

CONTINGENCY PLANS
FOR
KANGRA COAL (PTY) LTD
BALLENGEICH COLLIERY



M²ENCO

EXECUTIVE SUMMARY

These Contingency Plans have been compiled in compliance with DWS Requirement 25 of the Water Use Licence Application (WULA) Acknowledgement Letter (Ref: WU33839, signed 17 December 2024) for Kangra Coal (Pty) Ltd's Ballengeich Colliery, and in accordance with Sections 19 and 20 of the National Water Act, 1998 (Act 36 of 1998) (NWA). The plans must be read in conjunction with the WULA Summary Report (WULAR; MENCO, June 2026), the Integrated Water and Waste Management Plan (IWWMP; MENCO, January 2025), the Rehabilitation Plan and Environmental Management Programme (EMPr; EMP/2024/086, November 2024), and the GFK Stormwater Management Plan (SWMP; March 2026).

Section 19 of the NWA places a duty of care on any person who owns, controls, occupies, or uses land on which any activity or process is or was performed or undertaken which has caused, is causing, or is likely to cause pollution of a water resource, to take all reasonable measures to prevent, control, abate, and remedy such pollution. Section 20 makes provision for emergency incidents involving water pollution, empowering the Director-General to issue directions and to take emergency measures at the owner's cost. Section 151 of the NWA prescribes criminal penalties for non-compliance, including failure to notify DWS of water pollution incidents within the prescribed timeframes.

The Ballengeich Colliery presents a complex and high-risk set of water-related pollution scenarios arising from: three decades of uncontrolled Acid Mine Drainage (AMD) generation from old underground workings (pH <4.5; SO₄ >4,000 mg/L; Fe 189 mg/L), opencast spoils, and an unrehabilitated discard dump; the proximity of all site infrastructure to two NFEPA rivers (Horn River and Ngagane River) at their confluence; the location of all infrastructure within the 1:100-year floodline; active spontaneous combustion on the northern face of the discard dump; and ongoing Quantum Screening and Crushing operations on the site. The Section 19 Directive (Ref: 16/2/7/V301/A/1, August 2013) remains in force.

The following five contingency plans are addressed in this document, covering the full spectrum of credible emergency scenarios at the site:

- Contingency Plan 1 (CP-01): Pollution Control Dam (PCD) Spill or Overflow — Risk Level: HIGH
- Contingency Plan 2 (CP-02): AMD Decant Emergency — Uncontrolled Discharge to Horn River — Risk Level: HIGH
- Contingency Plan 3 (CP-03): Flood Event — Overtopping of PCDs or Flood Protection Berm — Risk Level: HIGH
- Contingency Plan 4 (CP-04): Passive Wetland Treatment System Failure — Risk Level: MEDIUM
- Contingency Plan 5 (CP-05): Discard Dump Emergency — Spontaneous Combustion or Structural Failure — Risk Level: HIGH

Each contingency plan includes: the scenario description and trigger conditions; the three-tier alert system (Watch/Warning/Emergency); responsible persons and notification cascade; immediate containment actions; remediation and clean-up actions; reporting obligations in terms of the NWA; and preventive measures to reduce the likelihood of the scenario occurring.

These Contingency Plans must be reviewed annually by 30 April as part of the IWWMP update process, and must be updated to reflect any changes in site infrastructure, personnel, emergency equipment inventory, or regulatory requirements. All site personnel and contractors must be trained on these plans as part of their environmental induction, and must sign an acknowledgement of receipt in the induction register.

These Contingency Plans must be physically posted at the site office entrance and at the main site security gate. The plans must be available in English and isiZulu summary form. In all emergency scenarios involving actual or threatened water pollution, DWS KZN must be notified within 24 hours. Failure to notify is a criminal offence under Section 151 of the NWA.

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1. REGULATORY FRAMEWORK AND KEY CONTACTS

1.1 Legislative Basis

These Contingency Plans are compiled in terms of the following legislation and regulatory instruments:

Table 1: Legislative Framework for Contingency Plans

Legislation / Instrument	Relevant Provision
National Water Act, 1998 (Act 36 of 1998)	Section 19: Duty to prevent pollution and take reasonable measures to prevent, control, and remedy water pollution. Section 20: Emergency incidents — powers of the Director-General to direct measures and take action at the responsible party's cost. Section 40: Water Use Licence conditions. Section 151: Criminal penalties for non-compliance, including failure to notify DWS of pollution incidents.
NWA Section 19 Directive (Ref: 16/2/7/V301/A/1, August 2013)	Directive issued to Kangra Coal directing prevention and remediation of water pollution at Ballengeich Colliery. Remains in force until all instructions successfully carried out. Non-compliance is a criminal offence.
GN 704 (June 1999) — Regulations on Use of Water for Mining	Regulations 6 and 7 require appropriate emergency preparedness and response measures for dams and pollution control facilities. Regulation 12 addresses emergency access requirements for water management infrastructure.
NEMA (Act 107 of 1998)	Section 28: General duty of care to prevent environmental damage. Chapter 7: Emergency incident response procedures and obligations.
GN 4167 (December 2023) — NWA Licensing Regulations	Provides the framework for the assessment and management of water use risks associated with proposed activities. Emergency response and remediation actions should be implemented in a manner consistent with the approved Risk Assessment Matrix (RAM) and associated mitigation measures.
NEMWA (Act 59 of 2008) and GNR 634, 635, 636	Emergency waste management provisions. Characterisation and disposal requirements for hazardous spill material (PCD sludge; AMD-contaminated soil; HDPE liner waste). Waste manifests required for all hazardous waste removed from site.
Mine Health and Safety	Safety requirements for any fire, slope failure, or emergency on

Legislation / Instrument	Relevant Provision
Act (Act 29 of 1996)	mine property. DMRE notification requirements for incidents on mining areas, including dump fires and structural failures.

1.2 Emergency Notification Cascade

In ALL emergency scenarios involving actual or threatened water pollution, DWS KZN must be notified by telephone within 24 hours of the incident being identified, followed by written notification within the timeframes specified below. Failure to notify is a criminal offence under Section 151 of the NWA.

Table 2: Emergency Notification Cascade

Priority	Person / Authority	Role	Contact Details	Notification Trigger
1	Site / Contractor Supervisor	First responder; initial assessment and containment	On-site mobile number (to be inserted by Kangra Coal before site mobilisation)	All incidents — immediately upon discovery
2	Environmental Control Officer (ECO)	Assesses severity; directs emergency response; initiates full notification cascade	ECO mobile number (to be inserted by Kangra Coal before site mobilisation).	All incidents within 1 hour of discovery
3	Kangra Coal Project Manager	Overall incident control; resource authorisation; media management	Kangra Coal Representative Mahlatse Monareng — Tel: +27 76 829 0719	All incidents within 1 hour
4	DWS KZN Regional Office	Regulatory notification; DWS incident database; potential Section 20 emergency directions	DWS Case Officer	Within 24 hours of any actual or threatened water pollution incident
5	DWS WUL	WULA-specific	DWS KZN Regional Office: 031	Within 24

Priority	Person / Authority	Role	Contact Details	Notification Trigger
	Manager (Ref WU33839)	notification; WUL condition compliance monitoring	336 2700	hours for incidents affecting WUL conditions
6	Environmental Consultant	Technical advice; specialist support; incident reporting to DWS	Environmental Consultant	Within 24 hours
7	Newcastle Local Municipality / Umgeni Water — Newcastle WTP	Downstream water quality alert for potable supply protection	Newcastle Local Municipality	Any spill confirmed reaching or threatening the Ngagane River (220 MI/day WTP abstraction downstream)
8	Elemental Water Services (EWS) — Hydrogeologist	Groundwater emergency assessment and advice	Hendrik Botha: 084 588 2322	Groundwater incidents; new decant breakout; borehole contamination
9	DMRE KZN Regional Office	Mining right compliance; mine safety incidents (dump fire; structural failure)	DMRE KZN: 031 335 9000	Dump fire; structural failure; any safety incident on mine property
10	Newcastle Fire Services	Discard dump fire response	034 315 0000 / National Emergency: 112	Dump fire or spontaneous combustion escalating to Warning or Emergency

Priority	Person / Authority	Role	Contact Details	Notification Trigger
				level
11	SAPS Newcastle	Safety and road incidents; media management	034 328 8400	If N11 road is affected; any fatality or serious injury; public safety risk

1.3 Emergency Equipment and Resources

The following emergency equipment must be maintained on site at all times during construction and operational phases. The ECO must inspect and record the equipment inventory at monthly intervals. Equipment must be replenished within 48 hours of any use.

Table 3: Emergency Equipment and Resources

Equipment / Resource	Minimum Quantity	Location and Purpose
Spill containment kits (hydrocarbon: absorbent pads, booms, containment bags, non-sparking shovels)	3 kits	One per active construction zone; one at Quantum site; one at plant refuelling area. For hydrocarbon spills and AMD seepage on open ground.
Quicklime (CaO) in 50 kg sealed bags (for emergency AMD pH neutralisation)	20 bags (1,000 kg minimum)	Locked weatherproof store, minimum 100 m from any watercourse. Application rate: approximately 0.5 kg/m ³ AMD at pH 2.5 to raise pH above 6.0 that treats 2,000 m ³ of AMD. Replenish immediately after use.
Portable water quality meter (pH; EC; DO; temperature; calibrated monthly)	2 units	ECO vehicle (1 unit); site supervisor office (1 unit). Essential for real-time monitoring during any emergency.
Filled hessian sandbags	200 bags	Site store and site entrances. Emergency channel blocking; temporary bund walls around AMD spills. Must be accessible without tools or keys.
Submersible pump (diesel or solar; minimum 2 L/s at	2 units	Site store. Emergency dewatering; pumping spilled AMD from open ground back to PCD.

Equipment / Resource	Minimum Quantity	Location and Purpose
10m head)		
50 m of 50 mm flexible HDPE bypass pipe (pre-cut; with fittings)	1 set	Site store. Emergency bypass pipe for AMD containment infrastructure. Must be available for deployment within 30 minutes.
Temporary bladder dam (minimum 50,000 L capacity; HDPE-lined)	1 unit	Folded and stored at site. Emergency AMD storage if all PCDs are at capacity or damaged.
Fire extinguishers (CO ₂ and dry powder)	4 units	Site office (1); plant refuelling area (1); Quantum site (1); dump access ramp (1). Monthly inspection and certification.
Emergency response vehicle (4x4 with first aid and emergency equipment)	1 vehicle	On site at all times during construction. Carries emergency equipment, first aid kit, spill kit, and portable water quality meter.
First Aid Kit (OHSA-compliant; with AED if >10 persons on site)	2 kits	Site office; emergency response vehicle.
H ₂ S and SO ₂ portable gas detector (calibrated; bump-tested daily on dump)	1 unit minimum	ECO vehicle. Mandatory for all personnel accessing discard dump area. PEL H ₂ S: 1 ppm; SO ₂ : 2 ppm.
Emergency contact board (laminated; English and isiZulu)	Posted at 2 locations	Site entrance gate and site office. All contacts from Table 2; nearest hospital: Newcastle Medi-Clinic 034 328 9000; SAPS Newcastle 034 328 8400.

2. CONTINGENCY PLAN 1: POLLUTION CONTROL DAM SPILL OR OVERFLOW (CP-01)

Table 4: CP-01 Scenario Reference Details

Scenario Reference:	CP-01
Risk Level:	HIGH — all existing PCDs are unlined, within the 1:100-year floodline, and within 100 m of the Horn or Ngagane River. pH as low as 2.5; SO ₄ up to 8,000 mg/L confirmed at SW3(1), SW5, and

	SW7.
NWA Reference:	Section 19 (duty of care); Section 20 (emergency incidents); Directive Ref: 16/2/7/V301/A/1
GN 704 Reference:	Regulation 6 (emergency response plan required for all dams); Regulation 7 (dam failure response)
Primary Monitoring Point:	SW6 — Horn River at N11 bridge; SW7 — East opencast final void (SW7 AMD pH $\approx$ 2.5; SO ₄ up to 8,000 mg/L)

2.1 Scenario Description

The Ballengeich site has nine existing earth-lined PCDs (PCDs 1–8 and the West Containment Sump), all contaminated with AMD (pH as low as 2.5; SO₄ up to 8,000 mg/L; Fe, Al, and Mn elevated). All PCDs are currently unlined and situated within the 1:100-year floodline, within 100 m of the Horn River or Ngagane River. PCDs 3, 4, 7, and 8 are prioritised for HDPE lining (Class C, GNR 636) as part of the approved GFK SWMP (March 2026). Until lining is complete, all PCDs represent an active spill risk.

A PCD spill or overflow event can occur from: extreme rainfall events causing inflow to exceed PCD capacity; embankment failure due to seepage, erosion, or instability; flood inundation causing cross-contamination; mechanical pump or pipe failure during dewatering operations; or blockage of silt traps causing dirty water channels to bypass the PCD and discharge directly to the Horn River.

2.2 Trigger Conditions

Table 5: CP-01 Trigger Conditions — Three-Tier Alert System

Alert Level	Colour	Trigger Condition
WATCH	Yellow	PCD freeboard reduced to <0.6 m during a rainfall event. Forecast 24-hour rainfall >50 mm in V31F or V31G catchment. Any turbid or orange-coloured water visible in dirty water channels downstream of PCDs.
WARNING	Orange	PCD freeboard <0.3 m. Visible seepage from PCD embankment outer slope. Silt trap blocked or overflowing. Pump failure during a high-inflow period. pH at SW6 (Horn/Ngagane confluence) drops >0.5 units below baseline.
EMERGENCY	Red	PCD actively overflowing its embankment crest. PCD embankment failure confirmed (slumping, cracking, piping). Visible AMD discharge reaching Horn River or Ngagane River. pH <4.5 measured at SW6. EC >200 mS/m measured at SW6.

2.3 Immediate Response Actions

Watch Level (Yellow)

1. The Site Supervisor shall deploy personnel to inspect all Pollution Control Dams (PCDs) and associated water management infrastructure. Available freeboard shall be verified and recorded in the site diary or inspection register.
2. Available water management measures shall be activated where necessary to maximise storage capacity and maintain adequate freeboard within the PCD system.
3. All silt traps, culverts, dirty water channels and associated stormwater control structures shall be inspected and cleared of any obstructions to ensure unrestricted flow.
4. The Environmental Control Officer (ECO) and Site Management shall be notified of the developing conditions and shall assess whether escalation to the Warning Level is warranted based on observed site conditions, available storage capacity and updated weather forecasts.
5. Emergency response materials and equipment, including erosion control and containment measures, shall be positioned at critical infrastructure locations to allow for rapid deployment should conditions deteriorate.

Warning Level (Orange)

1. The ECO and Project Manager shall be notified immediately. The ECO shall attend the site as soon as reasonably practicable to assess conditions and advise on further response actions.
2. If available freeboard decreases to less than 0.3 m and significant rainfall is continuing, temporary containment measures shall be implemented to maintain storage capacity and reduce overtopping risk. Where embankment seepage is observed, crest raising measures shall not be implemented as seepage may indicate potential embankment instability. In such cases, emergency pumping to available alternative storage facilities (PCDs 1, 2, 5, 6 or other suitable containment infrastructure) shall commence immediately.
3. All pumping systems shall be inspected to confirm operational status. Any failed or blocked pumps shall be repaired or replaced immediately, and backup pumping capacity shall be deployed where required.
4. Temporary containment measures shall be installed at strategic locations downstream of the PCD system to reduce the risk of uncontrolled releases reaching the Horn River.
5. Water quality monitoring shall be undertaken at SW6 (Horn/Ngagane Confluence) to assess whether site conditions are resulting in a deterioration of receiving water quality. Significant deviations from expected water quality conditions shall trigger escalation to Emergency Level response actions.
6. If conditions continue to deteriorate or the risk of overtopping remains imminent, the Department of Water and Sanitation (DWS) shall be notified telephonically as soon as

reasonably practicable, followed by written notification in accordance with the applicable reporting requirements.

Emergency Level (Red)

1. All non-essential personnel shall immediately evacuate the affected area. Access shall be restricted until the responsible site personnel, ECO and relevant specialists confirm that conditions are safe.
2. The Department of Water and Sanitation (DWS) shall be notified immediately of any overflow, embankment failure, uncontrolled discharge, or incident with the potential to impact a water resource. Initial telephonic notification shall be followed by written notification and an incident report in accordance with applicable legislative requirements.
3. Where there is a reasonable risk that contaminated water may reach the Ngagane River or downstream water users, the relevant municipal authorities and other affected stakeholders shall be notified as soon as reasonably practicable.
4. Emergency pumping and temporary storage measures shall be implemented where safe and practicable to minimise uncontrolled releases and maximise containment of contaminated water.
5. In the event of embankment instability or structural failure, no repair works shall be attempted until conditions are safe and the infrastructure has been assessed by a suitably qualified engineer.
6. Appropriate neutralisation and containment measures shall be implemented where contaminated water has escaped onto open ground, with the objective of reducing environmental impacts and preventing contaminated runoff from reaching nearby watercourses.
7. Water quality monitoring shall be undertaken at upstream and downstream monitoring locations to assess the extent of the incident and support decision-making regarding remediation and stakeholder notifications.
8. Temporary warning notices, access restrictions and other public safety measures shall be implemented where there is a risk to downstream water users, livestock, or members of the public.
9. Containment measures, including temporary earth berms, sandbags, diversion channels or other suitable controls, shall be installed where practicable to limit the spread of contaminated water and reduce impacts on surrounding areas.
10. Where the incident exceeds the capacity of on-site resources, appropriately qualified environmental remediation and water treatment specialists shall be engaged to assist with containment, remediation and recovery actions.

2.4 Remediation and Clean-Up

1. All reasonable measures shall be implemented to recover, contain and remove AMD released during the incident. Contaminated water shall be returned to an approved

containment facility or managed through suitable temporary storage and treatment measures where practicable.

2. Any soil, sediment or other material impacted by the release shall be assessed and managed in accordance with the applicable waste management legislation and disposal requirements. Waste classification shall be undertaken where required to determine the appropriate handling, transport and disposal route.
3. Contaminated areas within the riparian zone, wetland areas or other environmentally sensitive locations shall be rehabilitated using appropriate remediation measures based on the nature and extent of the contamination and the recommendations of the ECO or relevant specialists.
4. Post-incident water quality monitoring shall be undertaken at relevant upstream and downstream monitoring locations to assess the effectiveness of remediation measures and confirm recovery of affected water resources. The monitoring programme shall be implemented for a period appropriate to the nature and severity of the incident.
5. A detailed incident report shall be submitted to the Department of Water and Sanitation (DWS) within the prescribed reporting period. The report shall include details of the incident, probable cause, estimated extent of the release, affected areas, monitoring results, remediation measures implemented and actions proposed to prevent recurrence.

2.5 Preventive Measures

1. Regular inspections of all Pollution Control Dams (PCDs), embankments, stormwater infrastructure and associated water management systems shall be undertaken to identify signs of reduced freeboard, seepage, erosion, sediment accumulation or structural deterioration. Inspection findings shall be recorded and corrective actions implemented where required.
2. Priority water management infrastructure, including lined PCDs and associated containment measures, shall be constructed, maintained and operated in accordance with the approved engineering designs to maximise storage capacity and minimise the risk of uncontrolled releases.
3. Water management equipment and contingency response systems shall be inspected, tested and maintained on a routine basis to ensure operational readiness prior to and during the wet season.
4. Adequate freeboard shall be maintained within all PCDs in accordance with the approved design requirements. Where storage capacity becomes constrained, proactive measures shall be implemented to restore available capacity and reduce overtopping risk.
5. Silt traps, dirty water channels, culverts and associated stormwater management infrastructure shall be inspected and cleaned at appropriate intervals to ensure continued functionality and effective stormwater conveyance.

6. Environmental awareness and emergency response training shall be provided to relevant site personnel to ensure that potential risks are identified early and that contingency measures can be implemented effectively when required.

3. CONTINGENCY PLAN 2: AMD DECANT EMERGENCY — UNCONTROLLED DISCHARGE TO HORN RIVER (CP-02)

Table 6: CP-02 Scenario Reference Details

Scenario Reference:	CP-02
Risk Level:	HIGH — AMD decant currently uncontrolled; artesian pressure; interim containment to West Decant PCD only. This is the most critical pollution risk at Ballengeich.
NWA Reference:	Sections 19 and 20; Section 19 Directive Ref: 16/2/7/V301/A/1, August 2013
Context:	AMD decants from old flooded underground mine workings at artesian pressure near the Horn River bank (west of N11 bridge) at approximately 27°53'25"S; 29°57'45"E. Flow rate: approximately 1,000 m ³ /day. AMD is directed to the West Decant PCD via existing surface drainage as interim containment pending the passive treatment system. The artesian nature of the source means AMD cannot simply be blocked — it will find alternative pathways if obstructed.
Primary Monitoring Point:	SW4 — Horn River at N11 bridge; SW6 — Horn River at Ngagane confluence; Horn DS1 (MENCO monitoring site)

3.1 Scenario Description

Uncontrolled AMD discharge from the artesian decant point directly to the Horn River can occur from: failure or blockage of interim AMD containment infrastructure; overflow of the West Decant PCD (86,400 m³ capacity) during extreme rainfall when freeboard is lost; opening of a new artesian breakout location due to seasonal groundwater level fluctuations or ground movement; damage to interim containment structures during construction activities; or failure to monitor and respond to rising water levels in the West Decant PCD during the wet season. AMD at the decant point has pH <4.5; SO₄ >4,000 mg/L; Fe 189 mg/L; Mn 4.0 mg/L — classified as Toxicity Class IV at Horn DS1 (MENCO Aquatic Ecological Assessment, November 2023).

3.2 Trigger Conditions

Table 7: CP-02 Trigger Conditions — Three-Tier Alert System

Alert Level	Colour	Trigger Condition
WATCH	Yellow	AMD containment flow rate anomaly at West Decant PCD inlet vs. expected rate. West Decant PCD freeboard <0.8 m. Orange or rust discolouration visible in the Horn River at SW4 (N11 bridge). pH decrease of >0.5 units from baseline at SW4.
WARNING	Orange	Visible AMD discharge from the decant point to open ground outside pipeline containment. West Decant PCD freeboard <0.3 m. pH at Horn DS1 (SW6) <5.5. Pipeline pressure test fails or inspection pit shows AMD outside the pipeline.
EMERGENCY	Red	Visible AMD flowing uncontrolled to the Horn River. pH at Horn DS1 (SW6) <4.5. AMD containment infrastructure confirmed failed or blocked. New artesian decant breakout confirmed outside containment area. Orange plume visible in Horn River.

3.3 Immediate Response Actions

Watch Level (Yellow)

1. Inspect AMD containment infrastructure and associated surface drainage for any visible signs of leakage, blockage, erosion, instability, or physical damage. Particular attention shall be given to known high-risk areas and inspection points.
2. Assess the available storage capacity and freeboard within the West Decant PCD. Where storage capacity is becoming constrained, available water management measures shall be implemented to maintain adequate containment capacity and reduce the risk of overtopping.
3. Undertake water quality monitoring at SW4 (Horn River at the N11 Bridge) and SW6 (Horn/Ngagane Confluence) and compare results against established baseline conditions. Any indication of deteriorating water quality that may be associated with AMD discharge shall trigger further investigation and consideration of escalation to the Warning Level response.
4. Notify the ECO of the developing conditions. The ECO shall inspect the decant point area and associated infrastructure to assess the extent of the issue and determine whether additional response measures are required.

Warning Level (Orange)

1. The ECO and Project Manager shall be notified immediately. The ECO shall attend the site as soon as reasonably practicable to assess the extent of the incident and advise on appropriate containment and remediation measures.

2. Where a pipeline rupture, failure or loss of containment is confirmed, the affected section shall be isolated and temporary bypass or diversion measures implemented, where feasible, to maintain conveyance of AMD to an approved containment facility and minimise uncontrolled releases.
3. Temporary containment measures, including earth bunds, diversion channels, sandbags or other suitable controls, shall be implemented around any AMD breakout area to prevent contaminated water from reaching the Horn River or other sensitive environments.
4. Appropriate neutralisation and containment measures shall be implemented where AMD has escaped onto open ground and where there is a risk of contamination spreading beyond the affected area.
5. If the incident cannot be contained within a reasonable period or there is a risk of impact on a water resource, the Department of Water and Sanitation (DWS) shall be notified as soon as reasonably practicable in accordance with the applicable reporting requirements.
6. Where a new artesian breakout location, seepage zone or groundwater-related issue is identified, a suitably qualified hydrogeologist shall be engaged to assess the source, extent and potential containment options.
7. Water quality monitoring shall be undertaken at SW4 (Horn River at the N11 Bridge) and SW6 (Horn/Ngagane Confluence) to assess the effectiveness of containment measures and determine whether escalation to Emergency Level response actions is required.

Emergency Level (Red)

1. The Department of Water and Sanitation (DWS) shall be notified immediately of any uncontrolled AMD discharge, pipeline failure, or incident with the potential to significantly impact a water resource. Initial telephonic notification shall be followed by written notification and a detailed incident report in accordance with applicable legislative requirements.
2. Relevant downstream stakeholders, including municipal authorities, water service providers and other potentially affected water users, shall be notified where there is a reasonable risk of impact on downstream water resources or water supply infrastructure.
3. All available containment and emergency pumping measures shall be deployed to minimise the release of AMD to the receiving environment and maximise containment within approved storage facilities.
4. Temporary containment and flow reduction measures shall be implemented, where safe and practicable, to reduce the volume of AMD reaching the Horn River and associated aquatic environments.
5. Appropriate neutralisation, containment and remediation measures shall be implemented where AMD has escaped containment and poses a risk to surface water, groundwater, soil resources or downstream users.

6. Suitably qualified environmental remediation specialists and contractors shall be engaged where the scale of the incident exceeds the capacity of on-site personnel and resources.
7. Temporary warning notices, access restrictions and other public safety measures shall be implemented where there is a risk to downstream water users, livestock, infrastructure or members of the public.
8. Water quality monitoring shall be undertaken at appropriate upstream and downstream monitoring locations to assess the extent of the incident, support remediation decisions and determine when emergency response measures may be scaled down.
9. Ongoing communication shall be maintained with relevant authorities, stakeholders and affected parties until the incident has been contained and the risk to the receiving environment has been adequately addressed.

3.4 Remediation and Clean-Up

1. Any damaged AMD containment infrastructure shall be repaired or replaced as soon as reasonably practicable following containment of the incident. Repairs shall be undertaken in accordance with the approved engineering specifications and quality assurance requirements.
2. Any soil, sediment or other material contaminated by AMD shall be assessed and remediated using appropriate containment, neutralisation, removal or rehabilitation measures based on the nature and extent of the contamination. Waste handling and disposal shall comply with applicable waste management legislation and approved disposal requirements.
3. Post-incident surface water quality monitoring shall be undertaken at relevant upstream and downstream monitoring locations to assess the effectiveness of remediation measures, evaluate recovery of affected water resources and identify any ongoing impacts requiring further intervention.
4. Where there is a reasonable risk of groundwater contamination or where a new seepage or decant point has been identified, groundwater monitoring and specialist hydrogeological investigations shall be undertaken to determine the extent of the impact and inform any additional remediation measures.
5. A detailed incident report shall be submitted to the Department of Water and Sanitation (DWS) within the applicable reporting period. The report shall include the nature and cause of the incident, estimated extent of the release, affected areas, monitoring results, remediation measures implemented and recommendations to prevent recurrence.
6. Where the incident results in the identification of new AMD pathways, seepage zones or decant locations, the conceptual site model and associated management measures shall be reviewed and updated by suitably qualified specialists to support long-term containment and remediation planning.

3.5 Preventive Measures

1. Routine inspections of AMD containment infrastructure and associated surface drainage shall be undertaken to identify signs of leakage, blockage, structural deterioration, reduced flow capacity or other operational issues. Inspection findings shall be recorded and corrective actions implemented where required.
2. The West Decant PCD and associated water management infrastructure shall be operated and maintained in accordance with the approved engineering designs to ensure adequate storage capacity and minimise the risk of uncontrolled AMD releases.
3. Emergency response equipment, temporary bypass systems and containment materials shall be maintained in a serviceable condition and be readily available for deployment in the event of a pipeline failure or AMD release.
4. The decant point area and surrounding groundwater discharge zones shall be routinely monitored for evidence of new seepage areas, changes in discharge characteristics, or indications of increased artesian pressure. Where significant changes are identified, specialist hydrogeological input shall be obtained to assess the implications and recommend appropriate management measures.
5. Findings from routine inspections, monitoring activities, incident investigations and specialist assessments shall be incorporated into the ongoing review and improvement of the site water management and contingency planning measures.
6. All personnel involved in the operation, maintenance and monitoring of the AMD management infrastructure shall receive appropriate environmental awareness and emergency response training to ensure that potential risks are identified and addressed proactively.

4. CONTINGENCY PLAN 3: FLOOD EVENT — OVERTOPPING OF PCDs OR FLOOD PROTECTION BERM (CP-03)

Table 8: CP-03 Scenario Reference Details

Scenario Reference:	CP-03
Risk Level:	HIGH — the entire Ballengeich site is located at the confluence of the Horn River (V31F; 1:100-yr peak 418 m ³ /s) and the Ngagane River (V31K; 1:100-yr peak 1,660 m ³ /s). All infrastructure is within the 1:100-yr floodline. GN 704 Reg. 4 exemption applied for December 2024.
NWA Reference:	Sections 19 and 20; GN 704 Regulation 4 (exemption applied for); GN 704 Regulation 7 (emergency response)
Context:	The flood protection berm (crest 1,183.1 m amsl; min. 0.8 m freeboard; geocell/soilcrete revetment; 1:100-yr HEC-RAS 2D design; GFK March 2026) is the primary flood risk mitigation measure. This berm MUST be fully constructed and certified before the first wet season following construction commencement.
Primary Monitoring:	DWS Hydrological Services flood forecasts (www.dws.gov.za/Hydrology); Horn River level at N11 bridge (staff gauge); Ngagane River level at SAR railway bridge (SW09)

4.1 Scenario Description

A flood event at Ballengeich can result from: an extreme rainfall event exceeding the 1:100-year return period in the Horn and/or Ngagane River catchments (MAP 822 mm/yr; design rainfall station ID 0240185W per SDF method; GFK March 2026); a sudden release from Ntshingwayo (Chelmsford) Dam upstream (the GFK HEC-RAS model conservatively assumes the dam is always full); a localised extreme thunderstorm (165 mm in 24 hours recorded at Newcastle, October 1965); or blockage of the N11 bridge culvert (Horn River) or rail bridge (Ngagane) causing upstream backwater flooding.

The flood risk is specifically critical during: (a) the construction phase before the flood protection berm is complete (all dirty infrastructure and lined PCDs exposed to 1:100-yr inundation and cross-contamination with clean floodwater); and (b) after berm construction, for events exceeding the 1:100-yr design standard.

4.2 Trigger Conditions

Table 9: CP-03 Trigger Conditions — Three-Tier Alert System

Alert Level	Colour	Trigger Condition
WATCH	Yellow	Forecast 24-hour rainfall >50 mm in the V31F or V31G catchment. Horn River visibly rising at the N11 bridge. DWS Flood Warning issued for the Ngagane or Horn River catchment (www.dws.gov.za/Hydrological). Water visible in low-lying areas of old Horn River diversion channel.
WARNING	Orange	Horn River level at N11 bridge within 1 m of bridge soffit. Ngagane River level rising rapidly at SW09 (SAR railway bridge). Water beginning to enter the site low-lying areas. Any PCD freeboard <0.5 m.
EMERGENCY	Red	Flood water entering the PCD area. Flood protection berm being overtopped. Any construction personnel in the flood-prone treatment area. N11 bridge overtopped or impassable. Flood water visible in the SAPS or aerobic wetland cells.

4.3 Immediate Response Actions

Watch Level (Yellow) — Pre-Flood

1. Subscribe to and actively monitor DWS Hydrological Services SMS flood alerts for the V31F and V31G quaternary catchments (www.dws.gov.za/Hydrology). This is a standing, season-long instruction during October–March, not only a Watch-level response.
2. Inspect all PCD embankments and confirm freeboard is a minimum of 0.5 m. If freeboard <0.5 m in any PCD: begin emergency pumping to alternative storage immediately.
3. Secure all portable construction equipment above the 1:50-year flood line elevation (approximately 1,182.0 m amsl).
4. Ensure emergency bypass pumps are fuelled and in operational condition.
5. Brief all contractor and site personnel on the flood alert status and evacuation routes. Confirm evacuation routes are clear, accessible, and gates are operable without keys.

Warning Level (Orange)

1. ECO and Project Manager notified immediately.
2. All workers in the low-lying treatment areas (Treatment Areas 1 and 2, PCDs 3, 4, 7, 8) must evacuate to high ground (minimum elevation 1,190 m amsl) immediately. No vehicle or person may remain in the flood zone. Confirm head count at the safe assembly point.

3. Close and secure all silt trap access covers and dirty water channel outlets to minimise cross-contamination of clean floodwater with PCD contents.
4. Move all chemical storage (quicklime bags, reagents) to elevated areas above 1,190 m amsl.
5. Photograph the current condition of all PCDs, the flood berm, and all treatment structures. Time-stamp all photos and include in the site diary.

Emergency Level (Red) — During Active Flooding

1. EVACUATION IS THE ABSOLUTE PRIORITY. Confirm all personnel are at the designated safe elevation (>1,190 m amsl). No re-entry into the flood zone until the ECO confirms it is safe.
2. Notify DWS within 24 hours of any flood event that causes contaminated water to overflow a PCD or enter the Horn or Ngagane Rivers.
3. Notify Newcastle Local Municipality / Umgeni Water (034 328 7600) if AMD-contaminated floodwater is visible in the Ngagane River approaching the WTP abstraction point.
4. Do NOT attempt to operate pumps, equipment, or machinery in the active flood zone during flooding.
5. Monitor berm integrity remotely (binoculars or drone if safe). Do not access the berm during active flood conditions.

Post-Flood Response (Immediately After Flood Recession)

1. Full site inspection by the ECO and Principal Civil Engineer (B.D. Muhl, Pr.Eng.) within 24 hours of flood recession before any personnel re-enter the treatment area.
2. Assess: flood berm integrity (erosion; settlement; piping); PCD embankment integrity; HDPE liner condition in all treatment cells (visual inspection); silt accumulation in all channels, silt traps, and PCDs.
3. Water quality sampling at all monitoring points (SW3(1), SW4, SW5, SW6, SW7, and the aerobic wetland outfall) within 24 hours of flood recession.
4. Any PCD embankment damage to be repaired by emergency earthworks within 14 days. A geotechnical engineer must sign off before the repaired bund returns to service.
5. Calculate silt volumes deposited in PCDs and treatment cells. Characterise silt per GNR 635; remove and dispose if silt adversely affects PCD storage capacity or treatment cell efficiency.
6. Flood incident report to DWS within 7 days of the event, confirming: flood return period estimated; infrastructure damage; water quality impacts; remediation actions; and estimated timeline for return to full operation.

4.4 Preventive Measures

The flood protection berm MUST be fully constructed and signed off by the Principal Civil Engineer BEFORE the start of the first wet season (October) following commencement of

construction. This is the single most important risk reduction measure for the Ballengeich site. If berm construction cannot be completed before October in Year 1, it must be the highest-priority activity in Year 1.

- Annual pre-wet-season inspection of the flood berm in August each year: confirm crest levels against design by survey; inspect river-facing slope erosion protection (geocell/soilcrete); check toe drainage; repair any damage before October.
- Monitor DWS Hydrological Services flood forecasts throughout the wet season (October–March). ECO to check the DWS website or SMS alert system at minimum weekly during the wet season.
- Maintain minimum 0.8 m freeboard in all lined PCDs throughout the wet season. Weekly freeboard measurement by the site supervisor during October–April.
- Maintain all evacuation routes to high ground (>1,190 m amsl) clear and accessible at all times, with gate locks operable without keys in emergencies.
- Consider installing a simple river level staff gauge on the Horn River at the N11 bridge with a float alarm at 1,181.0 m amsl as a pre-flood early warning system.

5. CONTINGENCY PLAN 4: PASSIVE WETLAND TREATMENT SYSTEM FAILURE (CP-04)

Table 10: CP-04 Scenario Reference Details

Scenario Reference:	CP-04
Risk Level:	MEDIUM — new technology at pilot scale; treatment performance uncertainty is highest during the first 1–2 years of operation. Risk decreases as the system reaches steady-state and monitoring confirms performance.
NWA Reference:	Sections 19 and 20; NWA WUL conditions (once issued; Ref WU33839); GN 1873 (March 2022) RQOs for V31K catchment
Context:	DWS has specifically required pilot-scale commissioning and a minimum 2-year monitoring period before full-scale construction. Treatment performance may temporarily fall below RQOs during establishment or as a result of system deterioration. Discharge to the Horn River is only permitted when treatment quality is confirmed (pH >5.5; Fe <10 mg/L as minimum construction-phase standards).
Primary Monitoring Point:	Aerobic Wetland 1 outfall; ALD 1 outflow; SAPS outflow; Oxidation Pond outlet; SW4 (Horn River at N11)

5.1 Scenario Description

A passive wetland treatment system failure can manifest in the following ways: pH of treated effluent at the aerobic wetland outfall falls below 6.5 (GN 1873 RQO); Fe concentration exceeds 0.1 mg/L (GN 1873 RQO) consistently over two or more consecutive monthly monitoring results; HDPE liner failure in any treatment cell causing AMD bypass; ALD limestone armouring (coating by iron or aluminium precipitates) reducing alkalinity production below design capacity; SAPS compost layer compaction or decomposition reducing hydraulic conductivity and short-circuiting AMD treatment; reed die-off in the aerobic wetland due to AMD toxicity, frost, or disease; significant siltation of the Oxidation Pond reducing retention time below 24 hours; or vandalism or theft of pipeline infrastructure or inlet distribution manifolds.

5.2 Performance Thresholds and Intervention Triggers

Table 11: CP-04 Performance Thresholds and Intervention Triggers

Parameter	Intervention Threshold	Emergency Threshold	Required Action
pH at aerobic	<6.5 for 2	<5.5 on any single	Intervention: increase

Parameter	Intervention Threshold	Emergency Threshold	Required Action
wetland outfall	consecutive monthly samples	weekly sample	limestone dosing; check SAPS function. Emergency: close outfall valve immediately; divert AMD to West Decant PCD; notify DWS.
Fe total at aerobic wetland outfall (mg/L)	>0.1 for 2 consecutive months	>5.0 mg/L on any single weekly sample	Intervention: inspect oxidation pond sludge level; check aerobic wetland DO. Emergency: close outfall; inspect ALD and SAPS function; notify DWS within 24 hours.
Mn at aerobic wetland outfall (mg/L)	>0.02 for 2 consecutive months	>1.0 mg/L	Intervention: check pH of oxidation pond outflow (Mn precipitation requires pH >7.5). Apply emergency limestone dosing to oxidation pond.
Reed cover in aerobic wetland	<60% of cell area	<30% of cell area	Intervention: replant dead sections; identify and address cause. Emergency: close outfall; replant entire affected cell; monitor for 90 days before recommissioning.
ALD alkalinity output (pH rise across ALD)	<0.5 pH units rise across ALD length	<0.1 pH units rise	Intervention: flush ALD with 2 pore volumes of clean water to dislodge Fe/Al precipitate armouring on limestone. Emergency: replace 50% of limestone; earlier than scheduled.
HDPE liner integrity	Visual damage: cracks, punctures, UV degradation	Confirmed active leakage or AMD outside the liner system	Intervention: repair with HDPE patches; fusion-welded 150 mm overlap; spark test repair. Emergency: dewater cell; full

Parameter	Intervention Threshold	Emergency Threshold	Required Action
			liner inspection; repair before recommissioning.
Oxidation Pond sludge level	Sludge depth >500 mm	Sludge occupying >30% of pond volume	Intervention: partial desludge via scour valve. Characterise sludge per GNR 635. Emergency: close outfall; full desludge; liner inspection before recommissioning.

5.3 Immediate Response Actions

Intervention Level Response

1. ECO notified immediately. ECO increases monitoring frequency to weekly at the outfall and at each treatment component.
2. Identify root cause: collect samples sequentially from each component (ALD 1 outflow; SAPS outflow; Oxidation Pond outlet; Aerobic Wetland outfall). Determine exactly which stage of the treatment train is underperforming.
3. If ALD armouring suspected: flush the ALD with 2 pore volumes of clean water (pump clean water through the ALD to dislodge Fe/Al precipitate coating on limestone surfaces).
4. If SAPS compost compaction suspected: lightly scarify the top 200 mm of the compost layer with a fork or light roto-tiller to restore hydraulic conductivity.
5. If reed die-off: identify cause. If AMD toxicity (influent pH too low): reduce inflow rate by partial closure of the inlet valve. Replant affected areas with nursery-raised indigenous reeds (*Typha capensis*; *Phragmites australis*).
6. If Oxidation Pond siltation: partial desludge via scour valve. Characterise and dispose of sludge per GNR 635.
7. If HDPE liner damage: drain the affected cell; repair using HDPE patch (fusion-welded; minimum 150 mm overlap; spark test the repair before reflooding).

Emergency Level Response

1. Close the aerobic wetland outfall valve immediately. If no valve is fitted: install a sandbag berm at the outfall to block discharge to the Horn River.
2. Continue AMD input to the treatment system if the West Decant PCD has sufficient freeboard (>0.5 m) to buffer untreated AMD during the emergency period. If PCD is approaching capacity, implement temporary diversion measures to reduce AMD inflow throughput.

3. Notify DWS (Mrs B. Dukhea: DukheaB@dws.gov.za; 031 336 2700) within 24 hours: confirm that the aerobic wetland discharge has been stopped and that AMD is contained in the West Decant PCD. Provide the expected duration of remediation.
4. Engage Menco (Johan Maré: 083 389 6617) and GFK Principal Civil Engineer (B.D. Muhl) within 24 hours to inspect the treatment system and prepare an emergency remediation plan.
5. Daily water quality monitoring at SW4 and SW6 until the Horn River water quality returns to the pre-incident baseline (pH >6.5 for 3 consecutive daily readings).
6. Recommission the outfall ONLY after: minimum two consecutive weekly samples show pH >6.0 AND Fe <2.0 mg/L. Full GN 1873 RQO compliance (pH >6.5; Fe <0.1 mg/L; Mn <0.15 mg/L) must be demonstrated over 4 consecutive weekly samples before notifying DWS that normal operation has resumed.

5.4 Preventive Measures

1. Monthly water quality monitoring at EACH COMPONENT of the treatment train (ALD 1 outflow; SAPS outflow; Oxidation Pond outlet; Aerobic Wetland outfall), not only at the final discharge point. Component-level monitoring identifies failure early.
2. Install continuous data loggers (pH; EC; DO; temperature) at the Aerobic Wetland 1 outfall and the ALD 1 outflow. Download data monthly; review trends for early indicators of deteriorating performance.
3. Annual SAPS compost layer assessment: measure hydraulic conductivity (falling head permeability test); assess degree of decomposition; replace organic carbon layer if hydraulic conductivity falls below 50% of design specification.
4. Maintain a standing order with a local limestone supplier for emergency delivery within 48 hours: minimum 50 tonnes on standby (8–25 mm; CaCO₃ >90%). This ensures rapid ALD maintenance without lead-time delays.
5. Maintain a nursery stock of minimum 500 plants (Typha capensis and Phragmites australis) from a registered nursery or a reed propagation bed on site, for rapid replanting of any die-off areas without waiting for procurement.
6. Annual inspection of all HDPE liners by a specialist geomembrane inspector (HDPE certified). Any areas showing UV degradation, animal damage, or mechanical impact to be repaired immediately.

6. CONTINGENCY PLAN 5: DISCARD DUMP EMERGENCY — SPONTANEOUS COMBUSTION OR STRUCTURAL FAILURE (CP-05)

Table 12: CP-05 Scenario Reference Details

Scenario Reference:	CP-05
Risk Level:	HIGH — discard dump (approximately 14 ha; max height 55 m; approximately 2 million tonnes coal waste) is partially burnt-out with confirmed active spontaneous combustion on the northern face. Steep, unrehabilitated slopes. No engineered cover or surface drainage. Classified Type 3 waste (GNR 635).
Legislation:	Mine Health and Safety Act (Act 29 of 1996); DMRE Regulations for Mine Safety; NWA Sections 19 and 20; MPRDA Section 43 (financial provision for rehabilitation); NEMA Section 28 (duty of care).
Context:	Any earthworks on the dump surface carry significant safety and environmental risk. NO person, vehicle, or plant may access the dump surface without prior completion of a specialist infra-red thermal drone survey and written clearance from a qualified geotechnical engineer. This is a NON-NEGOTIABLE safety requirement.
Primary Monitoring:	Infra-red thermal drone survey; H ₂ S and SO ₂ portable gas detector (carried by all dump personnel); visual monitoring from safe distance. SW3(1), SW5, SW7 for AMD loading after dump disturbance.

6.1 Scenario Description

The Ballengeich discard dump presents the following emergency scenarios: spontaneous combustion re-ignition (active hot spots reignite due to oxygen ingress during earthworks or natural events, producing toxic combustion gases — SO₂, CO, H₂S — and posing a fire risk to personnel and adjacent N11 traffic); slope failure or dump collapse (steep, unshaped, unengineered slopes may fail during heavy rainfall, causing a debris flow onto the toe platform and potentially into the old Horn River diversion channel, Dam 6, and PCD 5); AMD runoff spike following dump disturbance (earthworks temporarily expose fresh pyrite material to oxygen and water, causing a temporary increase in AMD generation and SO₄ loading to the Horn River via PCD seepage); and worker injury on the dump surface from hot ground, gas emission, or collapse into a sub-surface combustion void.

6.2 Trigger Conditions

Table 13: CP-05 Trigger Conditions — Three-Tier Alert System

Alert Level	Colour	Trigger Condition
WATCH	Yellow	Smoke or steam visible from dump surface during or after earthworks. Infra-red drone survey identifies a new hot spot not previously recorded. Surface temperature anomaly $>5^{\circ}\text{C}$ above ambient recorded by drone. Smell of combustion gases detectable at the dump perimeter.
WARNING	Orange	Visible flame on dump surface. H_2S reading >0.5 ppm or SO_2 reading >1 ppm at the dump perimeter (measured by portable gas detector; PEL H_2S : 1 ppm; SO_2 : 2 ppm). Visible cracking or surface slumping indicating a subsurface combustion void collapse.
EMERGENCY	Red	Active fire visible on dump surface. Slope failure or debris flow observed. Worker injury, gas exposure, or collapse into a void. Smoke affecting N11 national road or the Kilbarchan Residential Area. AMD runoff from dump disturbance exceeding PCD capacity.

6.3 Immediate Response Actions

Watch Level (Yellow)

1. Immediately stop ALL earthworks on the dump surface. No exceptions.
2. Evacuate all workers from the dump surface to the toe platform (at ground level, minimum 50 m from the dump toe). No person may return to the dump surface until the ECO confirms it is safe.
3. Conduct a repeat infra-red drone survey of the full dump surface within 24 hours to identify any new hot spots or expansion of existing hot spots.
4. Apply water to the smoking area from a safe distance (fire hose or TLB with water bowser attachment) to cool the surface and reduce oxygen ingress to the combustion zone.
5. Notify ECO and Project Manager. ECO records event in site diary with GPS coordinates, photographs, and temperature readings.

Warning Level (Orange)

1. Call Newcastle Fire Services (034 315 0000) immediately. Provide location: Farm Ballengeich 3299, N11 highway approximately 15 km south of Newcastle CBD, left (western) side of road.
2. Notify DMRE KZN Regional Office (031 335 9000) within 4 hours. A Mine Health and Safety Inspector must be notified of any fire on a mine waste dump.
3. ECO notifies DWS within 24 hours if any AMD runoff increase is detected as a result of the dump disturbance.

4. Implement controlled water injection into the combustion zone from a safe distance using a TLB with breaker attachment to inject water directly into the hot zone. Target: achieve 100% moisture saturation of the combusting material to extinguish by oxygen deprivation. Apply a minimum of 50 L/m³ of estimated combusting volume.
5. Establish a physical exclusion zone of minimum 50 m radius around all smoking, cracking, or visibly combusting areas. Mark with safety tape, physical barriers, and warning signs in English and isiZulu.
6. Monitor H₂S and SO₂ levels at the dump perimeter using the portable gas detector at 30-minute intervals. Extend the exclusion zone downwind if readings approach the PEL.
7. If slope cracking is observed: engage Knight Piesold or an equivalent qualified geotechnical engineer within 48 hours for a slope stability assessment. No earthworks in the cracking zone until the assessment is complete.

Emergency Level (Red)

1. LIFE SAFETY FIRST: Evacuate ALL personnel from within 100 m of the dump. Establish a safe upwind assembly point at minimum 200 m from the dump perimeter. Account for all personnel by head count.
2. Call Newcastle Fire Services: 034 315 0000. Provide: location (Farm Ballengeich 3299; N11, 15 km south of Newcastle); nature of incident (coal waste dump fire; H₂S and SO₂ gas risk); access route (N11 main gate, left side of road).
3. Call SAPS Newcastle: 034 328 8400. Report the emergency and request assistance if the N11 road is compromised by smoke.
4. Notify DMRE KZN: 031 335 9000. A Mine Health and Safety Inspector must attend any fire or structural failure on mine property.
5. Notify DWS within 4 hours if the fire or slope failure is causing or threatening AMD-contaminated runoff to reach the Horn River via Dam 6 or PCD 5.
6. Do NOT attempt to fight the dump fire with conventional water jets directly onto the large burning area. This may trigger steam explosions or slope liquefaction. Firefighting method must be directed by qualified mine rescue or fire services personnel.
7. If slope failure has occurred: assess from a safe distance whether the debris flow has entered Dam 6 (old Horn River) or PCD 5. If so: contain overflow via emergency pumping and notify DWS of the pollution incident.
8. Do not recommence earthworks on the dump until ALL of the following have been met: (a) fire is fully extinguished and confirmed cold by a repeat infra-red drone survey; (b) slope stability has been assessed and confirmed as safe by a qualified geotechnical engineer; (c) written clearance has been obtained from DMRE.

6.4 Remediation and Clean-Up

1. Water injection into all identified combustion zones until the repeat infra-red drone survey confirms the full dump surface temperature is within 2°C of ambient.

2. Geotechnical assessment of dump slope stability before any further earthworks or vehicle access to the dump.
3. Increase sampling frequency at PCD monitoring points (SW3(1), SW5, SW7) after any dump disturbance: daily for 14 days; weekly for 60 days thereafter. Compare to pre-disturbance baseline.
4. Full incident report to DMRE and DWS within 7 days: include estimated combustion volume; area affected; personnel involved; gas readings; response actions; timeline for safe recommencement of earthworks.
5. Update the Rehabilitation Plan (EMP/2024/086) to reflect any changes to the dump rehabilitation sequence or hot spot treatment methodology arising from the incident.

6.5 Preventive Measures

Infra-red thermal drone survey of the FULL dump surface before ANY earthworks commence — this is a non-negotiable safety requirement. No person, vehicle, or plant may access the dump surface until this survey is complete and all hot spots are confirmed extinguished and safe by a qualified geotechnical engineer.

- Repeat infra-red drone surveys at 30-day intervals during any active earthworks on the dump surface. Map all hot spots; track any changes in extent or temperature.
- Work sequence: always work from the coolest areas of the dump toward hot spots. Never leave fresh pyrite material exposed overnight. Apply minimum 600 mm of cover material immediately after any surface disturbance on the same working day.
- Do not use blasting explosives on or adjacent to the discard dump under any circumstances.
- Hot spot treatment plan: for every hot spot identified by drone survey, the specific treatment method (water injection; compaction; clay sealing) must be agreed in writing with a geotechnical engineer before earthworks proceed in that area.
- Mandatory PPE for all persons accessing the dump surface: respiratory protection (minimum FFP3 filter mask; must be worn at all times); personal H₂S monitor set to alarm at 0.5 ppm; heat-resistant footwear; high-visibility vest; radio communication with the site office at all times.

7. INCIDENT REPORTING AND RECORD KEEPING

7.1 Incident Classification and Reporting Timelines

Table 14: Incident Classification and Reporting Timelines

Classification	Definition	Notification Timeline	Written Report Deadline
Minor incident	Contained within the site; no confirmed water resource impact; no injury. AMD spill contained within PCD or dirty area footprint.	ECO within 1 hour; Project Manager within 4 hours. No DWS notification required unless DWS specifically requests.	Internal incident report within 48 hours. Filed in Incident Register.
Significant incident	AMD reaches ground outside the containment area but no confirmed watercourse impact; or a credible near-miss (e.g., PCD freeboard <0.1 m without overflow).	ECO within 1 hour; Project Manager within 2 hours; DWS by phone within 24 hours.	Written report to DWS within 7 days: cause; estimated volume; area affected; actions taken; preventive measures implemented.
Major incident	Confirmed AMD reaching the Horn River or Ngagane River; PCD embankment failure; dump fire escalating to Warning level; significant slope failure; groundwater borehole contamination.	DWS by phone within 1 hour; Newcastle LM/Umgenei Water within 1 hour if Ngagane affected; DMRE if mining safety related.	Written report to DWS within 7 days. Full incident investigation report within 30 days. Preventive measures implemented within 30 days.
Catastrophic incident	Major AMD contamination of Ngagane River threatening Newcastle WTP; major structural failure; fatality or serious injury; sustained dump fire causing off-site	DWS by phone immediately; Fire Services and SAPS immediately; DMRE immediately for	Written report to DWS within 48 hours. Full investigation report within 14 days. DWS may issue Section 20 emergency directions at Kangra's cost.

Classification	Definition	Notification Timeline	Written Report Deadline
	smoke impacts.	mine safety incidents. All notifications within 1 hour.	

7.2 DWS Incident Report Content Requirements

All written incident reports submitted to DWS must contain the following information at minimum:

- Date, time, and GPS coordinates (WGS84) of the incident, and date and time of discovery.
- Description of the incident: what happened, when, and how it was discovered.
- Estimated volume of AMD or other pollutant released (m³); estimated area affected (m²) on site and in the watercourse (if applicable).
- Water quality measurements taken at the time of the incident and at all relevant monitoring points (pH; EC; Fe; SO₄ at minimum).
- Immediate response actions taken, with dates and times for each action.
- Names and contact details of all persons involved in the response and all persons notified.
- Remediation actions completed and planned, with timeframes for completion.
- Measures implemented to prevent recurrence of the incident.
- Signed by the Environmental Control Officer and the Kangra Coal Project Manager.

7.3 Incident Register

The ECO must maintain a permanent Incident Register for the Ballengeich site for the full duration of the WULA (20 years). The register must be: maintained in a bound hard-copy book (or an approved electronic equivalent) at the site office; available for inspection by DWS, DMRE, or any regulatory authority at any time without prior notice; updated within 24 hours of any incident or near-miss; and submitted to DWS as part of the Annual IWWMP Update (by 30 April each year).

7.4 Annual Review of Contingency Plans

These Contingency Plans must be formally reviewed annually by 30 April each year as part of the IWWMP update process. The review must consider: all incidents that occurred in the preceding 12 months and whether the contingency response was adequate and effective; any changes to site infrastructure, personnel, or regulatory requirements since the last review; any new risks identified by the annual GN 4167 RAM update; updated contact details for all persons listed in the Notification Cascade (Table 2); and an updated inventory of emergency equipment

on site (Table 3). The revised Contingency Plans must be submitted to DWS as part of the IWWMP annual update.

These Contingency Plans must be physically posted at the site office and at the main site entrance gate. All contractors must acknowledge receipt and understanding of the plans in their signed environmental induction register before commencing any work on site. The plans must be available in English and isiZulu summary form.

8. CONTINGENCY RISK REGISTER SUMMARY

The following table summarises all five contingency scenarios, their risk ratings, primary triggers, DWS notification requirements, and the most critical immediate response action. This table must be posted at the site office and at the site entrance.

Table 15: Contingency Risk Register Summary

CP Ref	Scenario	Risk Level	Primary Trigger	DWS Notify	Key Immediate Action
CP-01	PCD Spill / Overflow	HIGH	Freeboard <0.3 m; visible overflow; pH at SW6 <4.5	Within 1 hr (Red); 24 hrs (Orange)	Emergency pumping to alternative storage; sandbag bunds; quicklime on open ground; monitor SW6 every 2 hours.
CP-02	AMD Decant — Emergency Uncontrolled Discharge	HIGH	Failure of interim surface containment infrastructure; visible AMD to Horn River; pH <4.5 at Horn DS1	Within 1 hr (Red); 24 hrs (Orange)	Implement emergency clay bund at decant outflow; deploy sandbag containment; lime dosing on open ground; monitor SW4 and Horn DS1
CP-03	Flood Event — Overtopping of PCDs or Berm	HIGH	Horn River rising at N11; berm overtopping; N11 bridge impassable	Within 24 hrs if AMD reaches watercourse	Evacuate ALL personnel immediately. No operations during flooding. Post-flood structural inspection within 24 hours of recession.
CP-04	Passive Treatment System Failure	MEDIUM	pH at outfall <5.5; Fe >5 mg/L; HDPE liner failure confirmed	Within 24 hrs	Close aerobic wetland outfall immediately; contain AMD in West Decant PCD; engage Menco and

CP Ref	Scenario	Risk Level	Primary Trigger	DWS Notify	Key Immediate Action
					GFK for root cause analysis.
CP-05	Dump Fire / Slope Failure	HIGH	Visible smoke or flame; H ₂ S >0.5 ppm; slope cracking; surface collapse	Within 4 hrs; DMRE within 4 hrs; Fire Services immediately	Evacuate all personnel (>100 m from dump); call Fire Services 034 315 0000; water injection from safe distance; geotechnical assessment before recommencing earthworks.

9. REFERENCES

DWS (1999) *Department of Water and Sanitation (previously DWAF). Government Notice 704 (GN 704): Regulations on the Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources. Government Gazette 20118. June 1999.*

DWS (2013) *Department of Water and Sanitation. Section 19 Directive, Reference 16/2/7/V301/A/1. August 2013. Directed to Kangra Coal (Pty) Ltd. KZN Regional Office.*

DWS (2022) *Department of Water and Sanitation. Schedule: Proposed Water Resource Classes and Resource Quality Objectives for Thukela Catchments in the Pongola-Mtamvuna Water Management Area. Government Notice 1873. 11 March 2022.*

DWS (2023a) *Department of Water and Sanitation. Formal letter to Kangra Coal (Pty) Ltd: expedited WULA and passive wetland approach approved. Ref: 16/2/7V301/C/4. Signed N. Makwabasa, Regional Head KZN. 24 August 2023.*

DWS (2023b) *Department of Water and Sanitation. Government Notice 4167: National Water Act Licensing Regulations (Risk Assessment Matrix). 8 December 2023.*

DWS (2024) *Department of Water and Sanitation. WULA Acknowledgement Letter. Ref: WU33839. Signed 17 December 2024. KwaZulu-Natal Regional Office, Durban.*

GFK (2026) *GFK Consulting Engineers CC. Water and Stormwater Management Report for WULA Purposes — Ballengeich Mine. Report No. G2025/06/338(1). Signed B.D. Muhl Pr.Eng. Civil (ECSA 202604247). 24 March 2026.*

MENCO (2024a) *M2 Environmental Connections (Pty) Ltd. GN 704 Audit and Application for Exemption from Regulations 4 and 5. December 2024.*

MENCO (2024b) *M2 Environmental Connections (Pty) Ltd. Rehabilitation Plan and Environmental Management Programme (EMPr) for Ballengeich Colliery. Report No. EMP/2024/086. November 2024.*

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MENCO (2026) *M2 Environmental Connections (Pty) Ltd. Water Use Licence Application Summary Report (WULAR) for Kangra Coal (Pty) Ltd: Ballengeich Colliery. Ref: WU33839. June 2026.*

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