



Surface Water Management Procedure

Environment

1 Purpose and Scope

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

2 Procedure

2.1 Management Actions

2.1.1 Drainage and Diversion

1. Design and construct surface water drainage features in accordance with the 'Environmental Basis of Design' (OP-SPC-00506) and any relevant approvals.
2. Design, install and manage surface water diversion structures to divert non-contaminated water around disturbed and construction mining areas.
3. Redistribute diverted surface water into remnant sections of the natural water courses downstream of the Project.
4. Construct diversion channels with similar gradients to the natural drainage systems in the Project area.

2.1.2 Design infrastructure to minimise flood water entry. Disturbance to Water Courses

1. Ensure that no interference with the bed of a water course at any Project location occurs except as approved under a Ground Disturbance Permit (GDP) process.
2. Avoid or minimise disturbance to water courses, riparian vegetation, riparian zones and flood plains, wherever practicable.
3. Avoid disturbance to permanent pools, bends or high velocity sections of water courses where possible.
4. Undertake any required disturbance of water courses or works within water courses during dry periods.
5. Ensure that no works or structures cause obstructions to the free flow of rivers or cause water to pond upstream unless approved by the Roy Hill Manager Environment and Approvals.
6. Delay clearing of slopes leading to water courses until construction of the crossing is imminent, wherever practicable.
7. Construct the Stage 2 borefield water supply pipeline crossing at the Fortescue River during minimum flow periods to reduce potential disturbance to the river.

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8. Complete construction of river or creek crossings within the shortest time practicable to minimise the period of open trenches and subsequent environmental disturbance.
9. Ensure that no materials (including fill and topsoil) are left in creeks or river beds or on water course banks.
10. Reinststate natural drainage channels wherever possible following disturbance to a water course.
11. Complete the stabilisation of disturbed areas and new drainage lines prior to the wet season where practicable.
12. Undertake all rehabilitation of drainage channels, water courses and surface water diversion structures in accordance with the Rehabilitation Management Procedure (OP-PRO-00101) and applicable Rehabilitation Permit.

2.1.3 Surface Water Quality Management

1. Divert storm water within disturbed areas, where it is considered not to be at risk from hydrocarbon contamination, and only discharge into natural drainage areas via sediment reduction controls.
2. Install erosion and sediment control structures downstream of disturbance areas as required.
3. Engineer dispersion systems at discharge points of diversion drains to reintroduce sheet flow to minimise the impact on the downstream environment.
4. Utilise rock armouring or other suitable scour protection in areas of high erosion potential (e.g. steep gradients and bends).
5. Use appropriate stabilisation techniques (e.g. geotextile and gabions) during the construction of the Stage 2 borefield pipeline to maintain the integrity of the Fortescue River banks and minimise additional sediment loading.
6. Use sedimentation control measures during the construction of the Stage 2 borefield pipeline to minimise additional sediment loading on the Fortescue River.
7. Ensure that potentially contaminated storm water (e.g. runoff which contains hydrocarbons > 15 mg/L Total Petroleum Hydrocarbons (TPH)) is not discharged into the environment.
8. Service equipment in designated areas, ensuring that field servicing is undertaken in a manner that facilitates containment of all hydrocarbons and chemicals.

2.1.4 Maintenance of Surface Water Flows

1. Install culverts beneath site roads as required to minimise water reduction shadow effects on native vegetation.
2. Ensure there is no disturbance within the 500m drainage buffer zone, except where approved by a GDP.
3. Minimise changes to surface water flows particularly where they impact surface flow dependent communities such as mulga woodlands.

2.2 Training and Awareness

1. Familiarise all personnel associated with surface water management activities with the requirements of this procedure.
2. Include information on surface water management requirements in site inductions or site communications where relevant.

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3. Conduct toolbox talks and develop environmental site notices and environmental awareness posters periodically highlighting surface water 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 and monitoring data within the Environmental Data Management System.
3. Monitor oily water separator discharge water quarterly, when discharging, to ensure it contains <15 mg/LTPH before it can be used for dust suppression or discharged into the environment.
4. Undertake surface water monitoring in accordance with the 'Mine Monitoring Manual' (OP-MAN-00007) and the 'Port and Rail Monitoring Manual' (OP-MAN-00011).
5. Undertake a monitoring program for the Kulbee Creek diversion channel and associated levee that is consistent with that outlined in section 3.4.5 of Mining Proposal B and sections 5 and 6 of the GHD report "Drainage Design for Mining Proposal B" or as outlined in Proposed Kulbee Creek Monitoring Letter (RHIO-001-LET-5887, dated 27 October 2014).

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. Inspect all sediment basins/ponds to check that their effective volume is maintained.
8. Inspect surface water and sedimentation control devices to check for damage or blockages.
9. Inspect water containment facilities to ensure that there is no hydrocarbon contamination prior to discharging to environment.
10. Undertake inspections of surface water diversion structures in accordance with the relevant approvals.

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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. Clean out debris and sludge from all sediment basins/ponds and windrow it alongside so that their effective volume is maintained.
5. Maintain and repair damage to or blockages of surface water and sedimentation control devices where required.
6. Undertake contingency actions with regards to the Kulbee Creek diversion channel and associated levee consistent with the requirements of Mining Proposal B and the GHD report "Drainage Design for Mining Proposal B" or as outlined in Proposed Kulbee Creek Monitoring Letter (RHIO-001-LET-5887, dated 27 October 2014).

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).
4. Report oily water separator test results to the Roy Hill Site Superintendent Environment.

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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
Environment Team	Responsible for review and update of this procedure
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

Table 1: Accountabilities

4 Abbreviations

Abbreviation	Definition
GDP	Ground Disturbance permit
m	Metre
ppm	Parts per million
TPH	Total Petroleum Hydrocarbons

Table 2: Abbreviations

5 Definitions

Term	Definition
Operational Environmental Requirements	A plan, procedure or work instruction that must be complied with.

Table 3: Definitions

6 References

Document number	Title
OP-MAN-00007	Mine Monitoring Manual
OP-MAN-00011	Port and Rail Monitoring Manual
OP-PLN-00044	Rehabilitation Management Plan
OP-PRO-00101	Rehabilitation Management Procedure
OP-SPC-00506	Environmental Basis of Design
RH1-001-30-EN-FOR-0919	Roy Hill Infrastructure Railway Bridges and Culverts: Application to Disturb Beds and Banks Supporting Document

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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