



Concrete Batching Management Procedure

Environmental

1 Purpose and Scope

This procedure specifies the operational environmental requirements relating to concrete batching management at the Roy Hill Project. This procedure applies to all personnel involved in activities at the Mine, Rail and Port operations that affect concrete batching management.

2 Procedure

2.1 Management Actions

2.1.1 General Requirements

1. Carry out concrete batching in accordance with the *Environmental Protection (Concrete Batching and Cement Products Manufacturing) Regulations 1998*.

2.1.2 Dust Management

1. Carry out concrete batching in such a manner that no visible dust escapes the premises boundary.
2. Apply dust suppression techniques (e.g. water or surfactants) to trafficable areas as often as necessary to minimise dust emissions.
3. Fit wind shields, water sprays or a dust extraction system, enclose or otherwise design and operate any hopper, conveyor, chute, bucket elevator or transfer point that moves material around the site or loads agitators so as to prevent the escape of visible dust.
4. Maintain all wind shields, water sprays, dust extraction systems and other devices used in good working order.


2.1.3 Material Management

1. Store all aggregate and sand kept on-site in storage bins or bays which are designed to minimise airborne dust, or where the use of such bins or bays is not practicable, store in stockpiles on the ground.
2. Minimise the height of aggregate or sand in a storage bin or bay so that it does not exceed the height of the bin or bay (including any windshields fitted to it).
3. Cover or otherwise keep the aggregate or sand stockpiles damp so as to minimise airborne dust.
4. Cease unloading aggregate or sand if excessive visible dust is generated, and do not resume until appropriate measures to prevent excessive visible dust generation are taken.

2.1.4 Silo Management

1. Store all cement on-site in either bags or in a cement silo.
2. Fit the cement storage silo(s) with an air cleaning system through which all air extracted from the silo while it is being filled must pass before it is discharged into the environment.

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3. Fit an air cleaning system to the cement storage silo so that it is either:
 - (a) A mechanical rapping air cleaning system with a minimum filter area of 23 square metres; or
 - (b) A reverse pulse air cleaning system which reduces dust emissions to less than 50 milligrams of particulate matter per cubic metre.
4. Fit an air cleaning system to the cement storage silo so that it discharges air from the system into a weigh hopper or to an outlet which is within one metre of the ground.
5. Clean, repair or replace any air cleaning system filters which are blocked, damaged, or have excessive build-up of dust immediately.
6. Cease unloading of cement into the silo in the event that the cement storage silo air cleaning systems are not working efficiently, until the system is repaired.
7. Keep sufficient spare filters on-site in a readily accessible place to replace all such bags or cartridges used in the air cleaning system of all cement storage silos.
8. Fit either a compliant level indicator or a compliant relief valve to cement storage silo(s).
9. Fit level indicator systems that include an audible alarm which sounds if cement stored in the silo reaches:
 - (a) 0.6 m below the inlet to the silo's air cleaning system; or
 - (b) 2 tonnes less than the silo's maximum capacity.
10. Provide level indicator systems that include a test circuit which indicates whether the level indicator and alarm are working correctly.
11. Activate the test circuit before a load of cement is unloaded into the silo.
12. Cease unloading cement into the silo in the event that the test circuit is not working correctly, until it is rectified.
13. Design relief valves for cement storage silo(s) to automatically prevent the level of cement in the silo reaching:
 - (a) 0.6 m below the inlet to the silo's air cleaning system; or
 - (b) 2 tonnes less than the silo's maximum capacity.
14. Design relief valves for cement storage silo(s) so that any excess cement is piped into a weigh hopper or to an outlet which is within one metre of the ground.
15. Seal all inspection ports, hatches and other openings to a cement storage silo while cement is being unloaded into the silo.
16. Cease filling a cement storage silo if any visible cement dust escapes from the silo, until appropriate measures have been taken to prevent the escape of cement dust from the silo.

2.1.5 Site Hygiene and Safety Management

1. Wash vehicles carrying concrete, or any of the ingredients of concrete, free of cement slurry and dust before they leave the site.
2. Clean all inside areas on-site which may be affected by cement product manufacturing regularly to prevent the accumulation of dust on any surface.
3. Ensure that all fittings and electrical installations in areas to be cleaned by water are waterproof or otherwise designed to withstand water.

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2.1.6 Waste Management

1. Clean up material spilt during concrete batching or transport immediately.
2. Direct all water used to clean up spilt materials into an imperviously lined slurry pit.
3. Direct all water draining from any area where agitators, mixers or moulds are loaded or where concrete is batched, into an imperviously lined slurry pit.
4. Direct all other water that drains off sealed or paved areas and which are likely to contain waste materials, into an imperviously lined slurry pit or settling/evaporation pond.
5. Direct any water removed from, or which might overflow from an imperviously lined slurry pit, into an imperviously lined settling/evaporation pond.
6. Direct water that is likely to contain hydrocarbons through an oil interceptor prior to being reused for dust suppression (e.g. from truck washdown pad).
7. Evaporate the waste water used in concrete batching or cement product manufacturing or reuse for dust suppression.
8. Keep settled material in a slurry pit wet to minimise dust emissions, until the pit is required to be dried out to allow the settled material to be removed.
9. Ensure that settled material in a slurry pit is not higher than 300 mm below the top of the slurry pit walls.
10. Construct settling/evaporation ponds that are large enough to contain all of the water which might drain into it.
11. Maintain, and empty or clean out slurry pits, settling/evaporation ponds, silt traps and oil interceptors as often as necessary, to ensure their efficient operation.
12. Recycle all excess concrete waste created during concrete batching or cement product manufacturing (including material removed from slurry pits, settling ponds, silt traps and oil interceptors) where possible, or dispose of at an appropriate licensed landfill site or waste treatment facility.

2.2 Training and Awareness

1. Familiarise all personnel associated with concrete batching management activities with the requirements of this procedure.
2. Include information on concrete batching management requirements in site inductions or site communications where relevant.
3. Conduct toolbox talks and develop environmental site notices and environmental awareness posters periodically highlighting concrete batching management requirements – this is the responsibility of the Superintendent Environment Mine or Port and Rail (or delegate where required).
4. Display relevant environmental site notices and environmental awareness posters at prominent workplace locations.
5. Update the training records of personnel in the Learning Management System once registered training has been completed (with the exception of toolbox talks).
6. Maintain records of toolbox training attendance onsite for audit and inspection purposes.

2.3 Monitoring Actions

1. Undertake monitoring in accordance with approval conditions and commitments, and ensure that all data required for regulatory reporting is captured.
2. Store all monitoring records within the Roy Hill Document Management System.

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3. Test the cement storage silo air cleaning systems at least weekly to check efficiency.
4. Monitor oily interceptor discharge water quarterly to confirm that it contains <5 ppm TPH if water is to be reused for dust suppression or otherwise released to the environment.

2.4 Incidents, Audits and Inspections

1. Undertake regular inspections of the active work area against the requirements of this procedure.
2. Undertake regular compliance audits against the requirements of this procedure in accordance with the 'Environmental Audit Procedure' (OP-PRO-00018).
3. Schedule inspections and audits against the requirements of this procedure in accordance with the approved HSE Integrated Inspection and Audit Schedule.
4. Store copies of all audits and inspections within the Roy Hill Document Management System.
5. Undertake an investigation into the cause(s) of incidents reportable to regulators in accordance with the 'Incident Investigation Specification' (OP-SPC-00156) and develop actions to prevent recurrence of the incident.
6. Enter corrective and preventative actions from incidents, audits and inspections into the Roy Hill Incident Management System.
7. Undertake continual visual dust monitoring of dust emissions from the concrete batching facility.
8. Inspect air cleaning system filters, or if the air cleaning system is fitted with pressure gauges for the detection of blockages or leaks, check gauges, at least weekly.
9. Inspect the integrity of the impervious lining of the slurry pit and settling/evaporation pond weekly.

2.5 Contingency Actions

1. Implement contingency actions in accordance with this procedure where deficiencies are identified during inspections, audits and incident reporting.
2. Implement the 'Management of External Complaints Procedure' (EA-PRO-00002), where relevant.
3. Conduct a risk assessment to determine the most effective mitigation measures should additional contingency actions be required, and follow the change management process.
4. Undertake additional dust suppression where visible dust is being generated from the concrete batching facility.

2.6 Reporting Requirements

1. Report all non-compliances with this procedure, all regulatory exceedances and all community complaints as an incident in the Roy Hill Incident Management System.
2. Close out all incidents and corrective actions in accordance with the 'Incident, Non-Conformance and Action Management Procedure' (OP-PRO-00702).
3. Complete all reporting required within the relevant EnviroSys data entry forms or in the 'Contractor Environmental Report' (CER) (OP-FRM-00305).

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3 Accountabilities

Unless otherwise specified, the following roles are accountable or responsible for the activities outlined in this procedure.

Role	Responsibility
General Managers	Accountable for ensuring that resources are available to support the implementation of this procedure where it is relevant to their area of responsibility
Managers	Accountable for the implementation of this procedure where it is relevant to their area of responsibility
Superintendents	Responsible for the implementation of this procedure where it is relevant to their area of responsibility
Environment Team	Responsible for review and update of this procedure

Table 1: Accountabilities

4 Abbreviations

Abbreviation	Definition
m	Metres
mm	Millimetres
ppm	Parts per million
TPH	Total Petroleum Hydrocarbons

Table 2: Abbreviations

5 Definitions

Term	Definition
Aggregate	Coarse particulate material used in construction, including sand, gravel, crushed stone, slag and recycled concrete
Operational Environmental Requirements	A plan, procedure or work instruction that must be complied with.
Surfactants	Compounds that lower the surface tension (or interfacial tension) between two liquids or between a liquid and a solid. Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents, and dispersants

Table 3: Definitions

6 References

Document number	Title
OP-FRM-00305	Contractor Environment Report
OP-PRO-00180	Dust Management Procedure
OP-PRO-00018	Environmental Audit Procedure
OP-PRO-00063	Waste Management Procedure
OP-PRO-00702	Incident, Non-Conformance and Action Management Procedure

Table 4: References

Note that up-to-date environmental documents should be accessed from the e-Care Roy Hill intranet portal to ensure that the current version is being used.

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7 Review

This Procedure is to be reviewed as follows:

- Following the grant of or modification to relevant approvals;
- Annually; or
- As a result of findings or actions identified through inspections, audits and incident reporting.

Reviews are to examine the appropriateness of this Procedure, taking into consideration corporate, system and compliance requirement changes since the last review was undertaken.

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