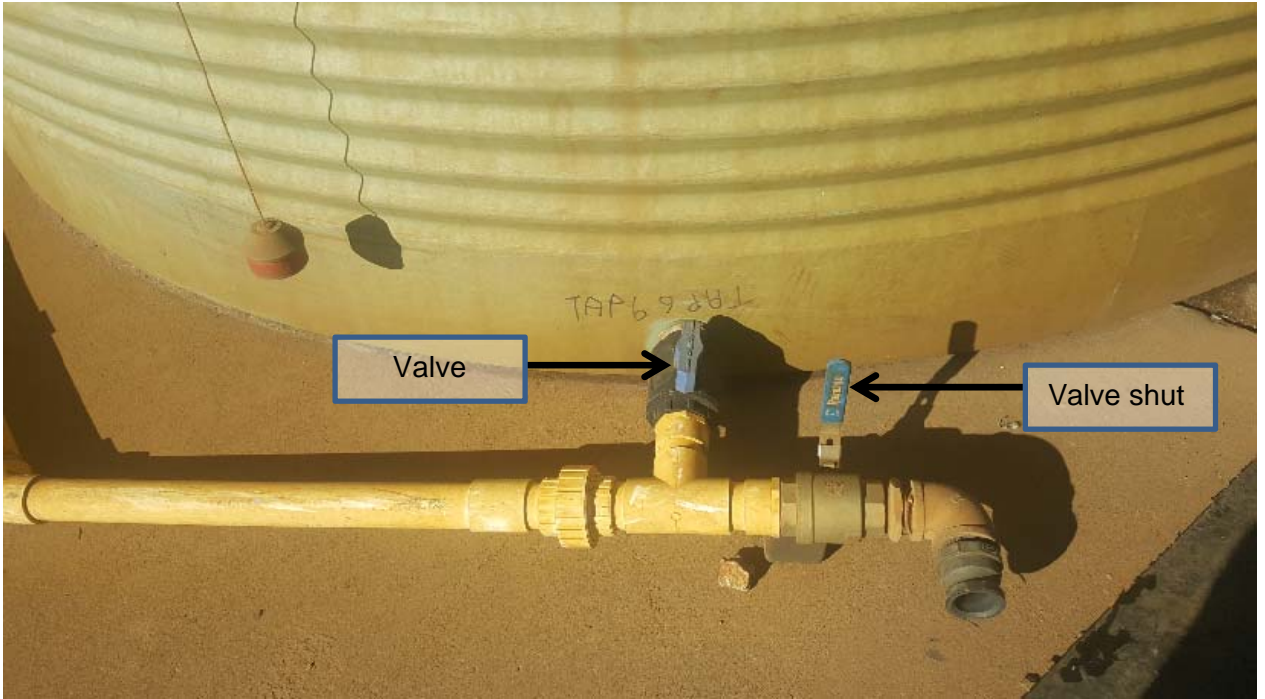


Figure 4 Valves in position on landward tank to accept overflow from wastewater tank



Figure 5. Area to be swept on Berth 2.

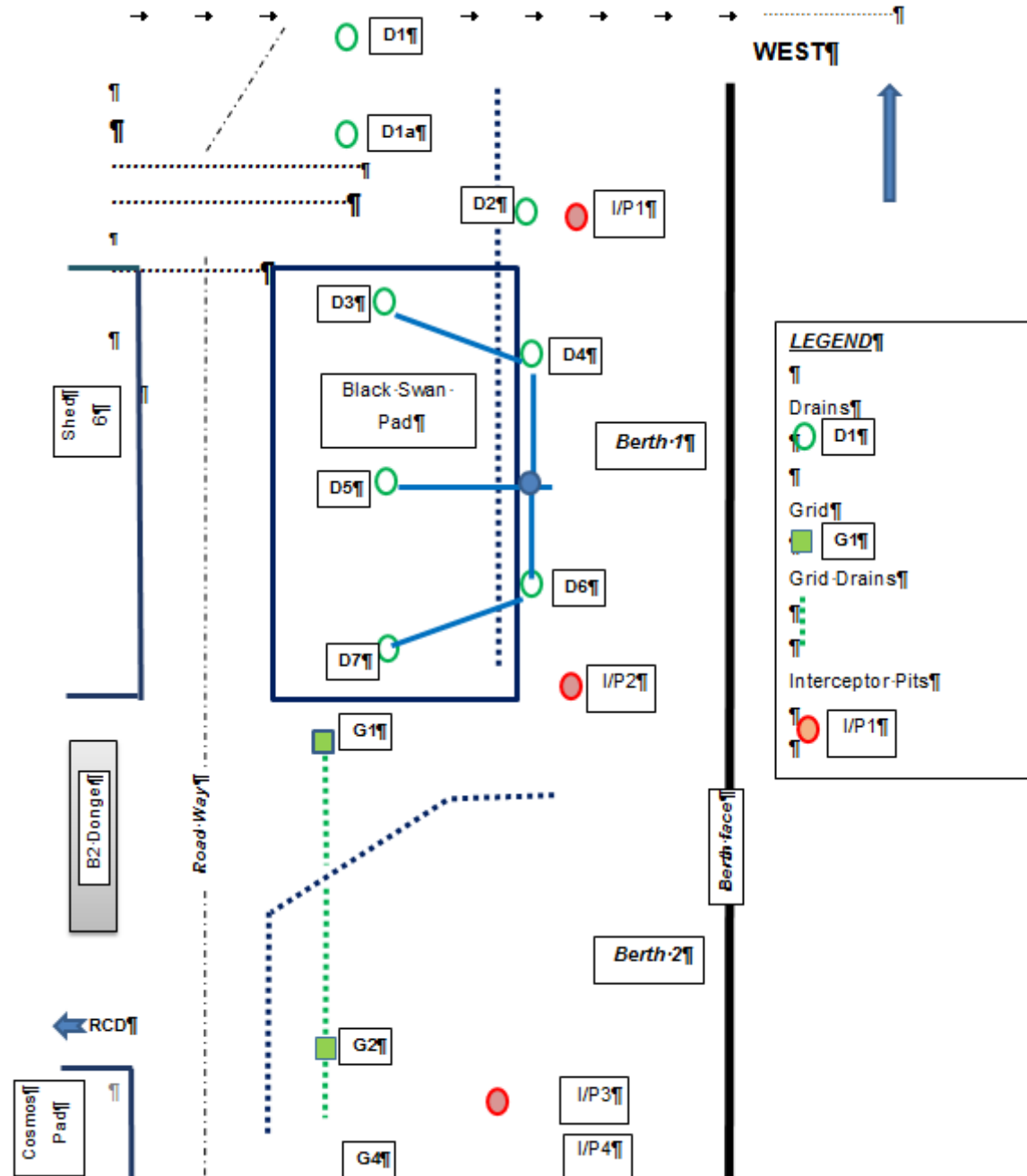


Figure 6 Map of stormwater interceptor pits on Berths 1 and 2 that may receive drainage from areas used for storage of copper and nickel containers



Figure 7 Esampler positions around Berth 2

