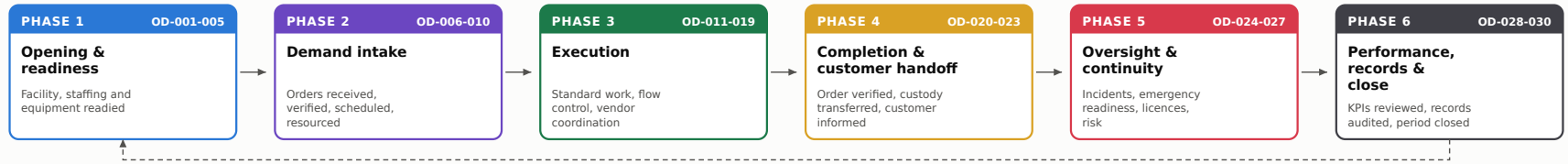
Operations Department (OD) — Complete SOP Set

Archetype: CHEMICAL_MINERAL_MINING · Chemical Mineral Mining

Tier: Free (entire Operations department) · Modules: 30 · Standard: locked 13-section

Contents

FIGURE 1 — OPERATIONS WORKFLOW



Six phases · 30 modules · one continuous operating cycle, closing back into Phase 1 the next operating day.

Modules

- OD-001 — Daily Operations Opening Procedure
- OD-002 — Shift Handover & Briefing
- OD-003 — Staffing & Coverage Verification
- OD-004 — Work Area Readiness & Housekeeping Inspection
- OD-005 — Operational Equipment Availability Check
- OD-006 — Customer Order / Work Request Intake
- OD-007 — Order Verification & Acceptance Review
- OD-008 — Job Scheduling & Sequencing
- OD-009 — Resource & Capacity Allocation
- OD-010 — Incoming Material / Supply Verification
- OD-011 — Standard Work Execution & Process Adherence
- OD-012 — Work-in-Progress Tracking & Status Update
- OD-013 — Operational Handoff Between Work Stages
- OD-014 — Output Monitoring & Throughput Review
- OD-015 — Bottleneck Identification & Response
- OD-016 — Rework & Nonconforming Work Handling
- OD-017 — Schedule Deviation & Change Management
- OD-018 — Subcontractor & Vendor Coordination
- OD-019 — Interdepartmental Coordination Review
- OD-020 — Job / Order Completion Verification
- OD-021 — Delivery / Service Turnover
- OD-022 — Customer Communication & Status Notification
- OD-023 — Customer Feedback & Complaint Intake
- OD-024 — Operational Incident Reporting & Response
- OD-025 — Emergency & Business Continuity Readiness Check
- OD-026 — Regulatory, License & Permit Currency Verification
- OD-027 — Operational Risk Review
- OD-028 — Operational KPI Review
- OD-029 — Operational Records Retention & Documentation Audit
- OD-030 — End-of-Shift / End-of-Day Operations Closeout

Phase 1 — Opening & readiness

OD-001 — Daily Operations Opening Procedure

Estimated completion time: 45–90 minutes per shift start

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Establish a consistent, auditable start-up sequence for a potash/soda/borate mining operation so that each shift begins only after facility systems, communications, and readiness authority are confirmed in a defined order. This reduces uncontrolled start-ups and ensures accountable sign-on before extraction, processing, or handling work commences.

2. Scope

Covers the shift/facility opening sequence and readiness sign-on for Operations areas — mine hoist/access, ventilation-status confirmation, dewatering and process-plant staging, and control-room turnover — up to the point work is authorized to begin. Excludes work-area housekeeping (see OD-004), equipment availability confirmation (see OD-005), and safety-specific readiness (see SD-001); those are authored in their own modules.

3. Responsibilities

- Shift Operations Supervisor — owns the opening sequence, grants final readiness sign-on, and authorizes work start.
- Control Room Operator — performs system-status checks, confirms process-plant staging, and logs turnover from the outgoing shift.
- Area Lead (Underground/Surface) — confirms crew muster, access status, and communications for their area and reports readiness to the Supervisor.

4. Required PPE & Lockout/Tagout

- Standard facility PPE for start-up walkthrough: hard hat, safety glasses, steel-toe boots, hi-vis; cap lamp and self-rescuer for any underground access confirmation.
- Lockout/Tagout: Not applicable to this procedure — no energy isolation is performed here. Confirmation that LOTO tags are cleared or accounted for is a status check only; equipment energization belongs to OD-005.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Metal and Nonmetal Underground Mines), including §57.11 (escapeways/travelways) and §57.18 (personnel/communications) status confirmation as applicable.
- 30 CFR Part 48 (Training and Retraining) — verification that on-shift personnel are current.
- Internal Operations shift-turnover policy where no sector-specific standard governs the sign-on record.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

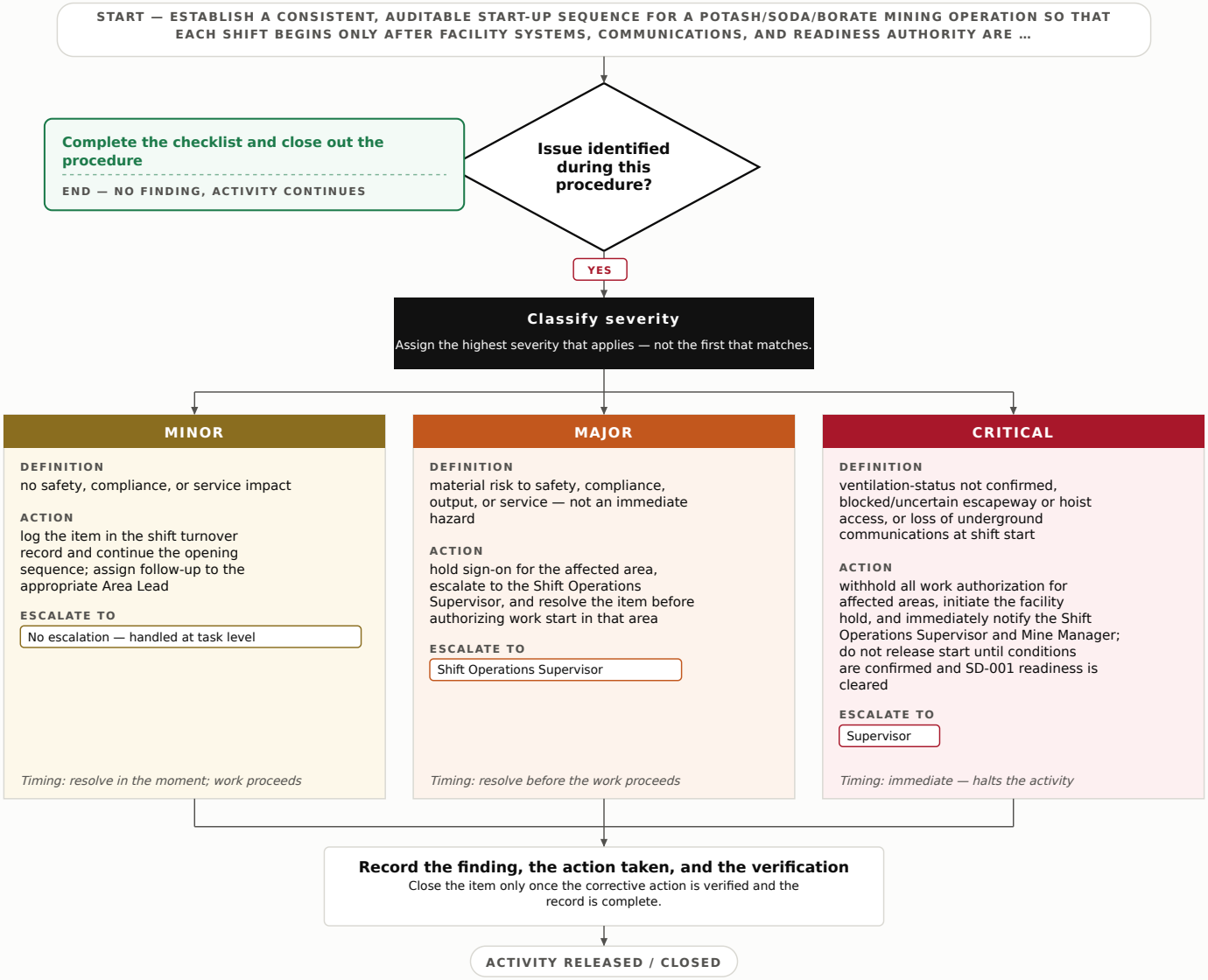
7. Step-by-Step Procedure

1. Receive turnover from outgoing Shift Operations Supervisor; review the prior-shift log for open items, holds, and abnormal conditions carried forward.
2. Control Room Operator confirms status of core systems — mine hoist/access availability signal, ventilation-status indicator (per SD-001 confirmation), dewatering pumps, and process-plant readiness staging.
3. Verify plant communications: radio channels, underground page/phone, and control-room-to-area lines are functional and answered.
4. Collect area readiness reports from each Area Lead confirming crew muster and current training status per 30 CFR Part 48.
5. Cross-check any carried-over holds against OD-005 equipment-availability status; do not authorize work in areas with an open availability hold.
6. Shift Operations Supervisor reviews all reports and either grants readiness sign-on or records the specific reason for a hold.
7. On sign-on, release areas for work start and announce start authorization over the plant communication channel.
8. Record the completed opening sequence, sign-on time, personnel on shift, and any deferred items in the shift log and this module's checklist.

8. Decision Tree

OD-001 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Daily Operations Opening Procedure



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Turnover log reviewed and all carried-over holds acknowledged before sign-on.
- Core system and communications status confirmed and recorded.
- Every area covered by a readiness report before work-start release.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Shift turnover log received and reviewed		
Core systems status (hoist/access, ventilation indicator, dewatering, plant staging) confirmed		
Plant communications (radio, page/phone, area lines) functional		
Crew muster and training currency confirmed by each Area Lead		
Open OD-005 availability holds cross-checked		
Readiness sign-on granted or hold reason recorded		
Work-start release announced and logged		

11. KPIs

- On-time readiness sign-on completed within scheduled shift-start window ≥ 95% of shifts.
- Opening sequence documented with all areas reported 100% of shifts.
- Unauthorized work starts (work begun before sign-on) — zero per quarter.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-002 — Shift Handover & Briefing

Estimated completion time: 20–40 minutes per shift change

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1. Purpose

To ensure a structured, documented transfer of operational status, open issues, and shift priorities between outgoing and incoming Operations crews at a potash/soda/borate mining and processing facility, so that continuity of production is maintained and no unresolved condition is lost at the crew boundary.

2. Scope

Covers the operational handover of running-status, production targets, open work items, and shift priorities across the mine, hoist, and processing/evaporation areas of Operations. Excludes the safety pre-shift briefing, which is covered under SD-003, and the maintenance-crew handover, which is covered under MD-001.

3. Responsibilities

- Outgoing Shift Supervisor (OD) — compiles current status of extraction, crushing, and processing lines, logs open issues, and hands over the shift log.
- Incoming Shift Supervisor (OD) — reviews and acknowledges the handover, confirms priorities, and assumes operational authority.
- Control Room Operator (OD) — verifies live process readings (brine feed, evaporator/dryer status, throughput) and confirms alarm state at handover.

4. Required PPE & Lockout/Tagout

- Standard facility PPE for control-room and plant-floor walkthrough: hard hat, safety glasses, hearing protection, steel-toe boots, hi-vis vest where entering process areas.
- Not applicable — no hazardous energy is controlled by this task; any LOTO status carried over is acknowledged only, not established here (established under MD-001).

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Underground Metal and Nonmetal Mines), recordkeeping and shift-communication provisions.
- 30 CFR § 57.18002 (examination of working places, record availability across shifts).
- 29 CFR 1904 (OSHA recordkeeping) for any injury/illness status referenced at handover.

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

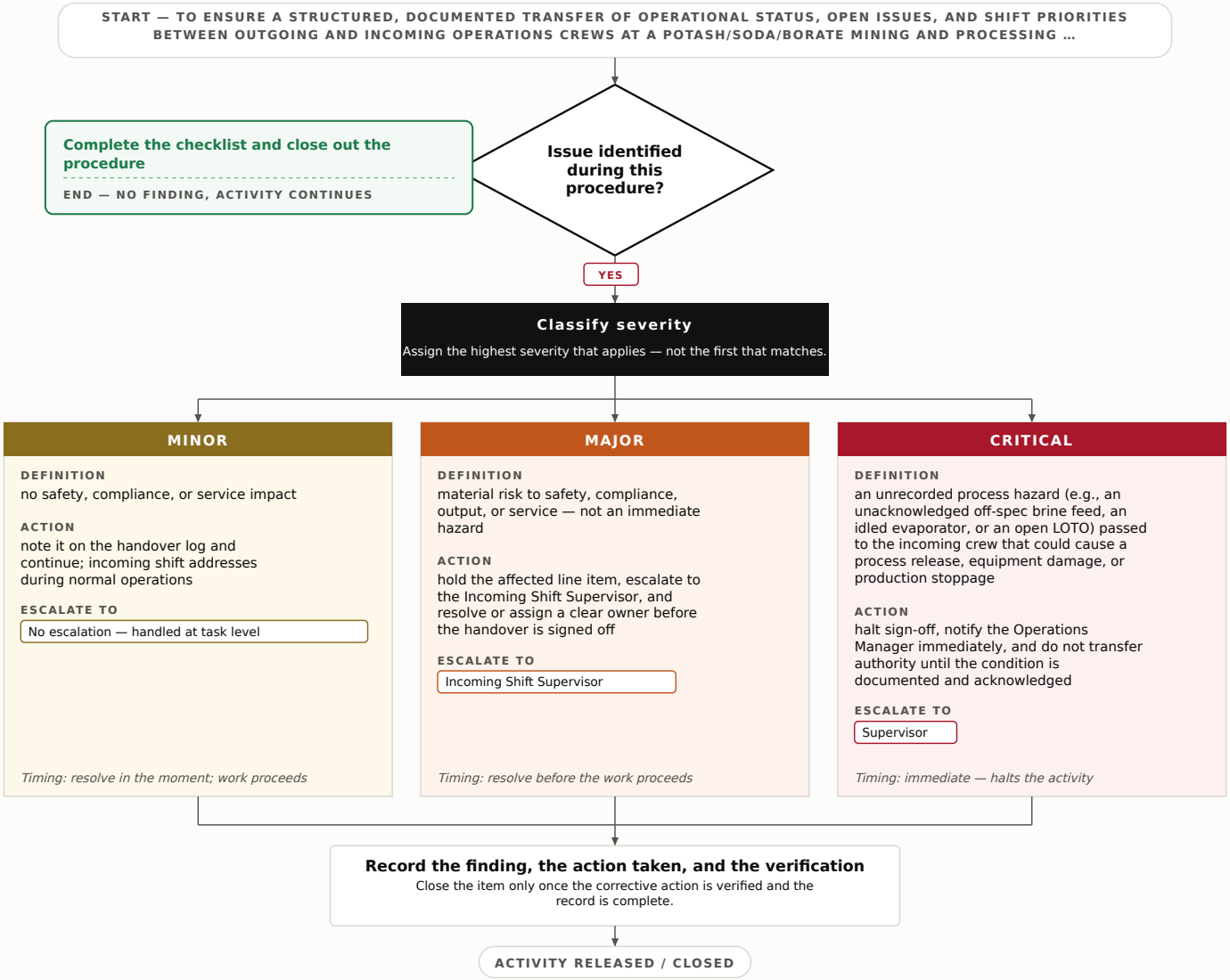
7. Step-by-Step Procedure

1. Outgoing Supervisor reviews control-room dashboards for brine feed rate, evaporator/crystallizer status, dryer and screening throughput, and product tonnage against the shift target.
2. Record current operating mode of each major unit (running, idled, ramping) and any deviations from setpoint on the shift handover log.
3. List all open operational issues: process upsets, off-spec product holds, feed-quality problems, and any equipment placed offline (cross-reference MD-001 for maintenance items, do not re-author).
4. State the top three priorities for the incoming shift with expected sequence and target completion.
5. Conduct a face-to-face briefing between outgoing and incoming Supervisors; walk the control room and confirm live readings with the Control Room Operator.
6. Incoming Supervisor questions any ambiguous item and confirms understanding of each open issue and its owner.
7. Both Supervisors sign the handover log; incoming Supervisor formally assumes operational authority.
8. File the completed handover log in the shift-record system per facility retention policy.

8. Decision Tree

OD-002 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Shift Handover & Briefing



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All major process units have a recorded operating mode and setpoint status.
- Every open issue has a named owner and stated priority.
- Incoming Supervisor has verbally acknowledged each open issue.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Live process readings (brine feed, evaporator, dryer) confirmed against dashboard		
Product tonnage vs. shift target recorded		
All idled/offline units logged with reason		
Off-spec/product holds documented		
Top three incoming priorities stated		
Face-to-face briefing conducted and acknowledged		
Handover log signed by both Supervisors		

11. KPIs

- Handover log completion rate: 100% of shift changes.
- Open issues transferred with named owner: 100%.
- Handover-related continuity incidents (missed/unrecorded condition): 0 per quarter.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-003 — Staffing & Coverage Verification

Estimated completion time: 20–40 minutes per operating shift changeover

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1. Purpose

Confirm that every required operating role for a potash/soda/borate mining shift — hoistman, mine foreman/certified examiner, mill/plant operators, and mobile-equipment operators — is physically present, currently qualified, and formally assigned before the operating period begins, so no production or underground activity proceeds short of mandated safety coverage.

2. Scope

Covers pre-shift verification that mandated and production-critical roles are present, credential-current, and assigned to a station for the upcoming operating period across underground, surface mill, and hoisting operations. Excludes the building of rosters and shift-assignment decisions (see HR-015) and the assessment or certification of individual competency (see TR-020); this procedure only verifies that already-scheduled, already-qualified personnel are in place.

3. Responsibilities

- Shift Operations Supervisor — runs the pre-shift coverage verification, confirms presence and assignment against the required-role matrix, authorizes shift start or a hold.
- Mine Foreman / Certified Examiner — confirms MSHA-certified underground coverage (hoistman, examiner, blaster where applicable) and reports any gap.
- Operations Coordinator — reconciles present headcount against the approved roster, flags credential-expiry alerts, and logs the verification record.

4. Required PPE & Lockout/Tagout

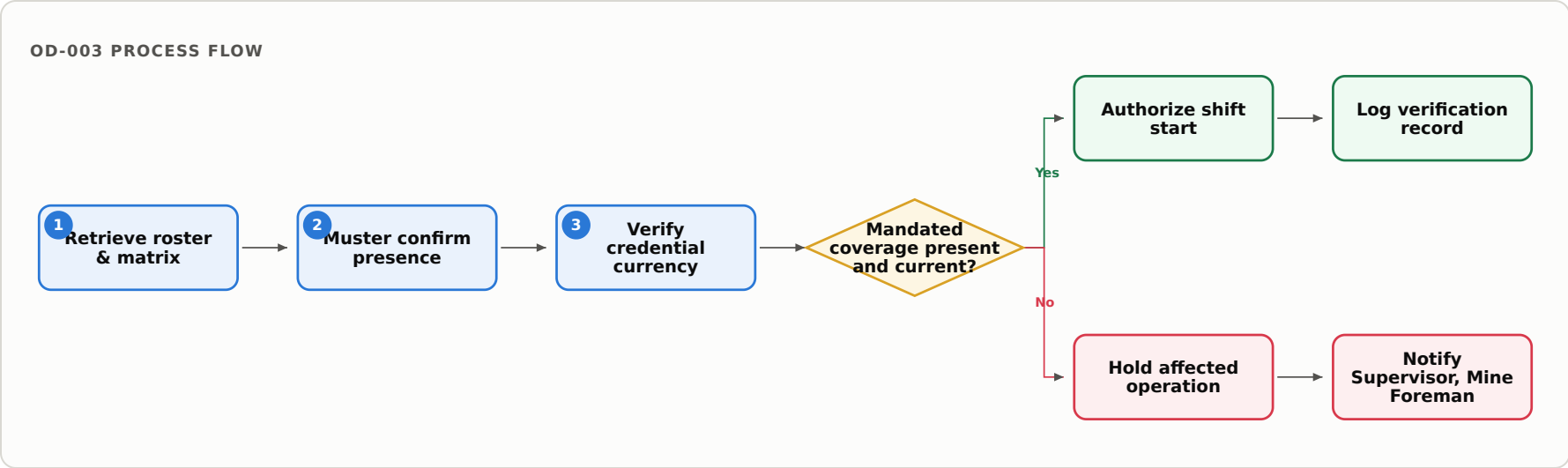
- Standard facility PPE for muster/verification areas (hard hat, safety glasses, steel-toe boots, hi-vis); no additional PPE required for the clerical verification itself.
- Not applicable — no hazardous energy involved in this verification task.

5. Regulatory References

- 30 CFR Part 57 (MSHA Safety & Health Standards, Metal/Nonmetal Underground & Surface Mines) — including §57.19 (hoisting), §57.18 (personnel), pre-shift examination and competent-person requirements.
- 30 CFR Part 48 / Part 46 (Training and Certified/Qualified Persons).

- MSHA State Grant / State-plan equivalents where applicable.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



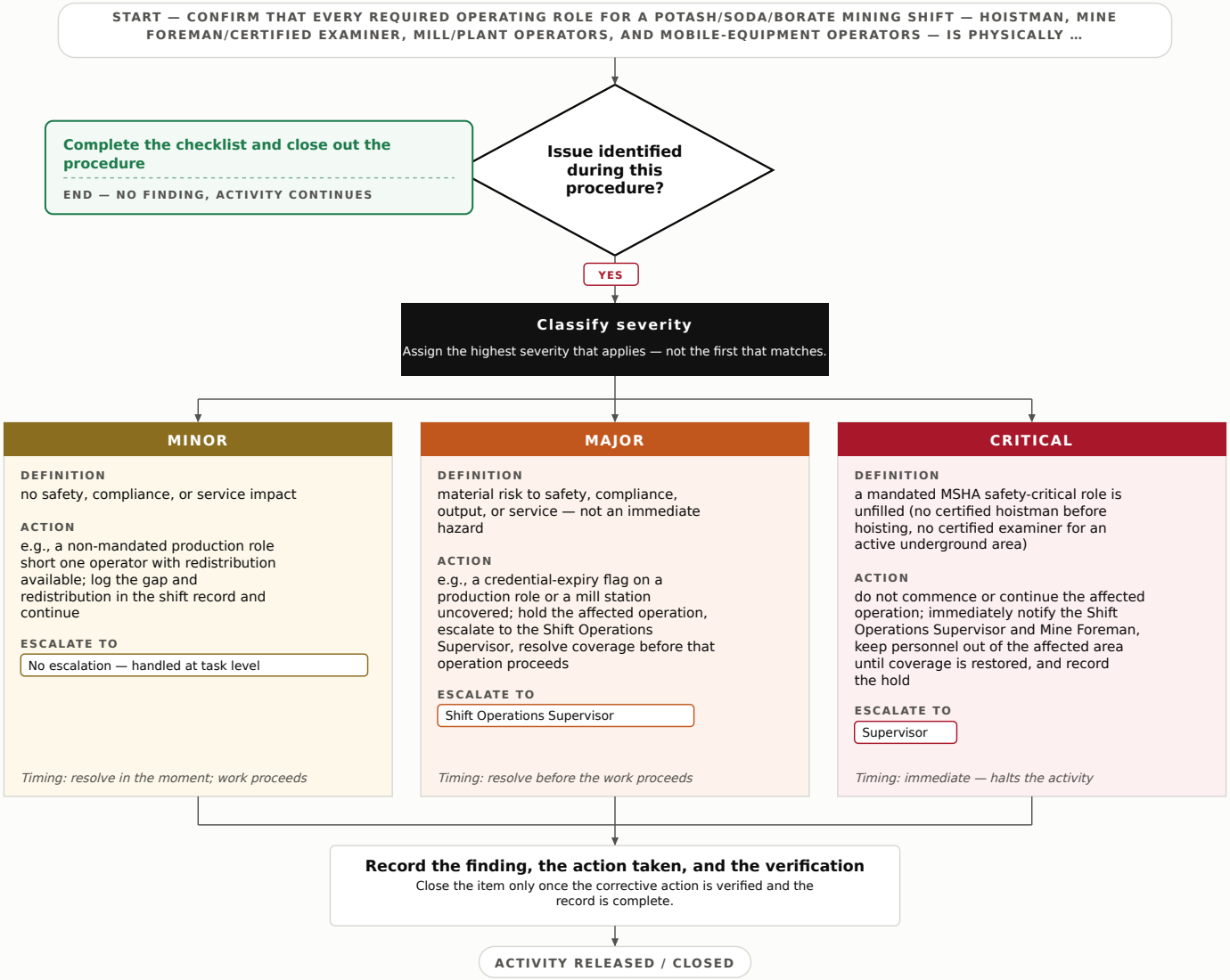
7. Step-by-Step Procedure

1. Retrieve the approved operating-period roster (from HR-015) and the required-role coverage matrix for underground, mill, and hoisting operations.
2. Conduct muster and confirm physical presence of each named individual by station (hoistman, certified examiner, mill control-room operator, mobile-equipment operators, surface load-out operator).
3. Cross-check each present person's credential/certification currency indicator against the matrix (MSHA certification, task authorization current per TR-020 — do not re-assess competency here).
4. Confirm each mandated safety-critical role is filled: hoistman on station before hoist operation, certified examiner assigned to each active working area, blaster/qualified person where scheduled.
5. Identify any coverage gap — absence, expired credential flag, or unfilled mandated role — and classify per Section 8.
6. For minor over/under of non-mandated production roles, note redistribution; for mandated-role gaps, hold the affected operation.
7. Authorize shift start only when all mandated coverage is confirmed present and current; record authorization time.
8. Complete the inspection checklist, log the verification record and any gaps/resolutions, and file with the shift log.

8. Decision Tree

OD-003 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Staffing & Coverage Verification



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every mandated safety-critical role confirmed present and credential-current before authorization.
- Present headcount reconciled against approved roster with all variances explained.
- Verification record and authorization time logged for the operating period.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Approved roster and required-role matrix retrieved for the period		
Certified hoistman present and assigned before hoist operation		
Certified examiner assigned to each active underground working area		
Mill/plant control-room and load-out operators present		
Mobile-equipment operators present with current task authorization flag		
All present personnel reconciled against approved roster		
Coverage gaps classified, resolved or held, and logged		

11. KPIs

- Mandated-role coverage confirmed before shift start: 100%
- Shift starts delayed by unverified/short coverage: ≤ 2%
- Verification record completed and logged per operating period: 100%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-004 — Work Area Readiness & Housekeeping Inspection

Estimated completion time: 30–60 minutes per shift start

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1. Purpose

Confirms that potash/soda/borate extraction and processing work areas — headings, conveyor galleries, crusher stations, flotation and evaporation bays — are clear, organized, and free of slip, trip, dust-accumulation, and spill hazards before the shift begins operations, protecting personnel and preventing production interruptions.

2. Scope

Covers pre-shift readiness and housekeeping inspection of active Operations work areas (production faces, transfer points, process floors, muster and walkway zones) at this facility. Excludes warehouse housekeeping, which is covered under WH-023, and maintenance-shop housekeeping, which is covered under MD-025.

3. Responsibilities

- Shift Operations Supervisor (OD) — authorizes shift start only after readiness inspection is complete and signs off findings.
- Area Operator / Miner — walks the assigned work area, performs the housekeeping inspection, corrects minor conditions, and reports findings.
- Mine Safety / Competent Person — verifies hazard classifications, confirms dust and spill controls, and clears Major/Critical findings before work proceeds.

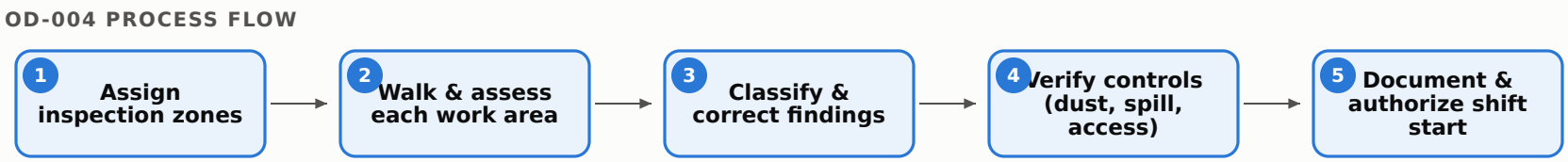
4. Required PPE & Lockout/Tagout

- Hard hat, safety glasses/goggles, hearing protection, steel-toe boots, high-visibility clothing, gloves, and NIOSH-approved dust respirator where airborne mineral dust is present.
- LOTO applies only when clearing conditions on stationary powered equipment (conveyors, crushers, feeders) — verify de-energization and apply lockout/tagout per facility energy-control procedure before contact; otherwise not applicable to visual inspection.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Underground Metal and Nonmetal Mines), incl. §57.11001 (safe access), §57.20003 (housekeeping), §57.5002 (dust surveys).
- 30 CFR Part 56 (MSHA — Surface Metal and Nonmetal Mines), §56.20003 (housekeeping) for surface operations.
- 29 CFR 1910.22 (OSHA — walking-working surfaces) where OSHA jurisdiction applies to non-mine areas.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



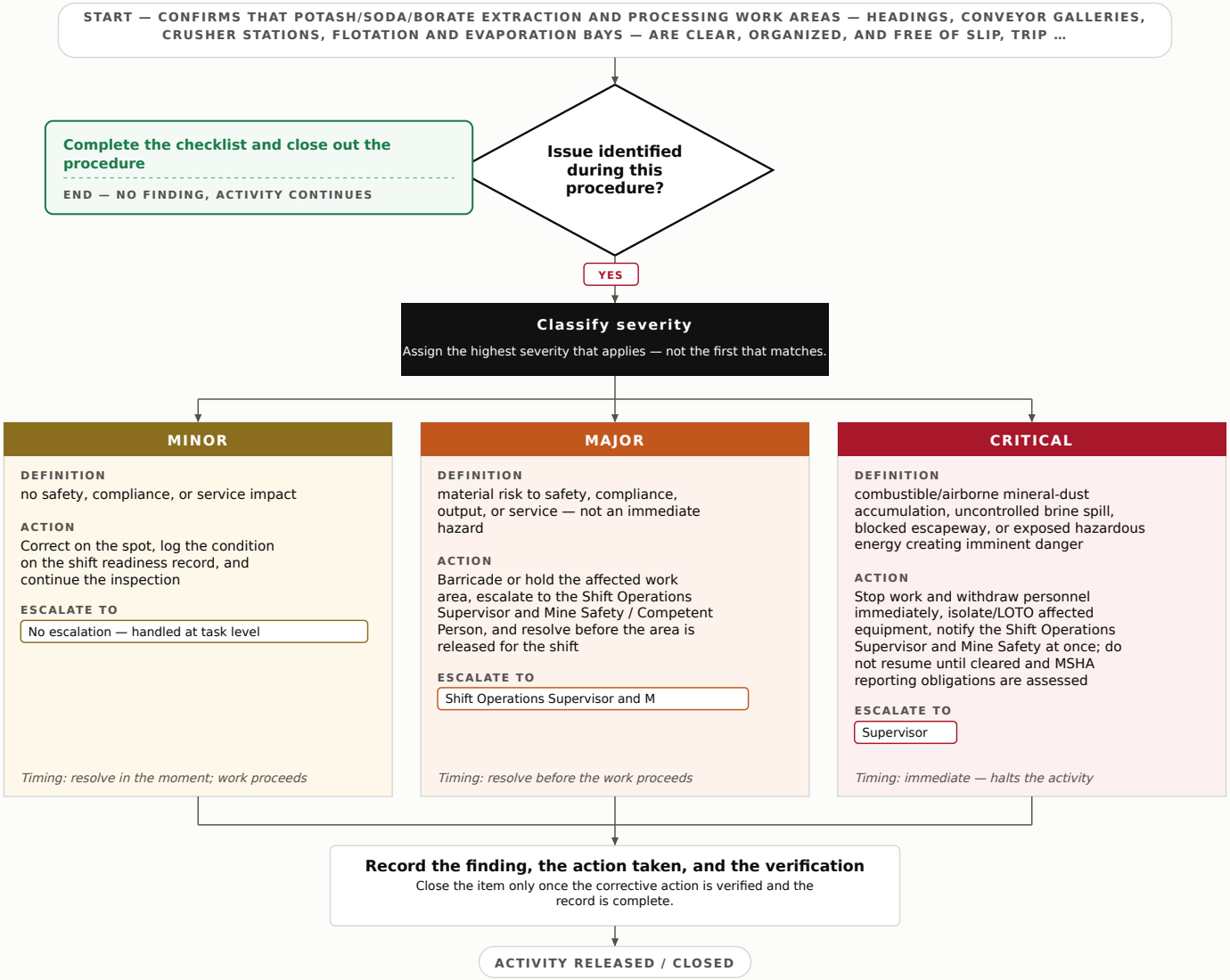
7. Step-by-Step Procedure

1. Review the prior-shift handover log and any open readiness items before entering the work area.
2. Confirm safe access — walkways, travelways, and stairs clear of spilled mineral product, mud, water, and debris; escapeways unobstructed.
3. Inspect transfer points, conveyor galleries, and crusher stations for accumulated potash/borate dust and product spillage; verify accumulation is within control thresholds.
4. Check process floors (flotation, evaporation, screening bays) for standing brine, leaks, and slip hazards; confirm drains and containment are clear.
5. Verify tools, hoses, and materials are stowed; confirm dust-suppression sprays and ventilation are functioning at the work face.
6. Correct minor housekeeping conditions on the spot; apply LOTO before clearing any powered equipment.
7. Classify remaining findings by severity per Section 8 and escalate as required.
8. Record all findings, corrections, and clearances on the shift readiness log and obtain supervisor authorization.

8. Decision Tree

OD-004 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Work Area Readiness & Housekeeping Inspection



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All assigned zones walked and signed off before shift start.
- Dust accumulation and spill controls verified functional at transfer points and the work face.
- Escapeways and travelways confirmed clear and marked.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Walkways, stairs, and escapeways clear and unobstructed		
Mineral dust accumulation at transfer points within control threshold		
No standing brine, leaks, or slip hazards on process floors		
Dust-suppression sprays and ventilation functioning at work face		
Tools, hoses, and loose materials properly stowed		
Spill-containment and drains clear and functional		
Prior-shift handover items closed or escalated		

11. KPIs

- Pre-shift readiness inspections completed before shift start: 100%.
- Housekeeping-related lost-time or slip/trip incidents: 0 per quarter.
- Major/Critical findings resolved before area release: ≥ 98%.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-005 — Operational Equipment Availability Check

Estimated completion time: 30–60 minutes per shift/period start

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1. Purpose

To confirm that the mobile and fixed equipment required for the upcoming production period at a potash/soda/borate operation — continuous miners, shuttle cars, conveyors, ore hoists, dissolving/evaporation feed pumps, and mill process equipment — is present at its assigned location, powered/fueled, and formally released for use so the period can start without avoidable downtime.

2. Scope

Covers the pre-period availability verification of production, haulage, and process equipment across the mine and mill for the current Operations period. Excludes equipment condition/inspection (see ED-003), preventive-maintenance status determination (see PM-024), and materials-handling-equipment pre-use checks (see WH-004).

3. Responsibilities

- Shift Operations Supervisor — owns the availability check, confirms release status, authorizes period start or hold.
- Control Room / Dispatch Operator — cross-checks equipment location and running status against the mine dispatch/SCADA board.
- Maintenance Lead — provides current released/held status of each asset and communicates any hand-off restrictions.

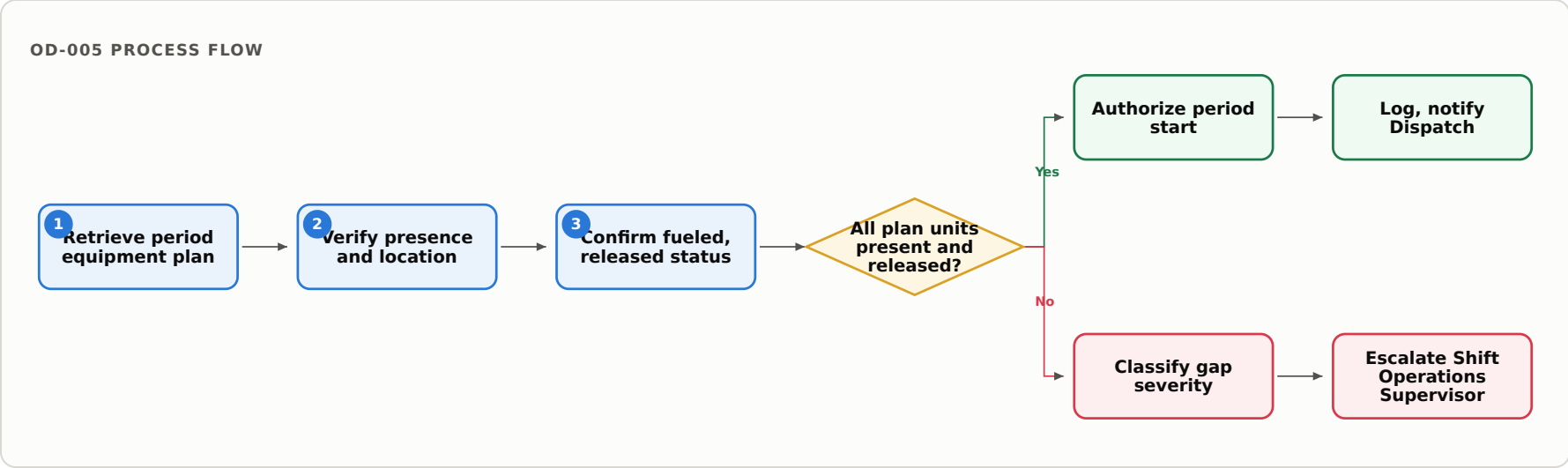
4. Required PPE & Lockout/Tagout

- Standard facility PPE for underground/surface travel: hard hat, safety glasses, steel-toe boots, hi-vis, hearing protection, and self-rescuer where underground.
- Lockout/Tagout: Not directly performed in this task; availability check must confirm no active LOTO tags are present on equipment being released, per 30 CFR 57.14105. Do not remove or bypass any tag.

5. Regulatory References

- 30 CFR Part 57 — MSHA Safety and Health Standards, Underground Metal and Nonmetal Mines (mobile equipment, hoisting, machinery use).
- 30 CFR 57.14100 — Safety defects; examination, correction, and removal of unsafe equipment from service.
- 30 CFR 57.14105 — Procedures during repairs or maintenance (blocking/de-energizing before release).
- 30 CFR 57.19000 series — Personnel hoisting (where ore/personnel hoists apply).
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



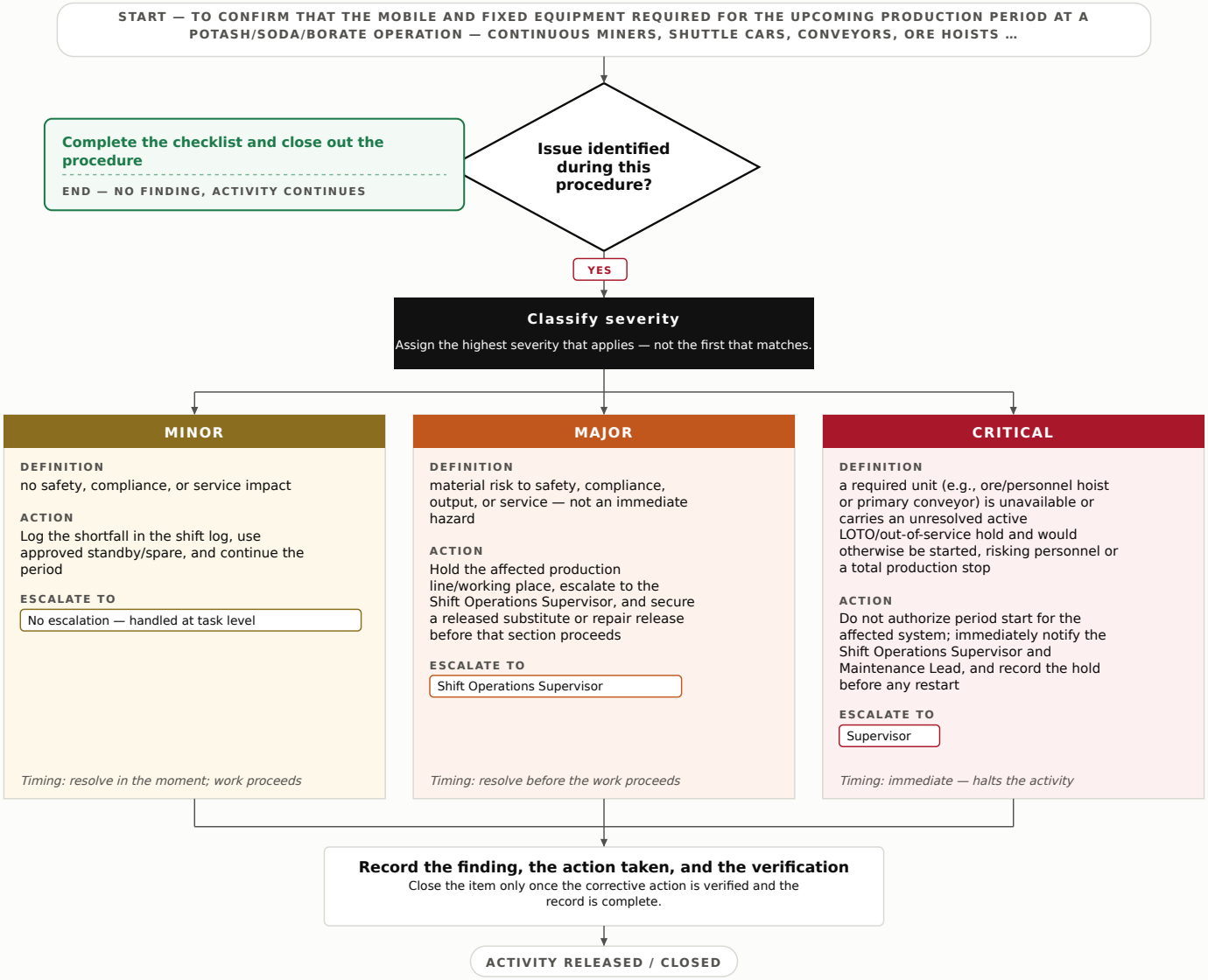
7. Step-by-Step Procedure

1. Pull the period production plan and the equipment assignment list; identify every asset required for the shift (miners, shuttle cars, conveyors, hoists, feed/slurry pumps, mill units).
2. From Control Room/Dispatch and SCADA, confirm each listed asset is present and at its assigned working place or staging bay.
3. Confirm each asset is powered, fueled, or charged as applicable and in a ready-to-start state (not stripped for parts or awaiting spares).
4. Query the Maintenance Lead / CMMS for the current release status of each asset; verify no active out-of-service hold or LOTO tag remains on equipment slated for use (do not remove tags — hand-off per ED-003/PM-024).
5. For any spare or newly received unit from Mining Machinery vendors (NAICS 333131), confirm it has been formally received into service and released before counting it as available.
6. Reconcile the count: required vs. present-and-released; flag every gap or held unit.
7. Classify any gap per Section 8 and resolve or escalate before authorizing period start.
8. Record availability results, gaps, and disposition in the shift log/CMMS and communicate the go/hold decision to Dispatch.

8. Decision Tree

OD-005 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Operational Equipment Availability Check



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every asset on the period plan is accounted for as present, ready, and released.
- No equipment slated for use carries an active out-of-service hold or LOTO tag.
- Availability decision (go/hold) is logged and communicated to Dispatch before period start.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
All plan-required equipment present at assigned location		
Each asset powered/fueled/charged and ready-to-start		
Release status confirmed in CMMS (no active out-of-service hold)		
No active LOTO tag on units to be released		
Spare/substitute units formally received and released before counting		
Required vs. available count reconciled and gaps flagged		
Go/hold decision logged and communicated to Dispatch		

11. KPIs

- Equipment availability at period start ≥ 95% of plan-required units.
- Period starts delayed by availability gaps ≤ 2% of shifts.
- Availability check completed and logged before scheduled start time 100% of shifts.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

Phase 2 — Demand intake

OD-006 — Customer Order / Work Request Intake

Estimated completion time: 20–45 minutes per order/request

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1. Purpose

To receive, verify, and log incoming customer orders and internal work requests for potash, soda ash, and borate mineral products so that every request enters the operations queue with complete, traceable information before scheduling or fulfillment begins.

2. Scope

Covers intake and logging of external customer purchase orders, spot-shipment requests, and internal service/work requests routed to Operations at the mine and processing site. Excludes acceptance/capability review — whether the facility can meet the requested grade, tonnage, or delivery window — which is covered under OD-007.

3. Responsibilities

- Order Intake Coordinator (Operations) — receives requests, confirms completeness, creates the order/work-request record in the log, assigns the tracking number.
- Operations Shift Supervisor — reviews new records for hazard flags and priority, routes to OD-007 for capability review, resolves classification questions.
- Records & Compliance Clerk — verifies customer/product data fields, ensures retention and traceability, escalates data or compliance gaps.

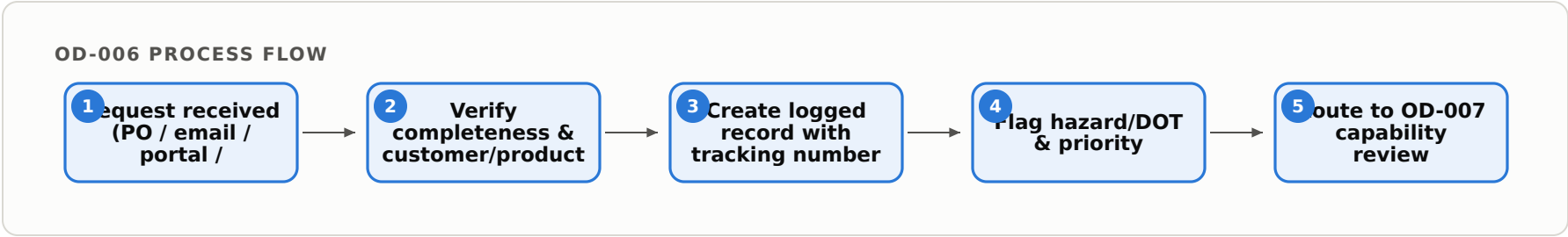
4. Required PPE & Lockout/Tagout

- Standard facility PPE if intake occurs on the plant floor (hard hat, safety glasses, steel-toe boots); office-based intake requires no PPE.
- Not applicable — no hazardous energy involved.

5. Regulatory References

- 29 CFR 1910.1200 (Hazard Communication) — for capturing product SDS/hazard identifiers on borate and soda ash orders.
- 49 CFR Parts 172–173 (DOT Hazardous Materials — shipping description/classification) where the requested product ships as a regulated commodity.
- 30 CFR Part 56/57 (MSHA Surface/Underground Metal-Nonmetal) — governs the mine site where on-site work requests originate.
- None additional sector-specific for clerical intake; internal Operations records policy applies.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



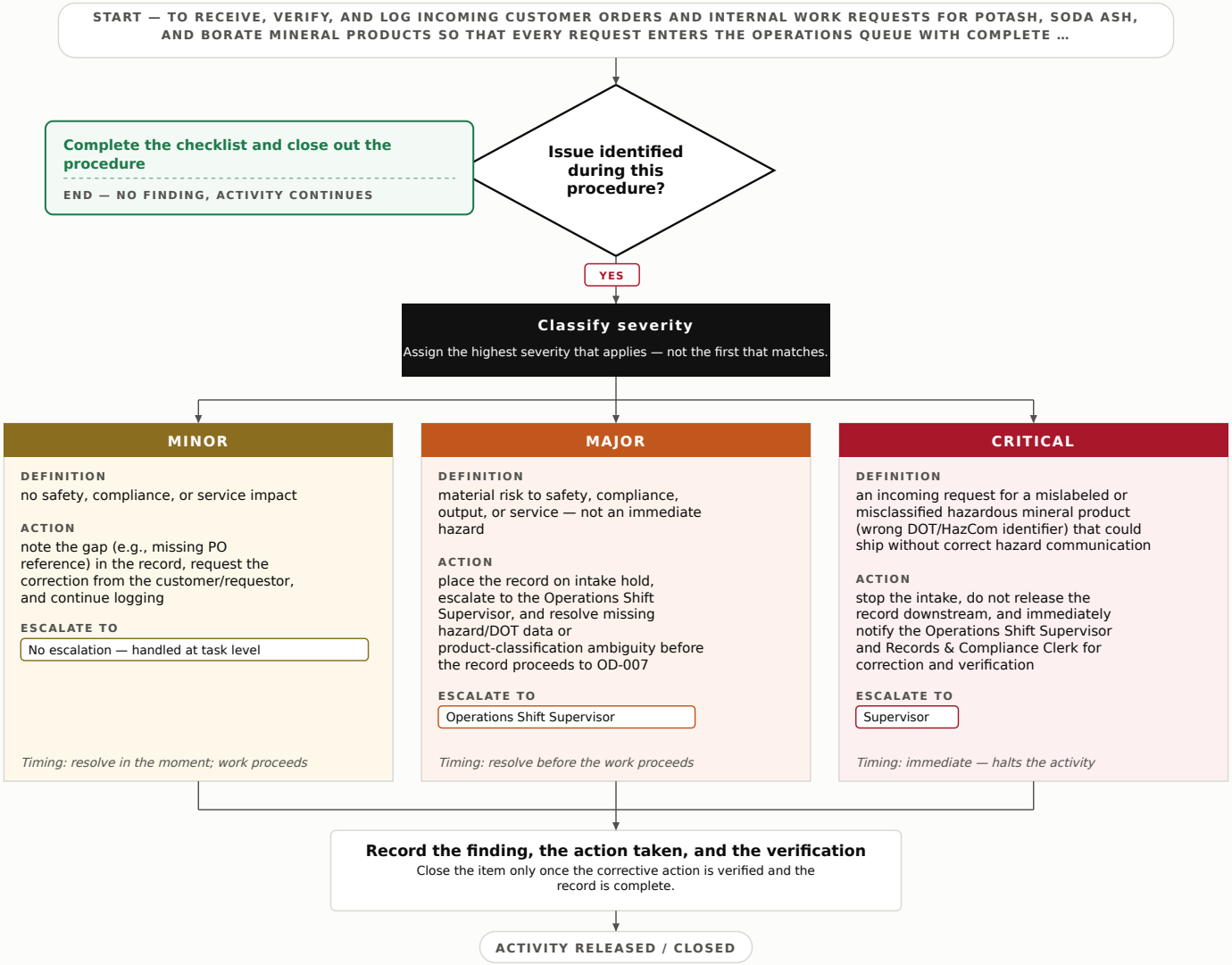
7. Step-by-Step Procedure

1. Receive the incoming order or work request through the designated channel (customer PO, portal entry, email, or internal work ticket) and timestamp receipt.
2. Confirm customer/requestor identity, account status, and authorized contact for the request.
3. Verify required fields are present: product (potash / soda ash / borate grade), quantity/tonnage, packaging (bulk, super-sack, bagged), requested ship or service date, and destination.
4. Capture product hazard/DOT classification identifiers and confirm the correct SDS reference is on file per 29 CFR 1910.1200.
5. Assign a unique tracking number and create the record in the Operations order/work-request log.
6. Flag priority level and any hazard, oversize, or special-handling notes for the Shift Supervisor.
7. Route the completed record to OD-007 for acceptance/capability review; do not commit delivery dates at intake.
8. File the record and all source documents (PO, email, ticket) in the order log and confirm entry is complete and legible.

8. Decision Tree

OD-006 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Customer Order / Work Request Intake



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All mandatory fields (product/grade, tonnage, packaging, date, destination) confirmed present and legible.
- Hazard/DOT classification and SDS reference verified against product master.
- Unique tracking number assigned and record entered in the Operations log.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Request received through authorized channel and timestamped		
Customer/requestor identity and account verified		
Product grade, tonnage, and packaging fields complete		
Hazard/DOT classification & SDS reference captured		
Unique tracking number assigned		
Record entered in Operations order/work-request log		
Routed to OD-007 without committed delivery date		

11. KPIs

- Order records logged with complete mandatory fields ≥ 98%
- Intake-to-log cycle time ≤ 45 minutes per request
- Records requiring rework for missing/incorrect data ≤ 3%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-007 — Order Verification & Acceptance Review

Estimated completion time: 30–90 minutes per order

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To confirm that each incoming customer order for potash, soda ash, or borate product is fully specified, technically achievable, and commercially sound before Operations accepts it — preventing acceptance of orders the plant cannot meet on grade, tonnage, packaging, or delivery terms.

2. Scope

Covers verification of order scope, product specification, plant/mill capability, and commercial terms for finished mineral product orders routed to Operations for acceptance. Excludes order logging, which is covered under OD-006, and production scheduling, which is covered under OD-008.

3. Responsibilities

- Order Review Coordinator (Operations) — receives the routed order, confirms specification completeness, and drives the acceptance review to closure.
- Process/Quality Lead — verifies requested grade, particle size, moisture, and assay against current mill capability and available lot inventory.
- Operations Manager — approves acceptance, adjudicates capability or terms conflicts, and signs off on non-standard commitments.

4. Required PPE & Lockout/Tagout

- Standard office PPE; standard facility PPE (hard hat, safety glasses, steel-toe boots) if the reviewer walks the load-out or storage area to confirm inventory.
- Not applicable — no hazardous energy involved; this is a documentation and review task.

5. Regulatory References

- OSHA 29 CFR 1910.1200 (Hazard Communication — SDS/label accuracy for accepted product commitments)
- 49 CFR 172–173 (DOT hazardous/bulk material shipping description accuracy where applicable to borate/soda products)
- MSHA 30 CFR Part 56 (surface mineral mining — applies to any on-site verification walk)
- Internal policy: Order Acceptance & Commercial Terms Standard
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

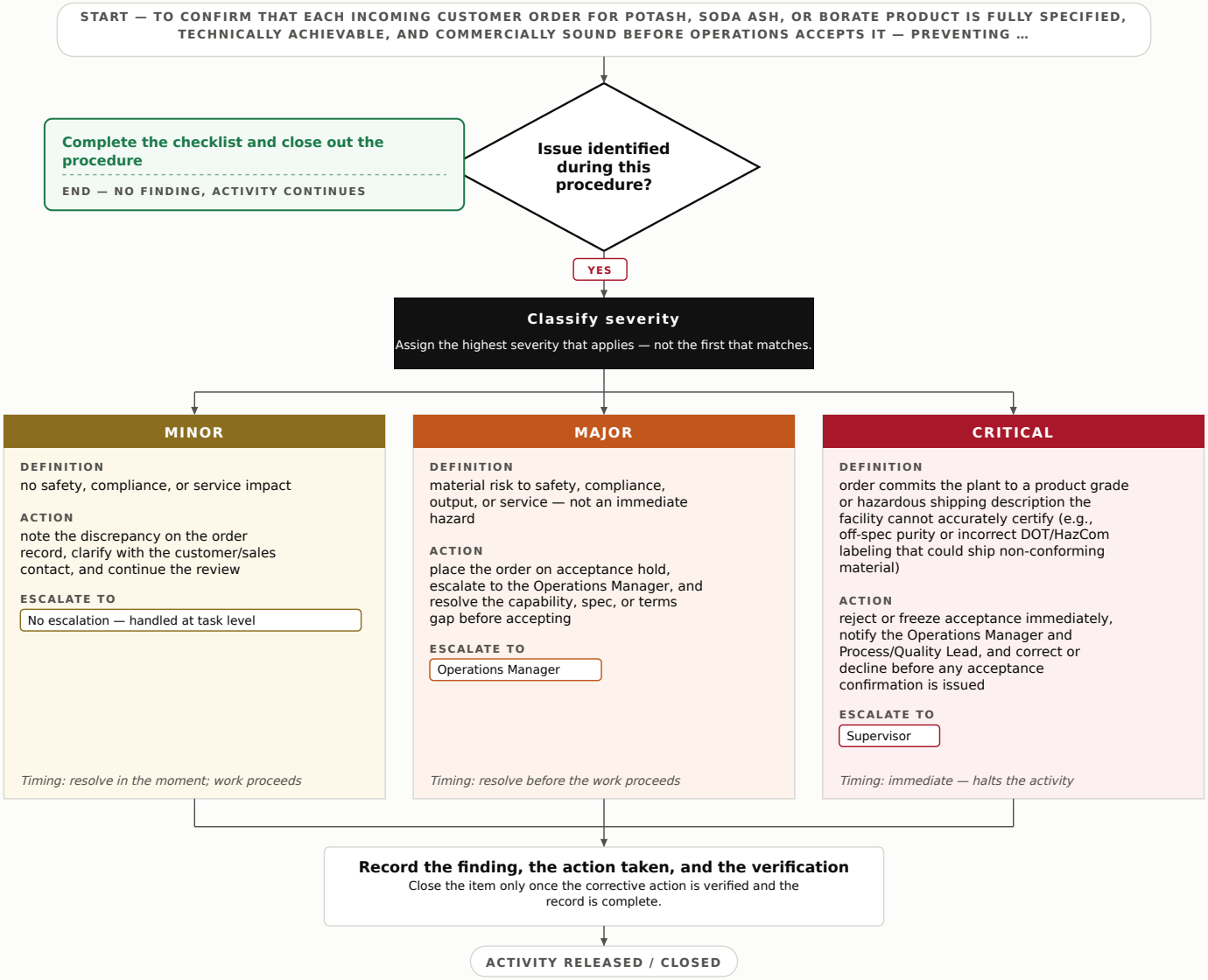
7. Step-by-Step Procedure

1. Retrieve the order as logged (per OD-006) and confirm all required fields are present: product (potash/soda ash/borate), grade, particle-size class, moisture limit, tonnage, packaging (bulk, super sack, bag), and requested ship window.
2. Cross-check the requested specification against the current published product spec sheet and applicable SDS; flag any grade or purity request outside standard offerings.
3. Verify capability with the Process/Quality Lead: confirm the mill/refinery circuit can produce the requested grade and particle size, and that assay/moisture targets are achievable.
4. Confirm inventory or production availability for the requested tonnage and ship window against on-hand lots and committed volumes (do not schedule — hand off to OD-008).
5. Review commercial terms: pricing, minimum lot size, freight/Incoterms, and any customer-specific certificate-of-analysis or labeling requirements.
6. Confirm that any special handling, DOT description, or HazCom labeling commitments can be met accurately for the accepted product.
7. Record the acceptance/rejection decision, note any conditions or deviations, and route accepted orders forward for scheduling per OD-008.
8. Document the completed review, decision rationale, and reviewer sign-off in the order acceptance record.

8. Decision Tree

OD-007 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Order Verification & Acceptance Review



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Specification completeness confirmed against current spec sheet and SDS.
- Capability and inventory availability verified with Process/Quality Lead.
- Commercial and delivery terms reviewed and consistent with plant limits.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
All required order fields present (grade, size, moisture, tonnage, packaging, ship window)		
Requested spec matches current published product/SDS		
Mill/refinery capability confirmed for grade & particle size		
Tonnage and ship window feasible against inventory		
Commercial terms (price, freight, Incoterms) verified		
DOT/HazCom labeling & CoA commitments achievable		
Acceptance/rejection decision recorded with sign-off		

11. KPIs

- Orders reviewed within one business day of routing ≥ 95%
- Accepted orders later flagged as non-conforming to committed spec ≤ 2%
- Acceptance reviews with complete documented sign-off = 100%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-008 — Job Scheduling & Sequencing

Estimated completion time: 45–90 minutes per scheduling cycle (shift or daily)

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1. Purpose

Place accepted mining and processing work orders (extraction runs, potash/soda ash/borate ore transfer, crushing, flotation, and crystallizer feed batches) into the operating schedule so that customer due dates, ore grade priorities, and plant throughput targets are met without overcommitting shared equipment or shift capacity.

2. Scope

Covers sequencing of already-accepted work orders across the mine and processing plant against priority tier and due date, including slot placement, conflict resolution, and schedule publication. Excludes resource/crew assignment to scheduled slots (covered under OD-009) and maintenance-window scheduling (covered under PM-008).

3. Responsibilities

- Production Planner — builds and maintains the operating schedule, sequences accepted work orders by priority and due date, publishes the shift plan.
- Operations Manager — approves priority overrides, resolves inter-departmental slot conflicts, signs off the published schedule.
- Shift Supervisor — confirms floor feasibility of the sequence, flags equipment or ore-feed constraints back to the Planner.

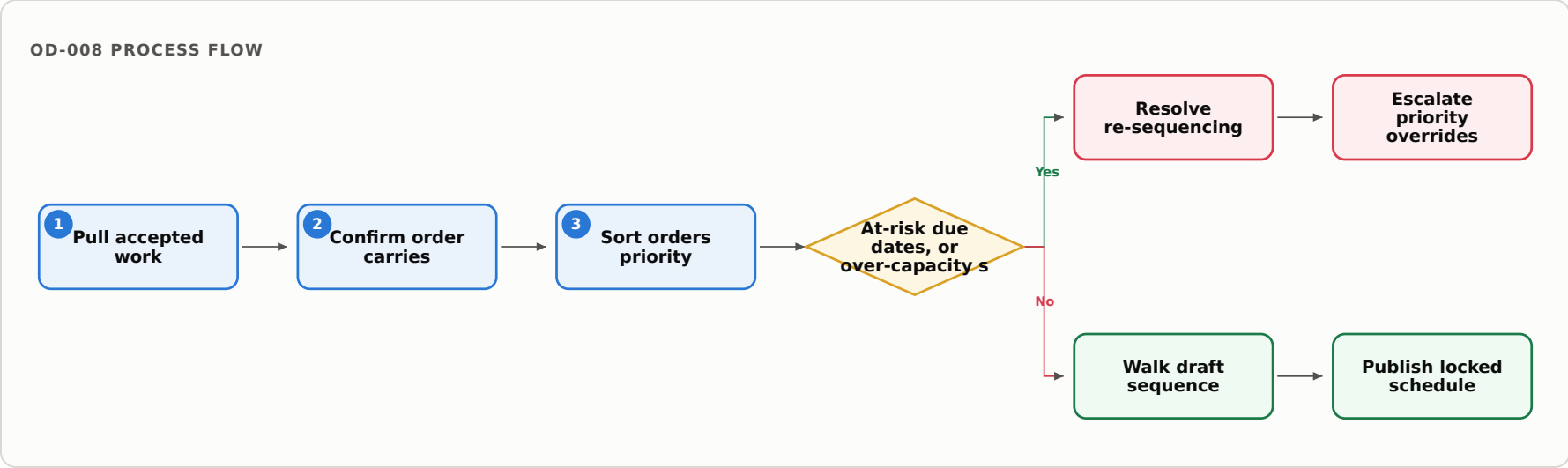
4. Required PPE & Lockout/Tagout

- Standard facility PPE when on the plant floor for feasibility walkdowns (hard hat, safety glasses, steel-toe boots, hi-vis, hearing protection near crushers/mills); office scheduling work requires none.
- Not applicable — no hazardous energy involved in the scheduling task itself.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Underground Metal and Nonmetal Mines) — sequencing must not violate ventilation, blasting, or shift-limit constraints.
- 29 CFR 1910 (OSHA General Industry — applicable to surface processing plant areas).
- Internal policy: OD Production Scheduling Standard and customer contract due-date commitments.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



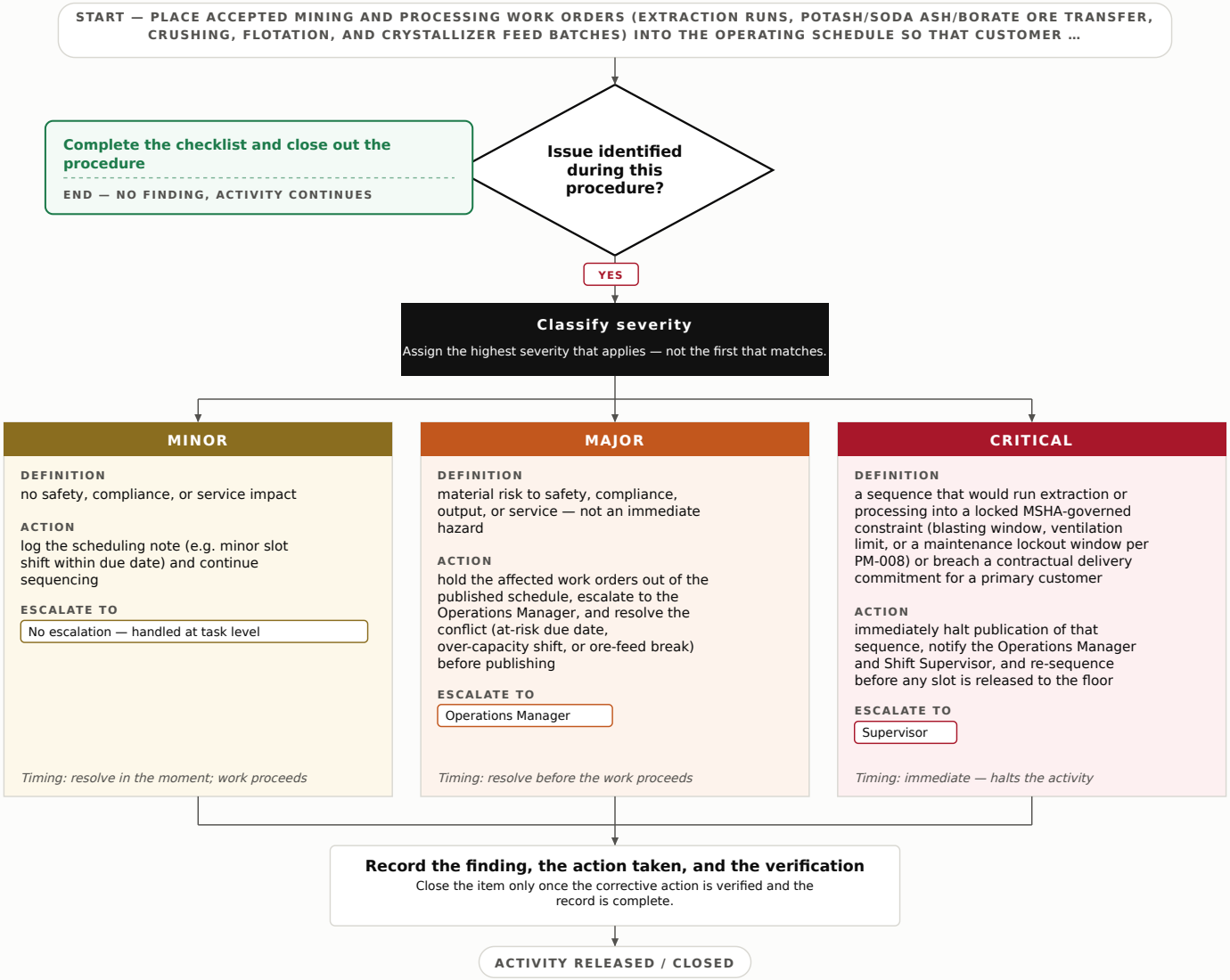
7. Step-by-Step Procedure

1. Pull all accepted work orders from the order queue that are cleared for scheduling (extraction runs, ore transfer, crushing, flotation, crystallizer/dryer feed batches).
2. Confirm each order carries a validated priority tier and firm due date; return any order missing this data to the Operations Manager before scheduling.
3. Sort orders by priority tier first, then by earliest due date within each tier; flag ore-grade-critical batches that must feed the plant in a fixed sequence.
4. Map available operating slots against known plant capacity (mill tonnage, flotation cell availability, crystallizer feed rate) and shift coverage; reserve maintenance windows already fixed per PM-008 as unavailable.
5. Place each order into the earliest feasible slot that satisfies its due date without exceeding capacity; sequence dependent batches (crush → flotation → dry) contiguously.
6. Identify conflicts — double-booked equipment, at-risk due dates, or over-capacity shifts — and resolve by re-sequencing, or escalate priority overrides to the Operations Manager.
7. Walk the draft sequence with the Shift Supervisor to confirm floor feasibility (ore feed availability, downstream 423830 Industrial Machinery Wholesalers pickup windows for finished product).
8. Publish the locked schedule to the shift board and system of record, and log the sequencing decisions, overrides, and conflict resolutions with timestamp and author.

8. Decision Tree

OD-008 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Job Scheduling & Sequencing



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every scheduled order carries a validated priority tier and firm due date.
- No slot exceeds confirmed plant/shift capacity and no maintenance window (PM-008) is overwritten.
- Dependent processing batches are sequenced contiguously and in correct order.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
All accepted orders carry priority tier and due date		
Sequence sorted by priority then earliest due date		
No equipment or shift over-booking in the schedule		
Fixed maintenance windows (PM-008) preserved as unavailable		
Dependent crush/flotation/dry batches sequenced contiguously		
Shift Supervisor confirmed floor feasibility		
Published schedule logged with decisions and timestamp		

11. KPIs

- On-time due-date placement rate ≥ 98% of accepted orders scheduled within committed due date.
- Schedule conflict rate ≤ 2% of published slots requiring rework after publication.
- Sequencing cycle turnaround ≤ 90 minutes from queue pull to published schedule.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-009 — Resource & Capacity Allocation

Estimated completion time: 45–90 minutes per shift-planning cycle

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To match scheduled potash, soda ash, and borate extraction and processing work against real, confirmed resources — operators, mobile and fixed equipment, and working space (underground panels, solution-mining wellfields, evaporation ponds, load-out) — so that planned production does not exceed actual capacity.

2. Scope

Covers the assignment of people, equipment, and physical space to already-sequenced work orders for a single operating shift or planning window, and the confirmation that each allocated resource is genuinely available. Excludes staffing presence and attendance (covered under OD-003) and schedule sequence/order of operations (covered under OD-008).

3. Responsibilities

- Mine Operations Superintendent — approves the shift allocation plan and resolves capacity conflicts across pits, wellfields, and processing units.
- Shift Planner / Dispatcher — builds the resource-to-work-order allocation and confirms live equipment and space status.
- Maintenance Lead — confirms equipment availability status (in-service vs. down/PM) for continuous miners, borers, haul units, and brine pumps.

4. Required PPE & Lockout/Tagout

- Standard facility PPE for any walk-down verification: hard hat, safety glasses, hearing protection, steel-toe boots, high-visibility vest; respiratory protection per area posting.
- Not applicable — this is a planning and confirmation task; no hazardous energy is controlled by this procedure. LOTO on any allocated equipment is executed by Maintenance under its own procedure before that unit is released back to production.

5. Regulatory References

- 30 CFR Part 57 (MSHA Safety and Health Standards — Underground Metal and Nonmetal Mines), including 57.18002 (examination of working places).
- 30 CFR Part 56 (Surface Metal and Nonmetal Mines) for pond, load-out, and surface processing areas.
- 30 CFR Part 48 (Training and Retraining) — task-qualification of assigned operators.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

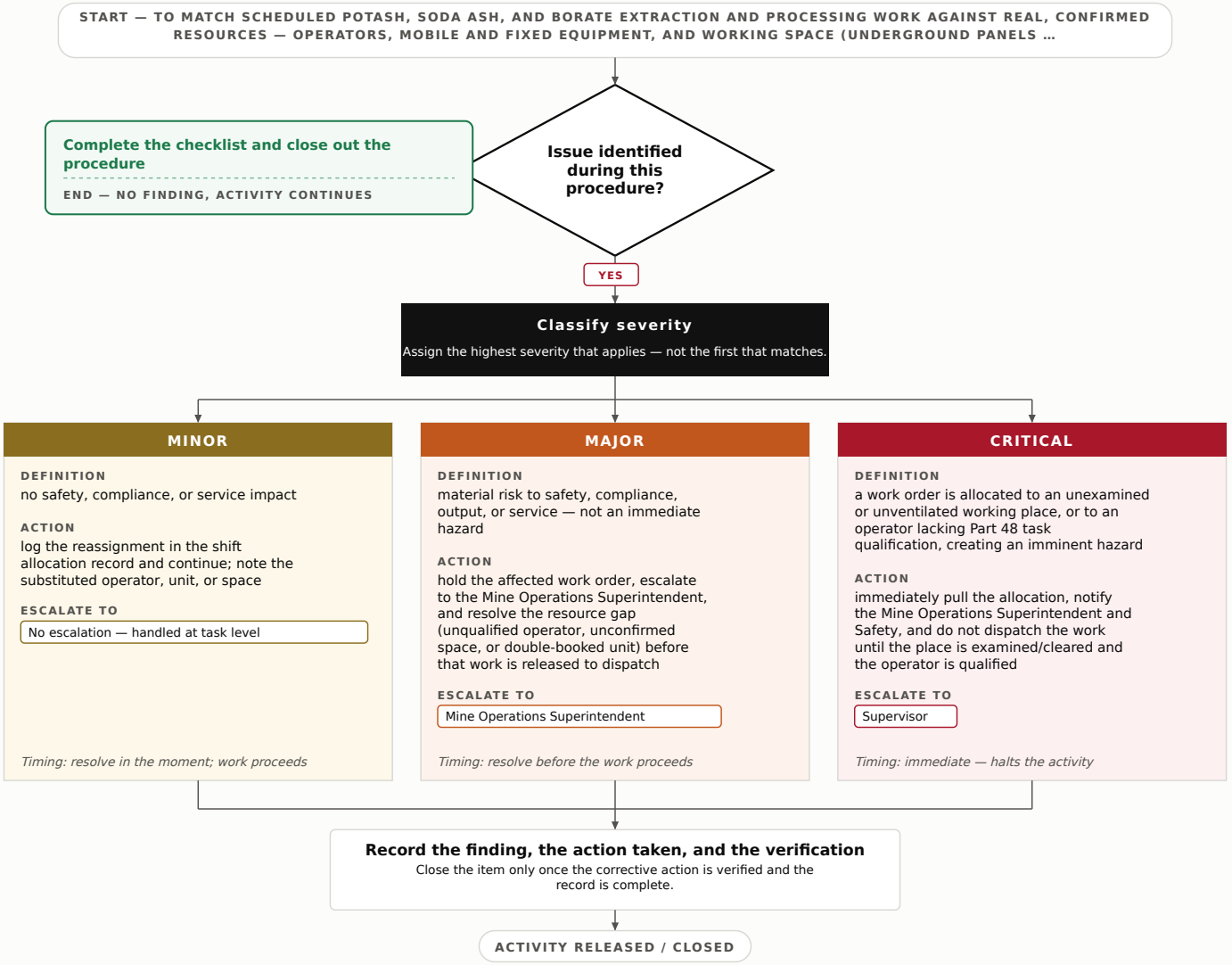
7. Step-by-Step Procedure

1. Pull the sequenced work orders for the shift/window (sequence owned by OD-008) and list every task requiring people, equipment, or space.
2. Inventory available operators and their Part 48 task qualifications against each work order's equipment class (continuous miner, borer, haul truck, brine pump, pond dredge).
3. Inventory equipment availability with the Maintenance Lead — flag any unit in PM, down, or awaiting parts; do not allocate flagged units.
4. Inventory working space — confirm panels/wellfields/ponds/load-out bays that are examined, ventilated, and cleared per 30 CFR 57.18002.
5. Match each work order to a qualified operator, an in-service equipment unit, and a confirmed space; identify any over-subscription where demand exceeds real capacity.
6. Confirm capacity is real — spot-verify at least the critical-path allocations by status check or physical walk-down; reconcile paper availability against actual condition.
7. Resolve conflicts with the Mine Operations Superintendent; rebalance or defer work orders that lack a confirmed resource.
8. Publish the approved allocation to dispatch and record it in the shift log, noting any deferred work and reason.

8. Decision Tree

OD-009 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Resource & Capacity Allocation



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every allocated operator holds current Part 48 task qualification for the assigned equipment.
- Every allocated equipment unit is confirmed in-service by the Maintenance Lead (not in PM/down).
- Every allocated working place is confirmed examined and cleared per 30 CFR 57.18002.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
All sequenced work orders have an assigned resource set		
Assigned operators are Part 48 task-qualified for their equipment		
Allocated equipment confirmed in-service by Maintenance Lead		
Allocated working places examined/ventilated/cleared		
No equipment unit double-booked across concurrent tasks		
Capacity over-subscriptions resolved or work deferred		
Allocation published to dispatch and logged		

11. KPIs

- Confirmed-capacity accuracy (allocations that ran as planned) ≥ 95%.
- Work orders dispatched to an unconfirmed resource: 0 per month.
- Allocation plan published before shift start ≥ 98% of shifts.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-010 — Incoming Material / Supply Verification

Estimated completion time: 30–90 minutes per inbound delivery

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To confirm that inbound materials and supplies — mining machinery parts, process reagents, flotation and leaching chemicals, fuel, and consumables — match the purchase order in identity, quantity, and physical condition before they are accepted into the potash/soda/borate operation, preventing wrong, short, or damaged stock from entering production.

2. Scope

Covers Operations-side verification of received materials against the purchase order, delivered quantity, and outward condition (packaging integrity, container damage, leaks, seal/lot markings, SDS presence). Excludes spec-conformance testing, which is covered under QC-003; putaway, covered under WH-006; and physical dock count, covered under SH-008.

3. Responsibilities

- Receiving Operator — performs the physical verification against PO, records quantity/condition, flags discrepancies.
- Operations Supervisor — reviews flagged discrepancies, authorizes acceptance, conditional acceptance, or rejection.
- Procurement/Materials Coordinator — resolves PO mismatches with the supplier and manages returns or reorders.

4. Required PPE & Lockout/Tagout

- Standard facility PPE: hard hat, safety glasses, steel-toe boots, hi-vis vest, cut-resistant gloves; chemical-resistant gloves and splash goggles when handling reagent/chemical drums or totes.
- Not applicable — no hazardous energy involved. Do not enter the trailer or move loads under powered equipment during verification; coordinate with dock personnel (SH-008).

5. Regulatary References

- 29 CFR 1910.1200 (OSHA Hazard Communication — SDS and container labeling on inbound chemicals)
- 29 CFR 1910.106 / 1910.119 (flammable liquids; process safety, where applicable to inbound reagents/fuel)
- 49 CFR 172 (DOT hazardous materials marking, labeling, and shipping papers on inbound loads)
- 30 CFR Part 56/57 (MSHA surface/underground metal-nonmetal mine safety, facility-wide)
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

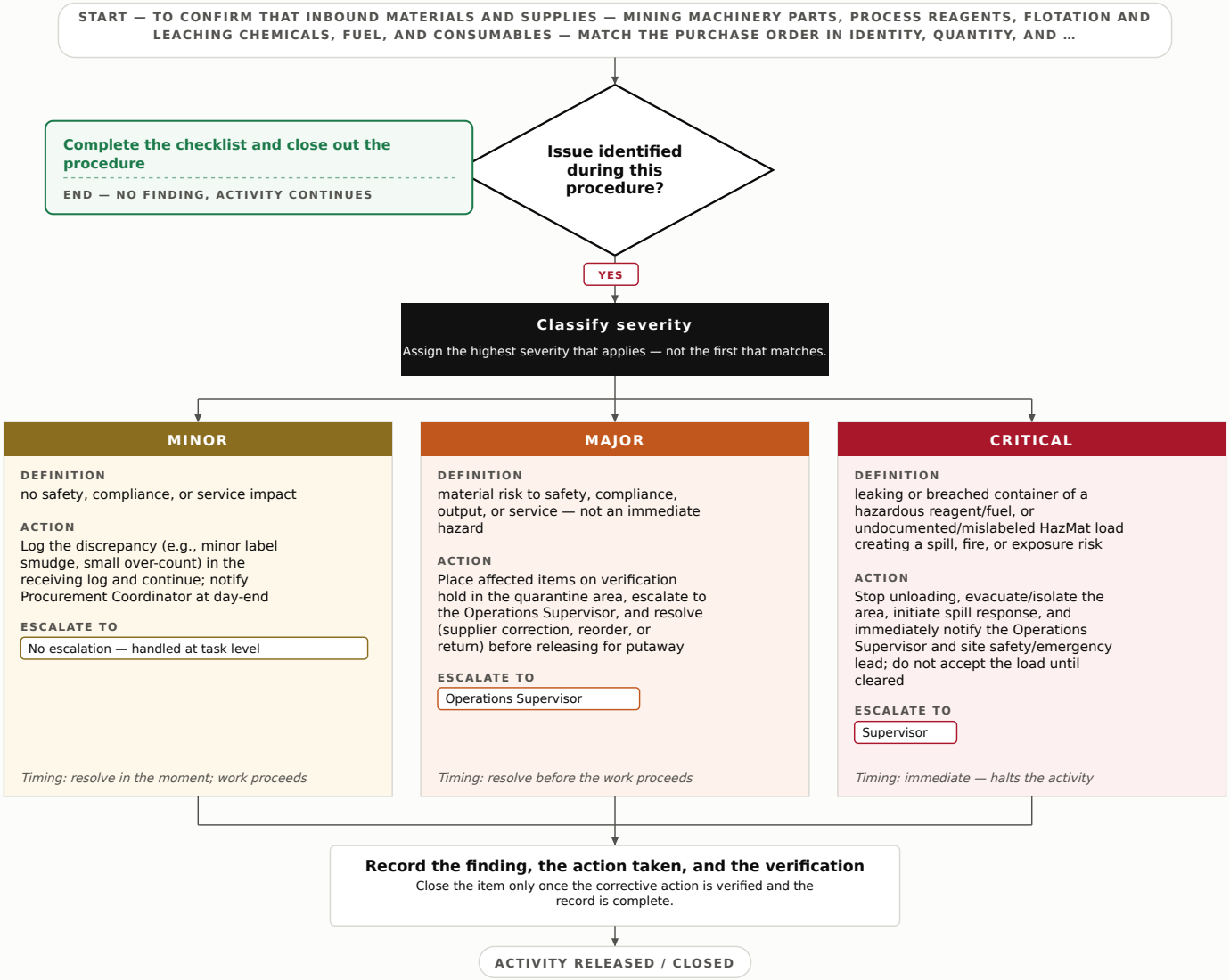
7. Step-by-Step Procedure

1. Retrieve the open purchase order and match it to the carrier's bill of lading/packing slip; confirm supplier, PO number, and line items before unloading approval.
2. Confirm delivered items match PO description — part numbers for mining machinery/spares (NAICS 333131), product/grade for process reagents and refinery-derived fuels/lubricants (NAICS 324110, 325998).
3. Verify quantities received against PO line quantities (drums, totes, pallets, bulk manifest weight); note any over/short (defer physical dock count detail to SH-008).
4. Inspect outward condition: packaging integrity, dents/leaks/corrosion on drums and totes, intact tamper seals, legible lot/batch numbers and expiry dates on chemical stock.
5. Confirm HazMat compliance — GHS labels, DOT markings, and a current SDS present for each chemical/reagent line per 29 CFR 1910.1200 and 49 CFR 172.
6. For any mismatch, shortage, or damage, quarantine the affected items in the designated hold area and apply a "VERIFICATION HOLD" tag; do not release for putaway.
7. Record verification result (accept / conditional / reject) in the receiving log with PO number, quantities, condition notes, and photos of any damage.
8. Route conforming material to putaway per WH-006 and hand off any conformance-testing requirement to QC-003; forward discrepancy records to Procurement.

8. Decision Tree

OD-010 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Incoming Material / Supply Verification



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- PO, BOL, and physical goods reconcile on supplier, item, and line count.
- Delivered quantities within agreed PO tolerance; over/short documented.
- Every chemical/reagent line has a legible label and current SDS on file.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
PO number matches BOL/packing slip		
Item identity/part number/grade matches PO		
Delivered quantity matches PO (over/short noted)		
Packaging/containers intact — no leaks, dents, corrosion		
Tamper seals intact; lot/batch/expiry legible		
GHS/DOT labeling present and correct		
SDS present for each chemical line		

11. KPIs

- Verification accuracy (accepted loads later found nonconforming): ≤ 1%
- Discrepancy documentation completeness: 100% of flagged loads logged with PO, quantity, and photos
- Average verification turnaround per delivery: ≤ 60 minutes

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

Phase 3 — Execution

OD-011 — Standard Work Execution & Process Adherence

Estimated completion time: 30–60 minutes per shift-cycle review (continuous during production run)

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1. Purpose

This procedure ensures potash, soda ash, and borate extraction and processing work is performed to the documented standard method — established feed rates, dissolution/crystallization setpoints, conveyor and screen parameters, and crusher operating windows — so that output is consistent and any departure from method is caught and recorded. It protects yield, grade continuity, and regulatory standing at the operation.

2. Scope

Covers execution of defined operating methods across extraction, comminution, and beneficiation lines, and the identification and logging of process deviations by operating crews. Excludes in-process quality checks (spec-conformance / assay verification), which are covered under QC-007, and safe-work method development, which is covered under SD-005.

3. Responsibilities

- Operations Shift Supervisor (OD) — verifies crews run to the current standard method; reviews and dispositions logged deviations each shift.
- Board / Panel Operator — executes the documented method at setpoint, monitors process parameters, and logs deviations at the point of occurrence.
- Process Operations Lead — owns the standard method documents, approves corrective adjustments, and escalates Major/Critical deviations.

4. Required PPE & Lockout/Tagout

- Standard facility PPE: hard hat, safety glasses, hearing protection, steel-toe boots, dust-rated respirator (P100) in dry-handling and crushing areas, high-visibility vest.
- LOTO: Not applicable to routine method execution and deviation logging. Any physical intervention on energized equipment invokes the facility LOTO program and hands off to Maintenance — outside this procedure.

5. Regulatory References

- 30 CFR Parts 56/57 (MSHA — Surface and Underground Metal/Nonmetal Mines) — operating and process-area safety standards applicable to potash/soda/borate mining.
- 30 CFR Part 62 (MSHA — Occupational Noise Exposure).
- 29 CFR 1910.1200 (Hazard Communication) for process chemicals and reagents.
- Internal policy: OD Standard Method Register and Deviation Log procedure.

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

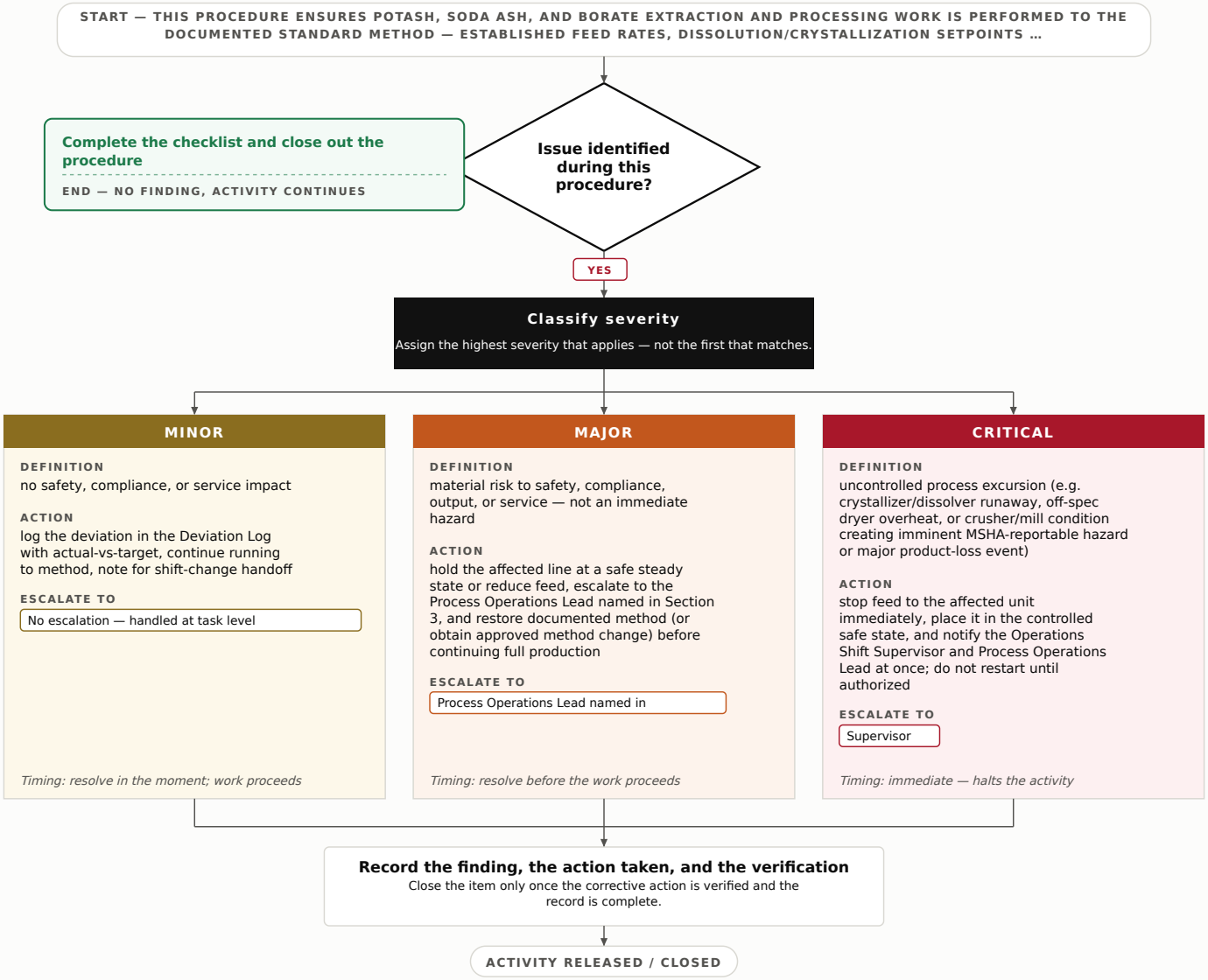
7. Step-by-Step Procedure

1. Retrieve the current controlled standard method sheet for the unit (extraction, crusher/mill, screen, dissolver, crystallizer, or dryer) and confirm the revision matches the register.
2. At run start, verify actual setpoints against the method: feed rate, slurry density, temperature/pressure windows, crusher gap, screen deck configuration, and reagent dosing where applicable.
3. Confirm upstream feed condition and equipment availability received from mining machinery per handoff (NAICS 333131) support the documented parameters before commencing.
4. Execute the run to method; monitor the DCS/board and field indications against the documented operating window throughout the shift.
5. Where a reading or condition departs from the documented window, record the deviation: unit, parameter, actual vs. target, timestamp, and suspected cause.
6. Classify the deviation per Section 8 and take the routed action; do not silently re-adjust setpoints outside method authority.
7. Confirm the unit is returned to method (or held) and note the disposition and any Process Operations Lead approval for method changes.
8. Complete the Inspection Checklist, enter all deviations in the Deviation Log, and hand off open items at shift change.

8. Decision Tree

OD-011 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Standard Work Execution & Process Adherence



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Standard method sheet in use matches the current controlled revision.
- All monitored parameters logged as within documented operating windows or flagged as deviations.
- Every deviation carries a classification and disposition.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Current controlled method sheet retrieved for unit		
Start-of-run setpoints verified against method		
Feed rate / slurry density within documented window		
Temperature / pressure within documented window		
Crusher gap / screen / dryer parameters per method		
All deviations logged with actual-vs-target & cause		
Deviations classified and dispositioned; handoff noted		

11. KPIs

- Method-adherence rate (shifts run fully to method) ≥ 98%.
- Deviations logged vs. observed (completeness of logging) = 100%.
- Unresolved Critical deviations at shift close = 0.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-012 — Work-in-Progress Tracking & Status Update

Estimated completion time: 20–40 minutes per shift-end update cycle

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

This procedure establishes how the current status of active potash, soda ash, and borate mining jobs — extraction faces, solution-mining wells, and processing batches — is recorded and made visible to Operations so work can be sequenced, handed off between shifts, and tracked to completion without loss of continuity.

2. Scope

Covers logging and updating the state of active jobs across extraction, haulage, and processing WIP stages, and maintaining the shared status board or CMMS work-order view for the crew. Excludes throughput/tonnage measurement, which is covered under OD-014, and quality/spec data, which is covered under QC-027.

3. Responsibilities

- Shift Supervisor (Operations) — reviews and validates the WIP status board at shift start and shift end; approves status changes and hand-off notes.
- WIP Coordinator / Control Room Operator — records job status entries in the CMMS/status system in real time and flags stalled or overdue jobs.
- Area Lead (Extraction / Processing) — reports actual job progress from the field or plant and confirms status accuracy for their area.

4. Required PPE & Lockout/Tagout

- Standard facility PPE when observing field status (hard hat, safety glasses, hi-vis, steel-toe boots, hearing protection in plant areas); office/control-room work requires none beyond standard.
- Not applicable — this is an administrative tracking task involving no hazardous energy; do not enter energized or LOTO-controlled zones solely to confirm status.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Underground Metal and Nonmetal Mines), recordkeeping and communication provisions applicable to active-workings status.
- 30 CFR Part 50 (MSHA — Notification, Investigation, Reports and Records) for events surfaced through WIP tracking.
- Internal Operations records-control and shift-handover policy governs the WIP board itself.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

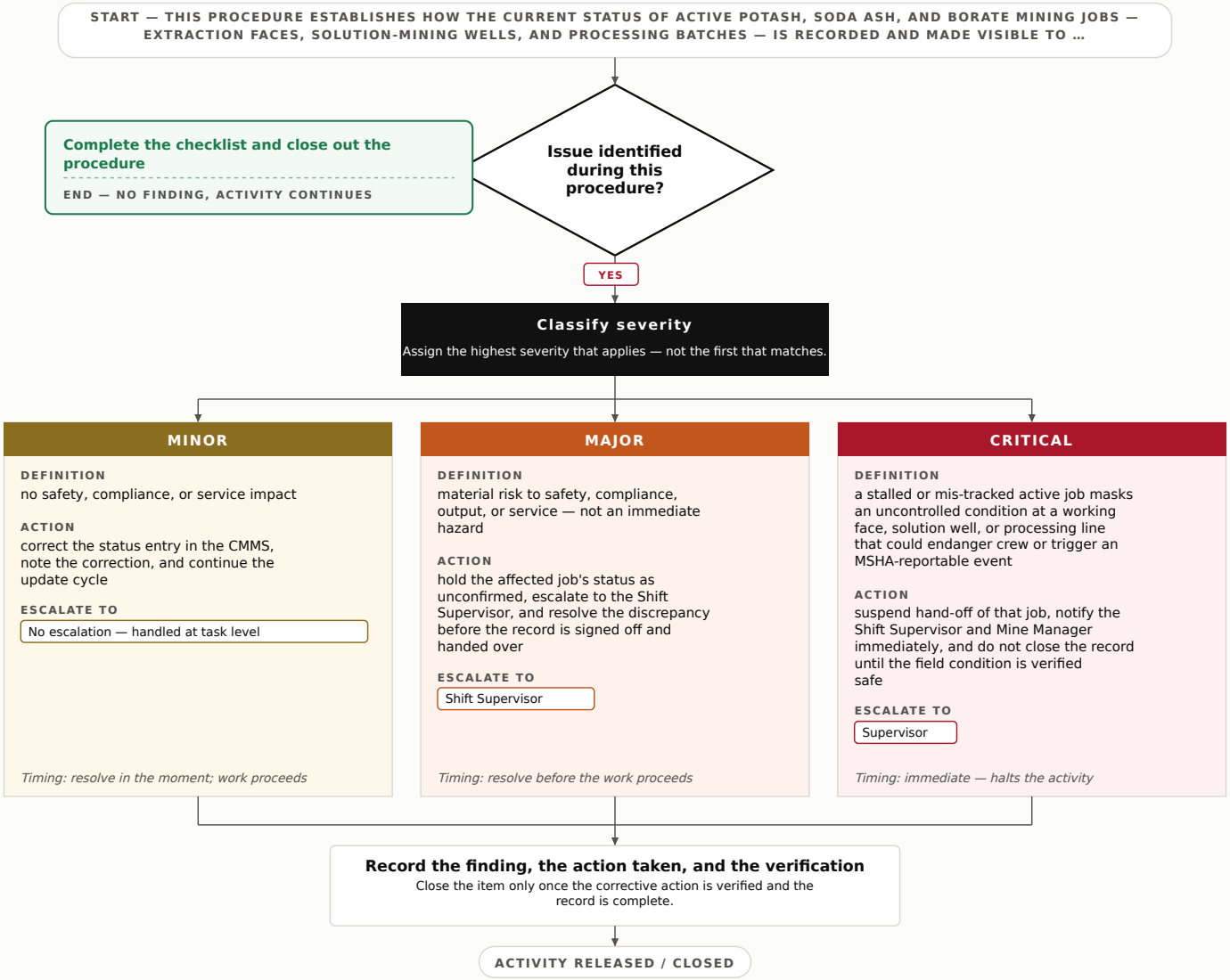
7. Step-by-Step Procedure

1. At shift start, open the CMMS work-order view and the shared WIP status board; note all jobs marked active, on-hold, or awaiting hand-off.
2. Contact each Area Lead (extraction faces, solution wells, dryers/screening lines) and confirm the actual current state of each active job.
3. Update each job's status field — Not Started / In Progress / On Hold / Awaiting Hand-off / Complete — with a timestamp and the responsible crew or area.
4. For on-hold jobs, record the hold reason and the trigger required to resume (e.g., equipment availability, prior-batch completion) — do not record throughput figures (see OD-014) or spec results (see QC-027).
5. Compare recorded status against physical/plant reality; reconcile any discrepancy with the Area Lead before finalizing.
6. Flag jobs exceeding their expected duration or blocked more than one shift for Shift Supervisor review.
7. Capture a concise hand-off note for the incoming shift summarizing active jobs, holds, and priorities.
8. Save and lock the updated record; obtain Shift Supervisor sign-off and confirm the board is visible to the next crew.

8. Decision Tree

OD-012 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Work-in-Progress Tracking & Status Update



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every active job on the board has a status, timestamp, and responsible area/crew.
- All on-hold jobs carry a documented reason and resume trigger.
- Recorded statuses reconciled against Area Lead confirmation for each area.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
All active jobs present in CMMS/status board		
Each job status timestamped and attributed		
On-hold jobs list reason and resume trigger		
Statuses reconciled with Area Leads		
Overdue/blocked jobs flagged for supervisor		
Hand-off note completed for next shift		
Record saved, locked, and supervisor-signed		

11. KPIs

- Status-board accuracy vs. field reality ≥ 98% at reconciliation.
- Active jobs updated within 30 minutes of shift start/end ≥ 95%.
- Hand-off notes completed every shift = 100%.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-013 — Operational Handoff Between Work Stages

Estimated completion time: 20–45 minutes per handoff event

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To ensure controlled, documented transfer of in-progress work between mining stages, crews, or process areas (e.g., solution mining wellfield to evaporation ponds, or crushing to flotation) at a potash/soda/borate operation, so that no operational status, hazard, or partially completed task is lost at the boundary between stages.

2. Scope

Covers the physical and informational handoff of active work — running equipment states, batch/ore status, open permits, and outstanding hazards — between consecutive work stages, crews, or shifts within Operations. Excludes shift-log handover, which is covered under OD-002, and stage quality release/spec conformance, which is covered under QC-013.

3. Responsibilities

- Outgoing Stage Lead — reconciles active work status, verifies equipment and material states, and completes the outbound handoff record before releasing the stage.
- Incoming Stage Lead — confirms receipt, walks down the stage, and accepts or rejects handoff based on documented conditions.
- Operations Shift Supervisor — witnesses contested or Critical handoffs, resolves disputes, and authorizes stage transfer.

4. Required PPE & Lockout/Tagout

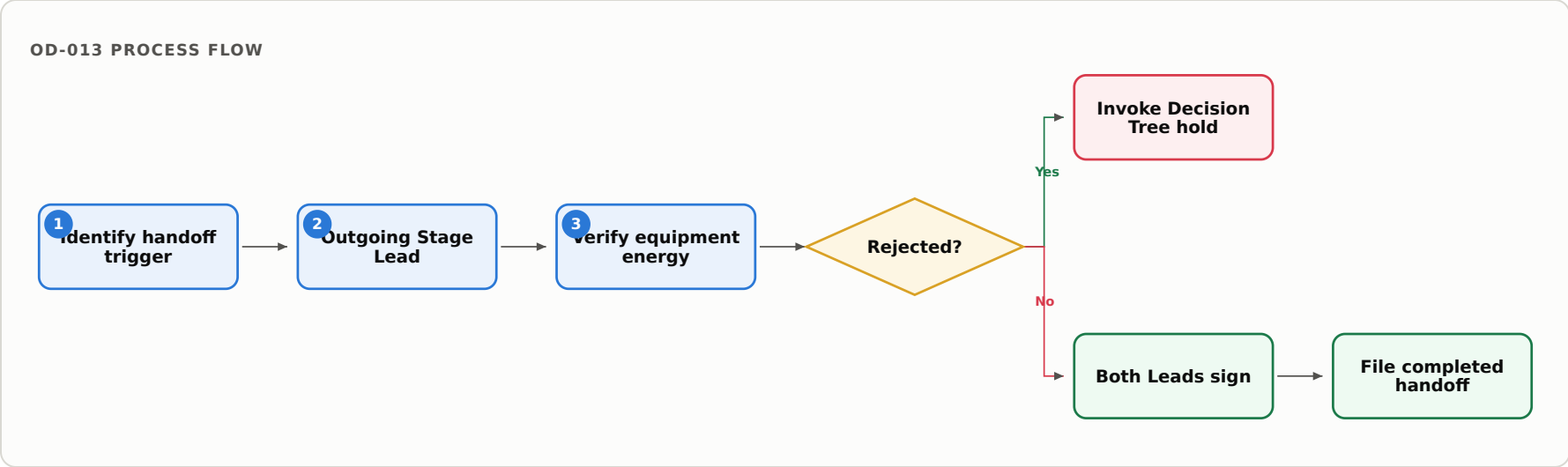
- Standard facility PPE: hard hat, safety glasses, steel-toe boots, hi-vis vest, hearing protection in process areas, and respiratory protection where dust/brine mist thresholds require it.
- LOTO: Applicable — verify lockout/tagout status of any equipment left de-energized or isolated at the boundary; transfer LOTO ownership per the site energy-control program at handoff and confirm no orphaned locks or tags.

5. Regulatory References

- 30 CFR Part 57 — MSHA Safety and Health Standards, Underground Metal and Nonmetal Mines (applicable to underground potash/borate operations).
- 30 CFR Part 56 — MSHA Safety and Health Standards, Surface Metal and Nonmetal Mines (surface processing, ponds, crushing).
- 30 CFR §57.18006 / §56.18006 — New employees / task changes; communication of hazards at work-area transfer.
- 29 CFR 1910.147 — Control of Hazardous Energy (LOTO) where general-industry process equipment applies.

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



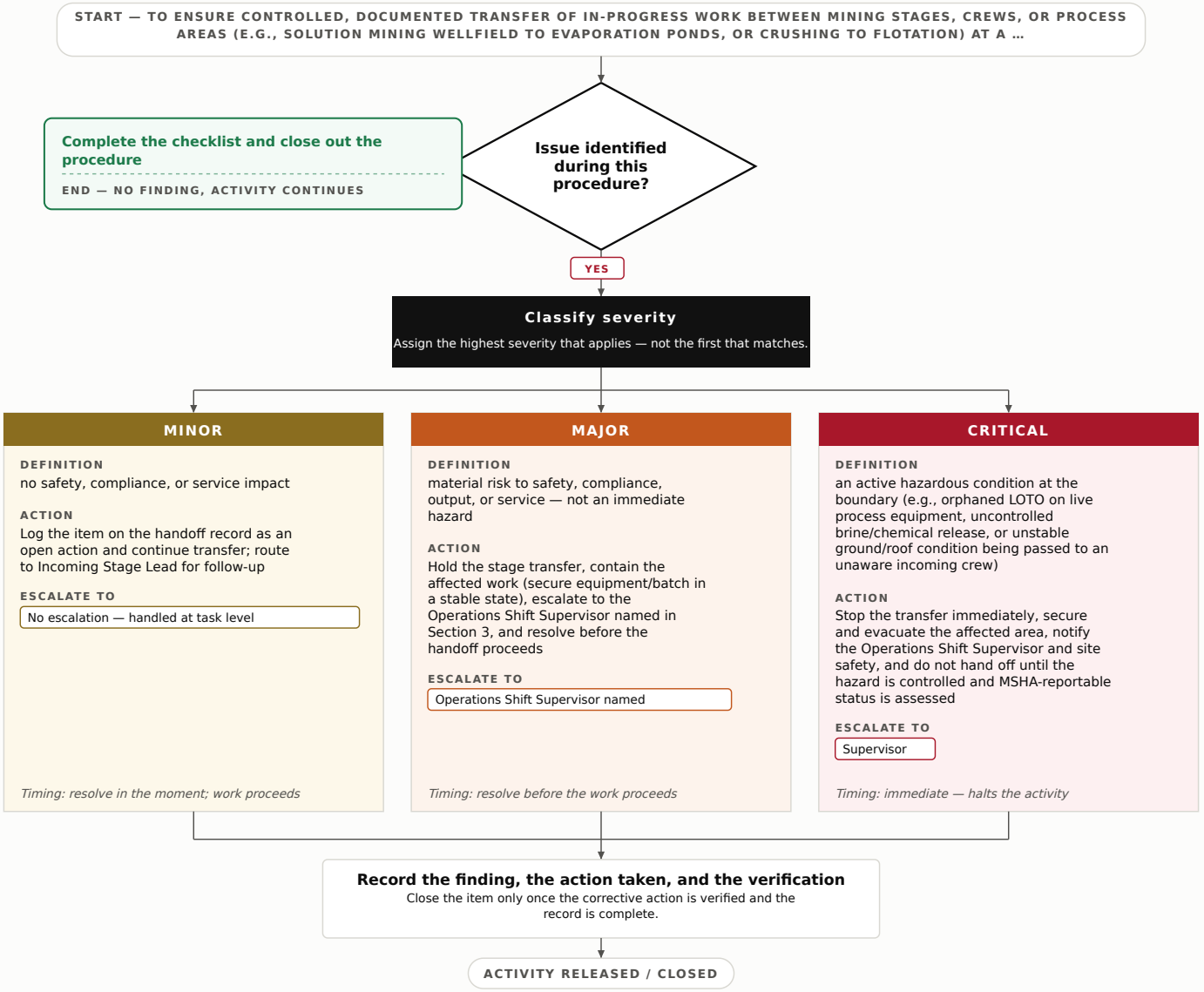
7. Step-by-Step Procedure

1. Identify the handoff trigger — stage completion, crew rotation, or process-area transfer (e.g., wellfield to pond, crushing to flotation) — and notify both Stage Leads.
2. Outgoing Stage Lead compiles active work status: running equipment, in-progress batches, ore/brine grade and volume in transit, open permits, and any suspended tasks.
3. Verify equipment and energy states: confirm which units are running, standby, or under LOTO; confirm no orphaned isolations and that tag ownership is ready to transfer.
4. Conduct a joint physical walk-down of the stage boundary with both Leads, checking process conditions, spill/dust controls, and ground-control status where applicable.
5. Communicate all outstanding hazards, deferred tasks, and abnormal conditions verbally and confirm they are captured on the handoff record.
6. Incoming Stage Lead accepts or rejects the handoff; if rejected, invoke the Decision Tree and hold transfer until conditions are resolved.
7. Both Leads sign the handoff record; transfer LOTO ownership and permit accountability formally.
8. File the completed handoff record and log any open items for tracking; distribute to Operations Shift Supervisor for the record.

8. Decision Tree

OD-013 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Operational Handoff Between Work Stages



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All active equipment and LOTO states verified and ownership transferred with no orphaned tags.
- Joint walk-down completed and signed by both outgoing and incoming Stage Leads.
- All outstanding hazards and deferred tasks documented on the handoff record.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Active equipment/running unit states reconciled and confirmed		
LOTO isolations verified; no orphaned locks or tags		
In-progress batch / ore / brine status documented		
Open permits and deferred tasks recorded and communicated		
Joint stage walk-down completed		
Both Stage Leads' signatures obtained		
Handoff record filed and distributed to Shift Supervisor		

11. KPIs

- Documented handoffs with complete signed records ≥ 99%
- Handoff-related incidents or missed hazards per quarter = 0
- Average handoff completion time ≤ 45 minutes

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-014 — Output Monitoring & Throughput Review

Estimated completion time: 30–60 minutes per shift review; 2–3 hours for a full weekly reconciliation

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

This procedure establishes how Operations monitors and reviews the rate and volume of run-of-mine and processed product output — potash, soda ash, and borate mineral tonnage — against the daily and weekly production plan, so that shortfalls, surges, and drift are detected early and corrected at the source.

2. Scope

Covers real-time and shift-end tracking of solution-mining/extraction feed rates, crusher and flotation circuit throughput, dryer output, and finished-product tonnage against plan across the wellfield, mill, and load-out. Excludes formal KPI review and target-setting, which is covered under OD-028, and process capability analysis, which is covered under QC-026.

3. Responsibilities

- Production Operator — Records hourly throughput readings, flags rate deviations against plan, and logs interruptions in the shift log.
- Shift Supervisor (Operations) — Reviews shift throughput against plan, authorizes short-term corrective adjustments, and escalates sustained deviations.
- Operations Superintendent — Owns the weekly throughput reconciliation, approves plan variance explanations, and directs cross-shift corrective action.

4. Required PPE & Lockout/Tagout

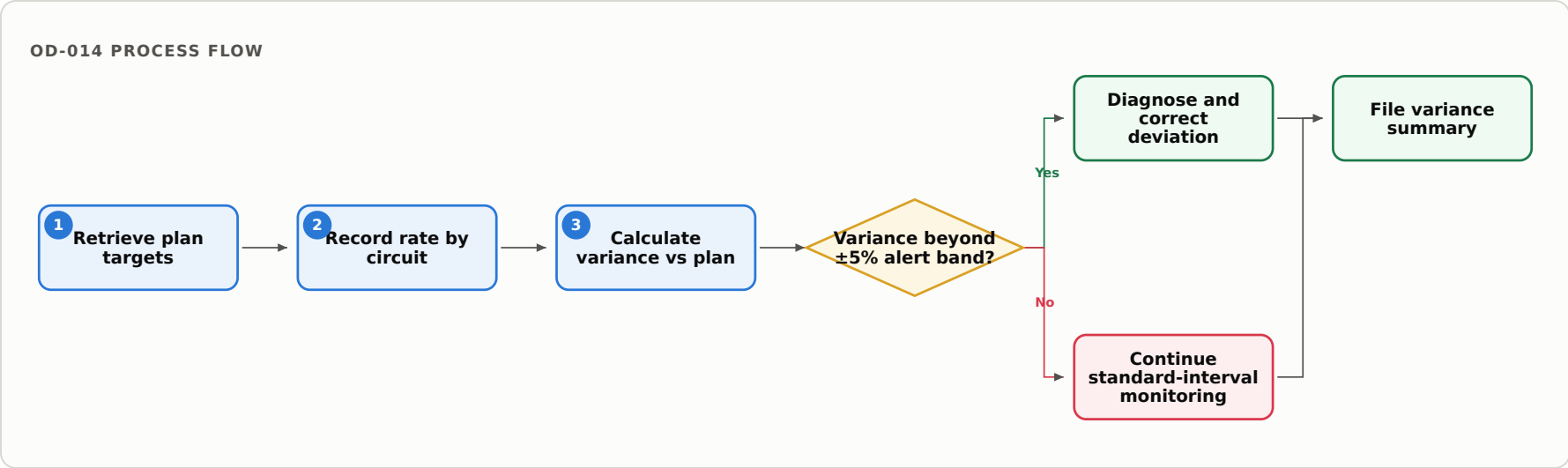
- Standard facility PPE for control-room and plant walkdown activity: hard hat, safety glasses, hearing protection, steel-toe boots, and hi-vis in process areas.
- Not applicable — this is a monitoring and data-review task; no hazardous energy is isolated. If a walkdown requires access to energized equipment, follow the governing LOTO procedure before contact.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Underground Metal and Nonmetal Mines), applicable to production areas walked during monitoring.
- 30 CFR Part 50 (MSHA — Notification, Investigation, Reports of Accidents, Injuries, and Production/Employment data), for quarterly production reporting alignment.

- Internal Operations policy OD-PLAN (production planning and shift-reporting standard) governs plan targets and log format.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



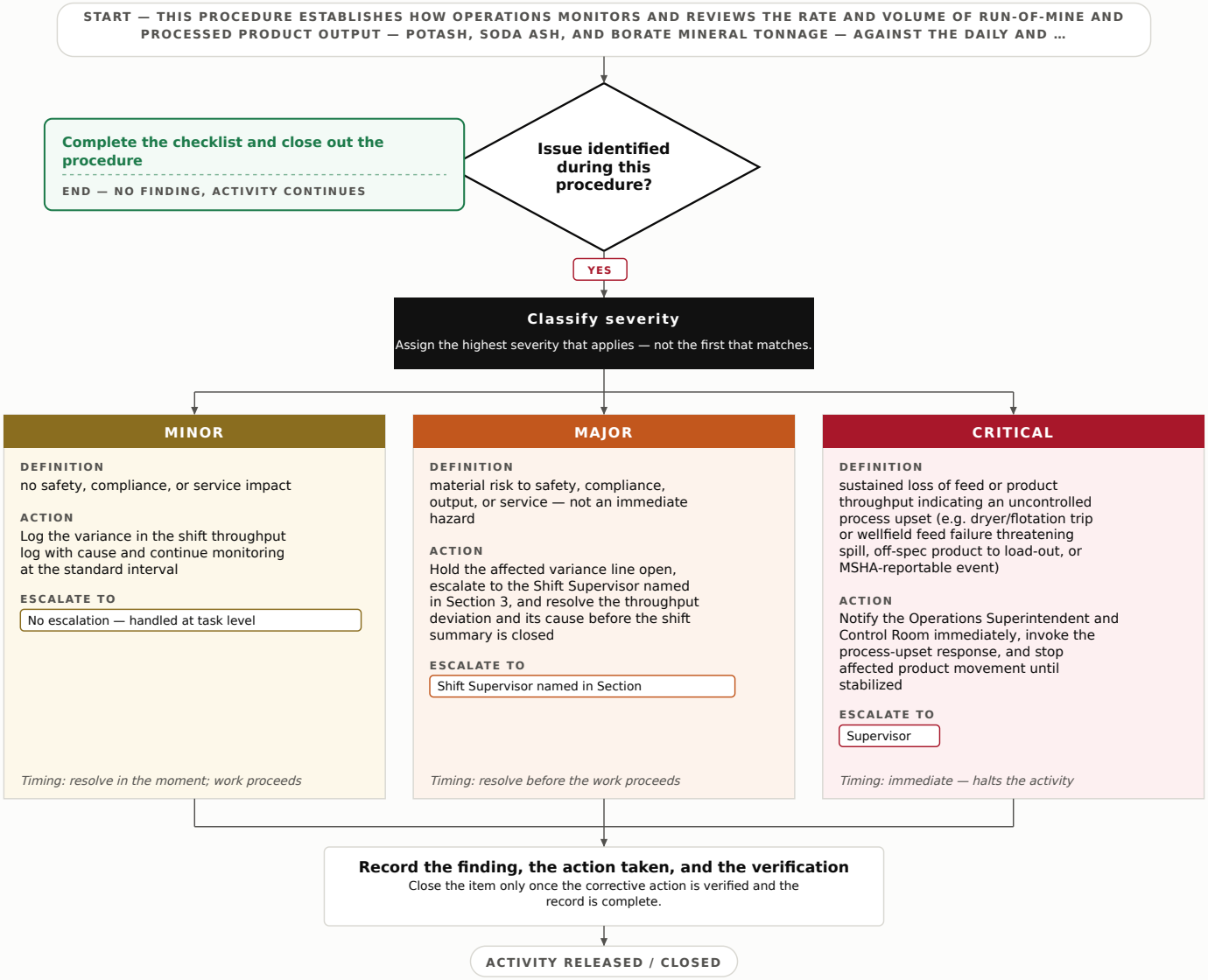
7. Step-by-Step Procedure

1. At shift start, retrieve the current daily/weekly production plan targets for wellfield feed, mill throughput, and finished product tonnage from the planning board or MES.
2. Verify that flow meters, belt scales, and tonnage counters at the crusher, flotation circuit, dryer, and load-out are reading and show a recent calibration flag; note any suspect instrument.
3. Record actual rate (tph) and cumulative volume (tons) by circuit at the defined interval (hourly minimum) into the shift throughput log.
4. Calculate variance of actual against plan for each circuit and cumulative product; express as tons and as percent of plan.
5. For any variance beyond the alert band (±5% sustained over two intervals), identify the root cause — feed grade, equipment slowdown, blockage, downstream backup, or upstream supply gap.
6. Apply or request short-term corrective adjustment within authority (rate change, sequence change) and note it; classify per Section 8 if the deviation persists.
7. At shift end, complete the shift throughput summary, reconcile cumulative volume against plan, and hand off open items to the incoming supervisor.
8. Document the completed log, variance summary, and corrective actions; file to the Operations record and forward material variances to the Operations Superintendent.

8. Decision Tree

OD-014 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Output Monitoring & Throughput Review



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All monitored circuits have recorded readings at the required interval with no unexplained data gaps.
- Variance calculations reconcile against meter/scale totals within instrument tolerance.
- Every deviation beyond the alert band has a documented cause and corrective action.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Current plan targets retrieved for all circuits		
Meters/belt scales reading with valid calibration flag		
Hourly throughput readings recorded with no gaps		
Variance vs. plan calculated per circuit and cumulative		
Deviations beyond alert band diagnosed and logged		
Corrective actions recorded with authorizing role		
Shift summary reconciled and handed off		

11. KPIs

- Actual product volume vs. plan: within ±3% weekly.
- Monitoring interval compliance (readings logged on schedule): ≥98%.
- Variance events with documented root cause and action: 100%.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-015 — Bottleneck Identification & Response

Estimated completion time: 45–90 minutes per identified constraint (excluding corrective repair time)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Provide a repeatable method for detecting constraints that slow the potash/soda/borate extraction and processing flow — from ore hoisting and crushing through flotation, dewatering, and load-out — and for triggering the correct response so line rate is restored without compromising safety or compliance.

2. Scope

Covers real-time detection, classification, and initial response to production bottlenecks across the OD-controlled process train at a single mine/mill site. Excludes production schedule changes (see OD-017) and capacity allocation between circuits or shifts (see OD-009); this procedure ends when a constraint is contained and routed, not when the plan is re-cut.

3. Responsibilities

- Shift Operations Supervisor — owns bottleneck classification, authorizes hold/containment, and escalates Critical findings.
- Control Room Operator (DCS/SCADA) — monitors rate trends, flags flow/level/amperage deviations, logs the constraint.
- Maintenance Lead — assesses equipment-driven constraints (crusher, conveyor, pumps, centrifuges) and executes LOTO where repair is required.

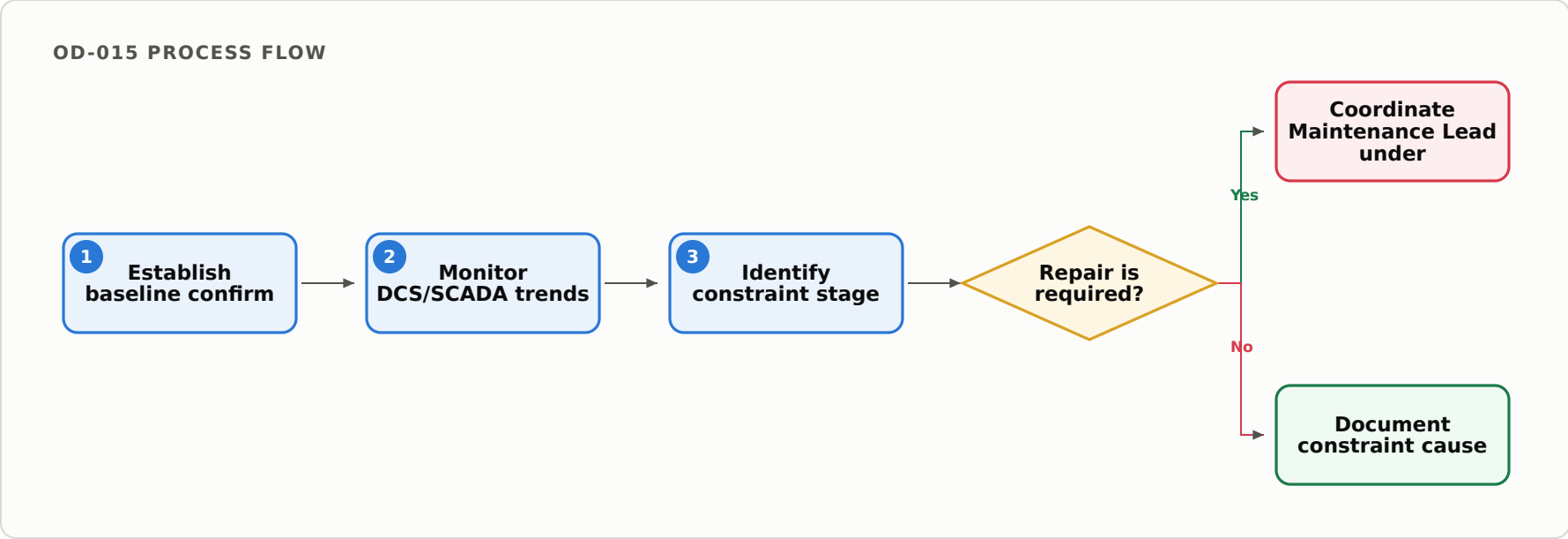
4. Required PPE & Lockout/Tagout

- Standard facility PPE: hard hat, safety glasses, hearing protection, steel-toe boots, dust mask/respirator where brine mist or fine dust is present, high-visibility vest.
- LOTO required before any physical intervention on crushers, conveyors, screens, pumps, or centrifuges implicated as the constraint — isolate and verify zero energy per facility LOTO program before contact.

5. Regulatory References

- 30 CFR Part 56/57 (MSHA — Surface and Underground Metal/Nonmetal Mines), including 57.14105 (equipment repair) and 56/57.20 series (general safety)
- 29 CFR 1910.147 (OSHA Control of Hazardous Energy / LOTO) where MSHA jurisdiction does not apply
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



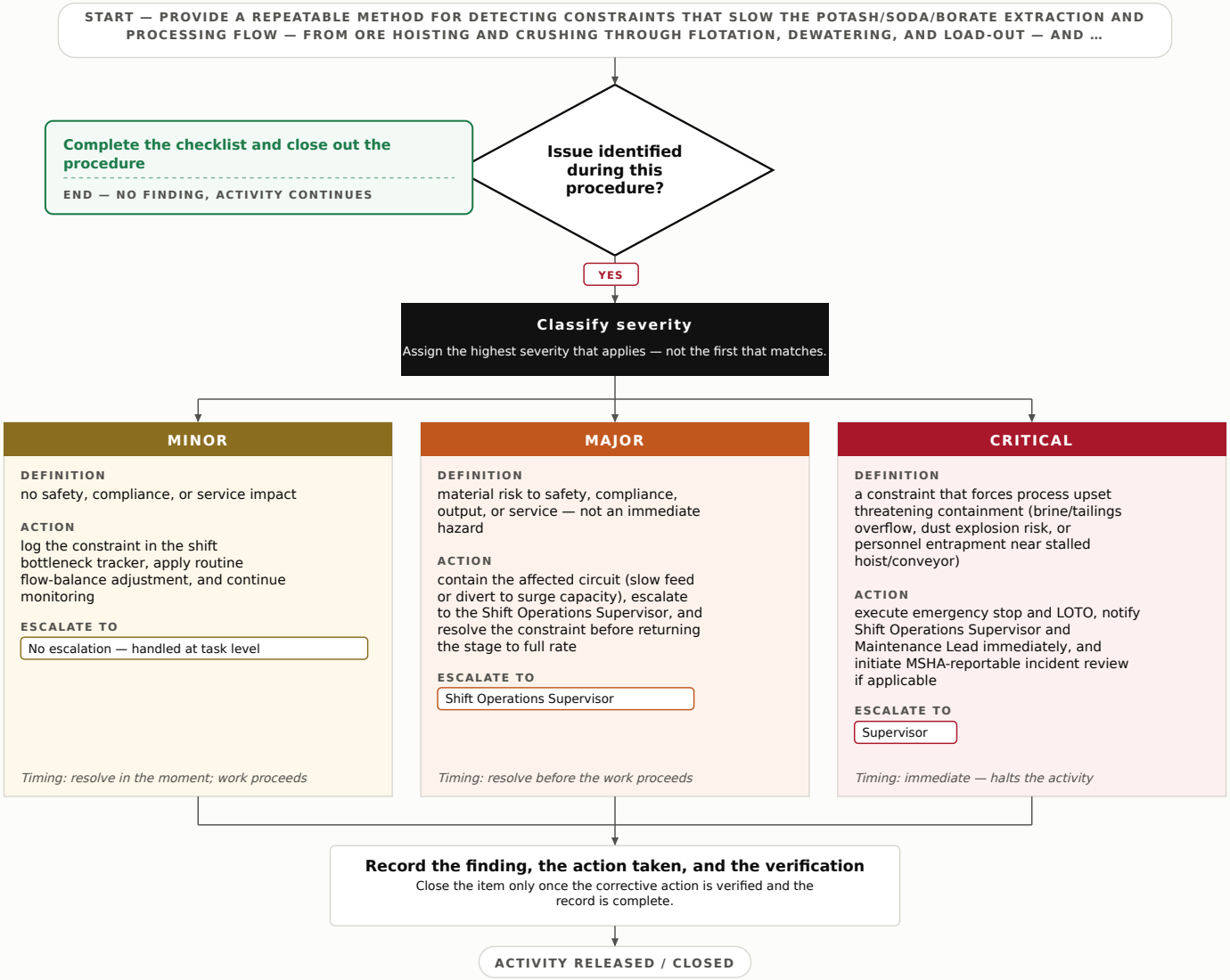
7. Step-by-Step Procedure

1. Establish baseline: confirm target throughput (tph) and design rates for each stage (hoist, crushing, grinding, flotation, dewatering, load-out) at shift start.
2. Monitor DCS/SCADA trends — surge bin/silo levels, conveyor amperage, pump pressures, flotation cell froth, centrifuge cake moisture — for sustained rate below target.
3. Identify the constraint: the stage where upstream inventory backs up and downstream inventory starves signals the bottleneck; confirm with field walk-down.
4. Verify the deviation is real, not an instrument fault — cross-check a second indicator or manual reading before acting.
5. Determine cause category: mechanical (equipment), material (ore grade, moisture, brine chemistry from 325998 additives), or flow-balance.
6. Classify severity per Section 8 and initiate the corresponding response (log, contain/escalate, or emergency stop).
7. Confirm rate recovery to target and stabilize before releasing any hold; if repair is required, coordinate with Maintenance Lead under LOTO.
8. Document the constraint, cause, response, downtime, and recovery time in the shift log and the bottleneck tracker.

8. Decision Tree

OD-015 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Bottleneck Identification & Response



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Constraint located and confirmed by two independent indicators before response.
- Response matched to classified severity and authorized at the correct role level.
- Rate recovery verified against target throughput and stabilized before hold release.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Target throughput and stage design rates confirmed at shift start		
Constraining unit operation identified and field-verified		
Deviation cross-checked (no instrument fault)		
Cause category (mechanical / material / flow) determined		
Severity classified and correct response initiated		
LOTO applied where physical intervention required		
Constraint, downtime, and recovery logged in bottleneck tracker		

11. KPIs

- Mean time to detect constraint (from deviation onset) ≤ 15 minutes
- Mean time to restore target throughput after Major finding ≤ 60 minutes
- Bottleneck events documented in tracker = 100%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-016 — Rework & Nonconforming Work Handling

Estimated completion time: 45 minutes – 4 hours per nonconforming lot (excluding re-processing cycle time)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To segregate, identify, and re-run off-spec potash, soda ash, and borate mineral product — such as product failing screen size, moisture, purity, or anti-caking-coating spec — so that nonconforming material is physically isolated from conforming inventory and correctly re-processed rather than shipped or blended undocumented.

2. Scope

Covers physical containment, tagging, tracking, and re-run staging of nonconforming crushed, screened, compacted, or granulated mineral product within the mill, dry plant, and load-out areas. Excludes formal disposition decisions (use-as-is / regrade / scrap), which are covered under QC-014, and rework authorization, which is covered under QC-016.

3. Responsibilities

- Operations Shift Lead (OD) — verifies segregation of the flagged lot, initiates the nonconformance tag, and coordinates re-run scheduling with the dry plant.
- Plant Operator (OD) — physically isolates and labels off-spec product, diverts flow to hold bins/bays, and executes the re-run once authorized per QC-016.
- QC Technician (liaison) — confirms the failing parameter and hands off formal disposition per QC-014 before any re-run proceeds.

4. Required PPE & Lockout/Tagout

- Standard facility PPE: hard hat, safety glasses, steel-toe boots, hi-vis, and NIOSH-rated dust respirator (N95 minimum) when handling dusty borate/soda fines.
- LOTO required when clearing plugged diverter gates, chutes, or crusher/compactor jams during re-routing — isolate and tag conveyor and mill drive energy per facility LOTO program before entry or unjamming.

5. Regulatory References

- 30 CFR Part 56 (MSHA Surface Metal and Nonmetal Mines) — housekeeping, guarding, and material handling.
- 30 CFR 56.5001 / 56.5005 — airborne contaminant and respiratory protection limits for mineral dust.
- 29 CFR 1910.1200 (HazCom) — labeling and SDS handling for coated/treated mineral product.
- Internal policy OD-STD-Rework governs hold-bin labeling and lot traceability.

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

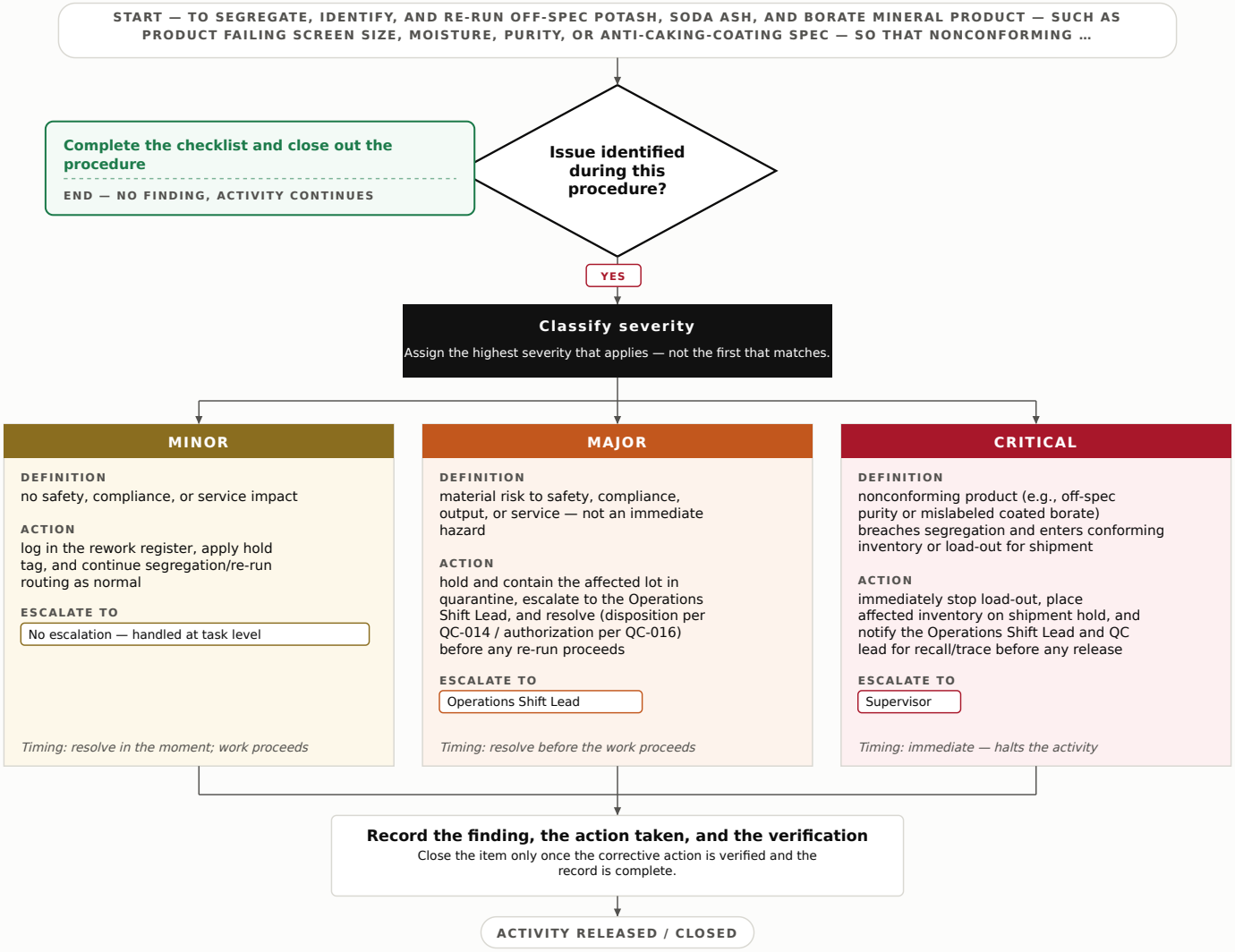
7. Step-by-Step Procedure

1. Receive off-spec notification (screen oversize/undersize, moisture, K_2O/purity, or coating fault) from QC or in-line analyzer and halt release of the affected lot.
2. Divert the flagged product stream to a designated hold bin or quarantine bay via the diverter gate; do not allow commingling with conforming product.
3. Physically segregate the lot — apply a bright NONCONFORMING – HOLD tag/placard bearing lot ID, date, tonnage, and the failing parameter.
4. Log the nonconforming lot in the rework register: origin (crusher/screen/compactor/granulator line), quantity, and defect description.
5. Confirm the failing parameter with the QC Technician and route formal disposition per QC-014; obtain rework authorization per QC-016 before re-processing.
6. Once authorized, stage the material and set re-run parameters (re-screen, re-dry, re-crush, or re-coat) appropriate to the defect.
7. Execute the re-run and sample the re-processed product for re-verification against spec; release only after conformance is confirmed.
8. Update the rework register with re-run outcome, re-verified results, and final tonnage returned to conforming inventory or routed onward; retain records.

8. Decision Tree

OD-016 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Rework & Nonconforming Work Handling



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Nonconforming lot physically isolated and tagged before any conforming product movement.
- Rework register entry complete with lot ID, defect, and tonnage.
- Re-run product sampled and re-verified against spec prior to release.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Off-spec lot diverted to hold bin/quarantine bay		
NONCONFORMING – HOLD tag applied with lot ID & defect		
No commingling with conforming product confirmed		
Rework register entry complete		
Disposition (QC-014) / authorization (QC-016) obtained before re-run		
Re-run product sampled and re-verified to spec		
Final tonnage reconciled in register		

11. KPIs

- Nonconforming lots segregated & tagged within 30 min of flag ≥ 98%
- Re-run first-pass conformance rate ≥ 90%
- Nonconforming product escaping to shipment (Critical breaches) = 0

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-017 — Schedule Deviation & Change Management

Estimated completion time: 30–90 minutes per deviation event (longer for multi-shift schedule rebuilds)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Establish a controlled method for recording and approving deviations from the potash/soda/borate production and shipping schedule — ore-hoisting delays, refinery-reagent shortfalls, evaporation-pond throughput shifts, and priority re-sequencing — so that mine-to-mill commitments stay traceable and no change is made without authorization.

2. Scope

Covers all changes, delays, and priority shifts affecting the OD master production and dispatch schedule at this facility, from deviation identification through logged approval and communication to affected internal shifts. Excludes bottleneck root-cause response, which is covered under OD-015, and external customer notification, which is covered under OD-022.

3. Responsibilities

- Shift Operations Coordinator — identifies deviations, initiates the change record, and reroutes work within approved limits.
- Production Superintendent — reviews and authorizes Major changes; owns the reconciled master schedule.
- Operations Compliance Lead — verifies change records are complete, retained, and consistent with commitment obligations.

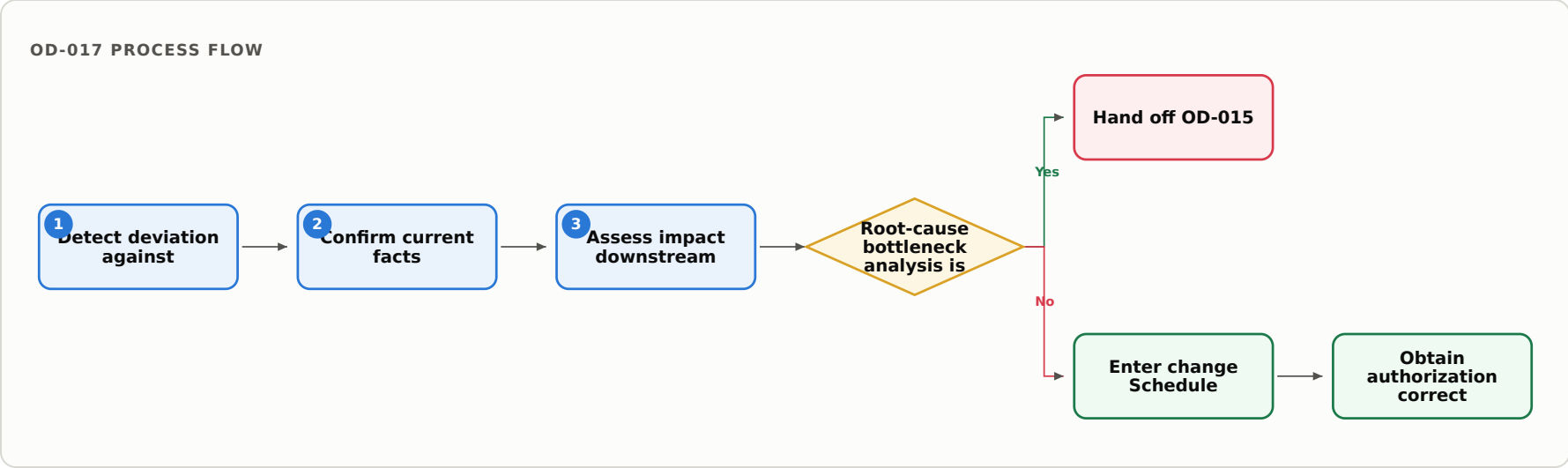
4. Required PPE & Lockout/Tagout

- Standard facility PPE if entering process or mine areas to confirm status (hard hat, safety glasses, hearing protection, steel-toe boots); office/control-room work requires none.
- Not applicable — this is a scheduling and records task; no hazardous energy is controlled. Any physical intervention must follow the equipment SOP and its LOTO.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Metal and Nonmetal Underground/Surface Mines) — governs any operational change that affects safe work sequencing.
- 30 CFR Part 50 (MSHA — notification, investigation, and reporting) — applies where a deviation stems from a reportable event.
- Internal policy: OD Master Schedule Change Control Standard (basis for authorization tiers and record retention).
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



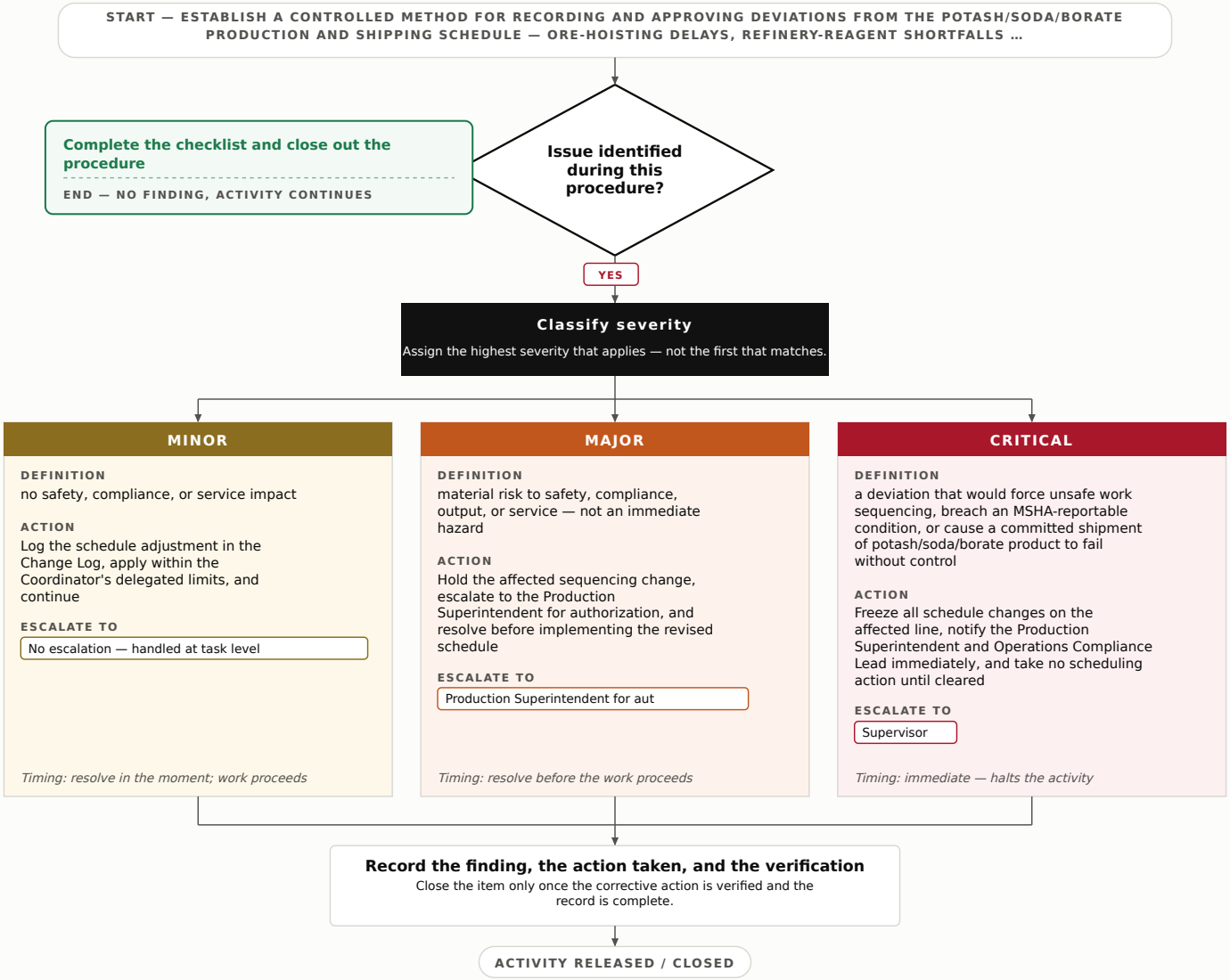
7. Step-by-Step Procedure

1. Detect the deviation against the current shift/day master schedule (e.g., hoist downtime, delayed reagent delivery from refinery suppliers, pond-transfer rate change, or a priority re-sequence request).
2. Confirm current facts with the affected area lead — actual vs. planned tonnes, grade, and timing — before proposing any change.
3. Assess impact on downstream commitments: mill feed continuity, product-loadout windows, and dispatch to industrial machinery wholesalers.
4. Classify severity using Section 8; if root-cause bottleneck analysis is required, hand off to OD-015.
5. Enter the change in the Schedule Change Log: deviation description, cause, proposed new sequence/timing, and expected commitment impact.
6. Obtain authorization at the correct tier before altering the master schedule; do not implement unauthorized changes.
7. Reconcile the master schedule and communicate revised sequencing to affected shifts and control room (external customer notice per OD-022).
8. Document the closed change record with approver, timestamp, and outcome; retain per the retention standard.

8. Decision Tree

OD-017 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Schedule Deviation & Change Management



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every deviation has a matching Change Log entry with cause and impact recorded.
- Each Major/Critical change carries a named authorizing approver and timestamp before implementation.
- Revised master schedule is reconciled and confirmed to affected shifts.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Deviation confirmed against current master schedule		
Cause and commitment impact documented		
Severity classified per Section 8		
Authorization obtained at correct tier		
Master schedule reconciled and version-updated		
Affected shifts/control room notified		
Change record closed and retained		

11. KPIs

- Deviations logged with complete records: 100% of events.
- Major/Critical changes authorized before implementation: 100%.
- Average deviation-to-reconciled-schedule cycle time: ≤ 60 minutes.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-018 — Subcontractor & Vendor Coordination

Estimated completion time: 2–5 business days per engagement (excluding continuous multi-shift service contracts)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

This procedure governs how Operations coordinates external subcontractors and vendors (drilling/boring service crews, brine-handling contractors, mobile crushing and haulage providers, and equipment specialists) that perform a defined portion of potash, soda, and borate mining operations, ensuring their work integrates cleanly with facility production schedules and interface points.

2. Scope

Covers pre-engagement qualification, scope confirmation, work-window scheduling, on-site interface coordination, and close-out of external providers supporting the mining operation. Excludes contractor equipment maintenance supervision (see MD-018) and contractor on-site safety administration (see SD-023); this module addresses only operational coordination and hand-off.

3. Responsibilities

- Operations Coordinator — issues work orders, confirms scope and schedule with vendors, controls site-access windows, and owns close-out.
- Shift Production Supervisor — approves work windows against the production plan, controls the operational interface at the point of work, and signs the hand-off.
- Procurement/Contracts Lead — verifies vendor qualification, insurance, and contract terms before mobilization.

4. Required PPE & Lockout/Tagout

- Standard facility PPE for any site walk-down: hard hat, safety glasses, steel-toed boots, hi-vis vest; dust protection (N95/half-face) in crushing, screening, or dry-product handling areas.
- Not applicable for the coordination task itself — no hazardous energy is controlled by this procedure. Any LOTO required for the vendor's physical work is handled under MD-018/SD-023.

5. Regulatory References

- 30 CFR Part 56 (MSHA Surface Metal/Nonmetal Mines) — contractor identification and site coordination provisions.
- 30 CFR §45.4 — independent contractor registration and information exchange with the mine operator.
- 29 CFR 1910.147 (referenced only as a hand-off boundary to MD-018).
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

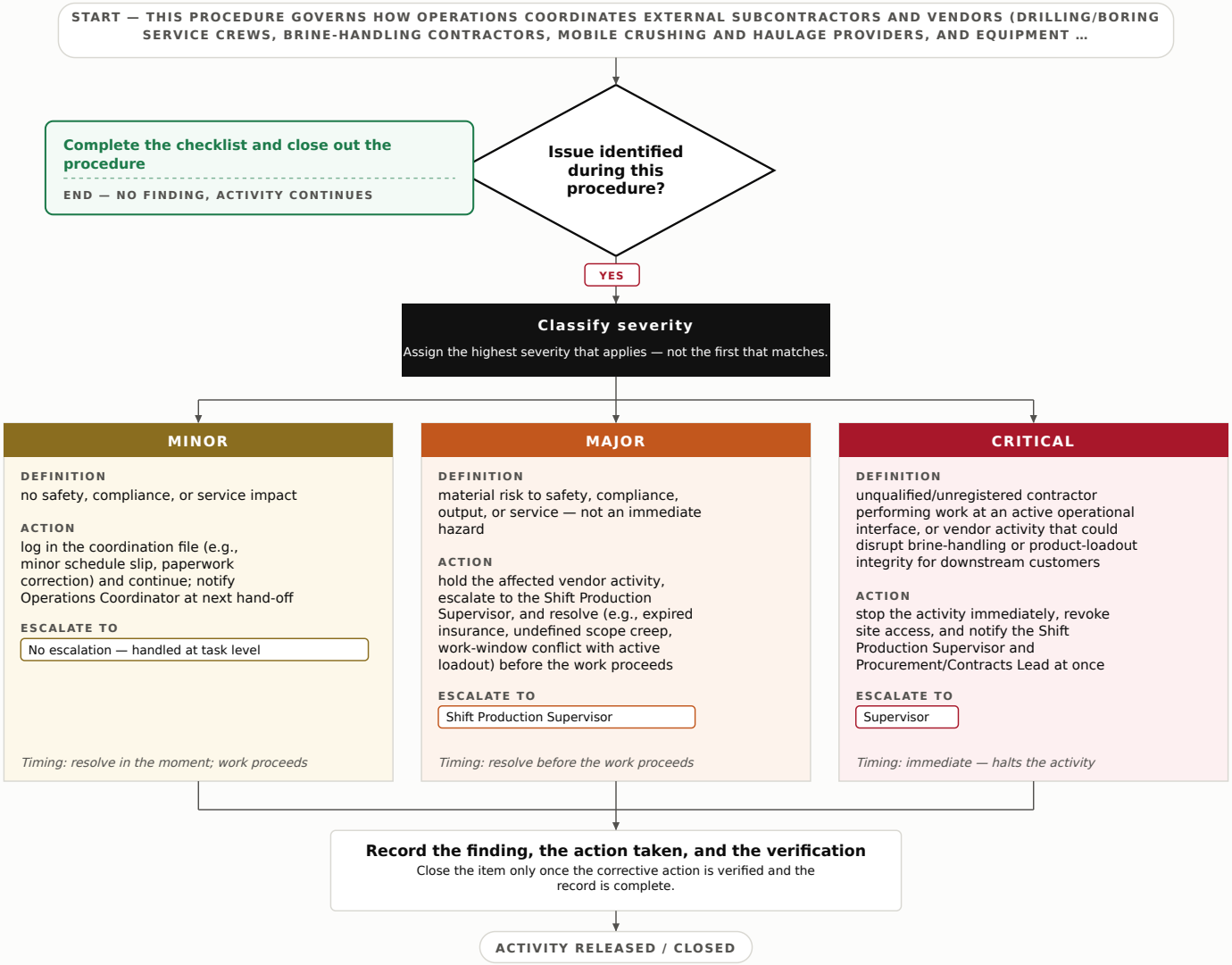
7. Step-by-Step Procedure

1. Confirm the vendor is qualified: valid contract, current insurance/bonding, and MSHA Part 45 contractor ID on file with Procurement before any mobilization.
2. Define and document the scope of work — deliverable, interface points (e.g., brine line tie-in, haul-road access, crusher feed hand-off), quantities, and completion criteria — and issue the work order.
3. Schedule the work window with the Shift Production Supervisor so vendor activity does not conflict with active extraction, evaporation-pond, or product-loadout operations.
4. Authorize site access: log the crew, verify orientation completion (per SD-023), and issue access credentials for the approved window only.
5. Conduct a pre-work interface walk-down with the vendor lead confirming boundaries, utility/isolation points owned by others, and the operational hand-off sequence.
6. Monitor progress against milestones; log any scope changes, delays, or interface conflicts and re-confirm the schedule with the Supervisor when they occur.
7. Perform acceptance at completion: verify deliverable meets the documented completion criteria, confirm the work area is returned to operational readiness, and de-authorize site access.
8. Record the close-out: vendor performance notes, actual vs. planned schedule, scope-change log, and acceptance sign-off in the coordination file.

8. Decision Tree

OD-018 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Subcontractor & Vendor Coordination



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Vendor qualification (contract, insurance, Part 45 ID) verified before mobilization.
- Scope of work and interface points documented and acknowledged by the vendor lead.
- Work window approved against the production plan and free of loadout/extraction conflicts.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Valid contract and current insurance/bonding on file		
MSHA Part 45 contractor registration confirmed		
Scope of work and completion criteria documented		
Work window approved by Shift Production Supervisor		
Interface/hand-off points confirmed with vendor lead		
Work area returned to operational readiness at close-out		
Close-out documentation complete and filed		

11. KPIs

- Vendor engagements with qualification verified before mobilization: 100%.
- Coordinated work completed within approved schedule window: ≥ 90%.
- Coordination-related interface incidents or unplanned production disruptions: 0 per quarter.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-019 — Interdepartmental Coordination Review

Estimated completion time: 2–4 hours per review cycle (recurring per shift-change or weekly production planning window)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Establish a structured cross-department review so Operations at a potash/soda/borate mining facility stays aligned with Mine Engineering, Processing/Beneficiation, Maintenance, HSE, Quality, and Logistics on shared work — extraction rates, mill feed grade, planned downtime, and shipment commitments — preventing conflicting schedules that cause ore-feed interruptions or stranded product.

2. Scope

Covers the periodic coordination review conducted by Operations to reconcile production plans, resource conflicts, and hand-off timing with adjacent departments touching the same ore-to-product flow. Excludes spec-conformance and grade testing of product, which is covered under QC-003; this module is the coordination overview only and authors no other department's internal procedure.

3. Responsibilities

- Operations Shift Superintendent — chairs the review, owns the consolidated production plan, and confirms cross-department commitments.
- Production Planner (OD) — assembles feed-grade, tonnage, and downtime inputs and circulates the reconciled schedule.
- Coordination Liaison (OD) — logs open action items, tracks hand-off dependencies, and escalates unresolved conflicts to the Superintendent.

4. Required PPE & Lockout/Tagout

- Standard facility PPE if the review includes a floor walk-down (hard hat, safety glasses, steel-toe boots, hi-vis, hearing protection in mill areas); standard office attire for conference-room sessions.
- Not applicable — no hazardous energy involved. This is an administrative coordination task; any equipment isolation is handled under the owning maintenance procedure.

5. Regulatory References

- MSHA 30 CFR Part 56/57 (surface/underground metal and nonmetal mines — communication of hazards and safe work coordination).
- MSHA 30 CFR Part 48/46 (training coordination across affected miners/departments).
- OSHA 29 CFR 1910.119 PSM (where anhydrous ammonia or other listed process chemicals are used in beneficiation — inter-shift/interdepartmental change communication).
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

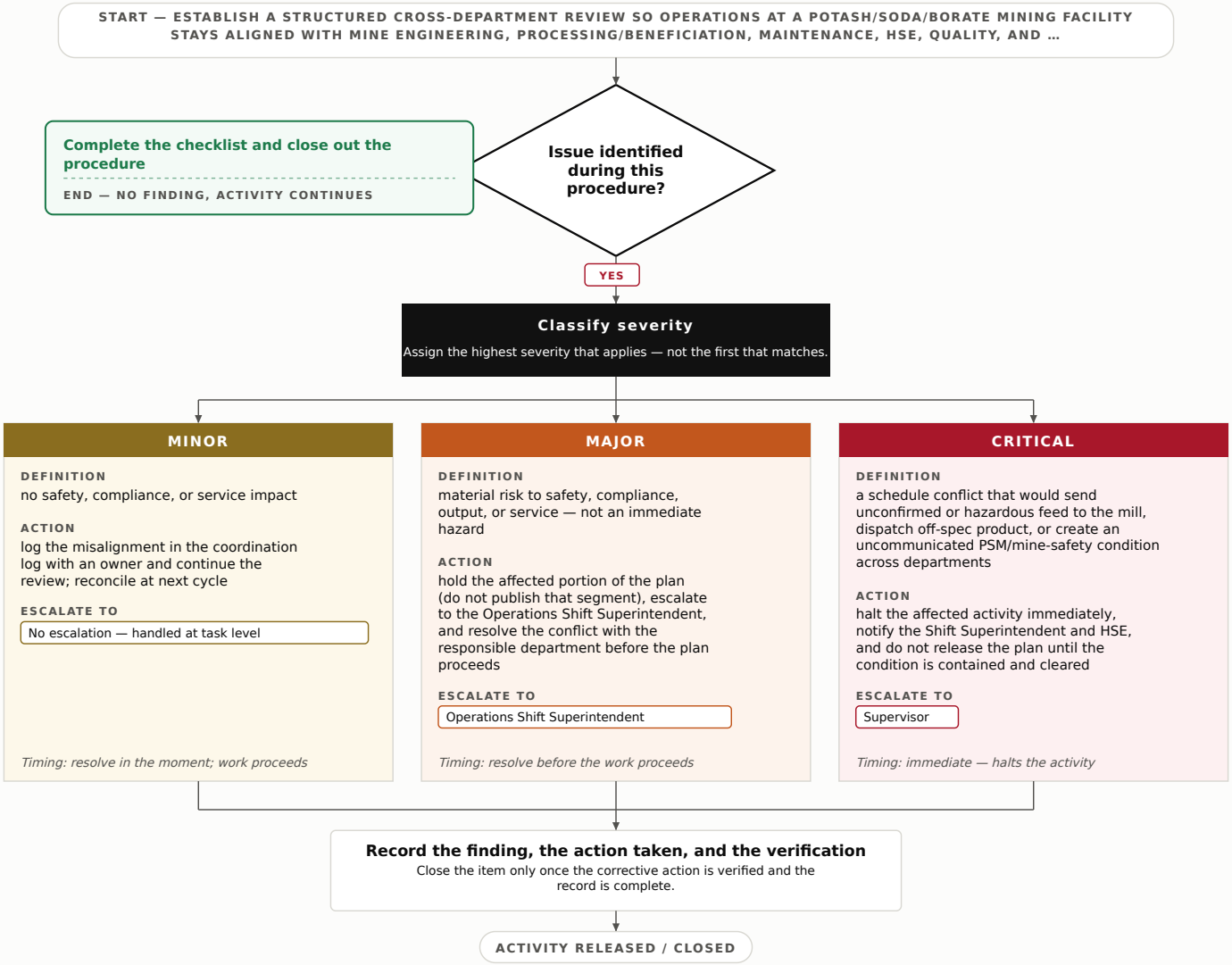
7. Step-by-Step Procedure

1. Collect current inputs from each touching department: planned extraction tonnage and cut sequence (Mine Engineering), mill feed grade and throughput (Processing), planned/unplanned downtime and PM windows (Maintenance), permit and safety constraints (HSE), and shipment/loadout schedule (Logistics).
2. Build the consolidated production plan for the review window, flagging any conflicts between feed availability, mill capacity, downtime, and shipment commitments.
3. Convene the review with the Shift Superintendent chairing; walk each conflict and confirm the responsible department's commitment and timing.
4. Verify hand-off points are unambiguous — e.g., ore-to-mill transfer tonnage confirmed, product-ready notification path to loadout confirmed per QC-003 sign-off dependency.
5. Resolve or classify each open item using the Decision Tree; assign an owner and due time to every unresolved item.
6. Confirm no schedule change creates an unmanaged safety or PSM-relevant process condition; route any such item to HSE before finalizing.
7. Publish the reconciled, aligned production plan to all touching departments and confirm receipt/acknowledgment.
8. Record the review — attendees, decisions, open actions, owners, and next review time — in the coordination log.

8. Decision Tree

OD-019 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Interdepartmental Coordination Review



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every touching department's inputs present and current before reconciliation begins.
- Each identified conflict has a named owner and confirmed resolution time.
- Hand-off points (mine-to-mill, product-to-loadout) explicitly confirmed, not assumed.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Extraction/cut-sequence input received from Mine Engineering		
Mill feed grade & throughput input received from Processing		
Maintenance downtime / PM windows reconciled against plan		
HSE / PSM constraints reviewed and cleared		
Shipment / loadout commitments aligned with product readiness		
All open action items assigned an owner and due time		
Aligned plan published and acknowledgment confirmed		

11. KPIs

- Cross-department conflicts resolved before plan publication ≥ 95%.
- Coordination-caused ore-feed or loadout interruptions ≤ 1 per quarter.
- Review completed and aligned plan published within scheduled window ≥ 98% of cycles.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

Phase 4 — Completion & customer handoff

OD-020 — Job / Order Completion Verification

Estimated completion time: 30–60 minutes per production lot / shipment order

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1. Purpose

Confirm that a completed potash, soda ash, or borate production lot or customer order matches its work order and product specification — grade, particle size, moisture, quantity, and packaging — before it is handed off for formal release, so that non-conforming or incomplete work is caught at the operations boundary.

2. Scope

Covers operator verification that a mining/processing job or fulfillment order is complete against its work order at the point of turnover from production to the release queue. Excludes spec-conformance laboratory testing and final inspection (see QC-012) and formal release authorization (see QC-013).

3. Responsibilities

- Production Operator — assembles the completed lot/order, reconciles quantities against the work order, and initiates the verification checklist.
- Operations Shift Supervisor — reviews verification results, classifies any findings, and authorizes hand-off to the release queue.
- Load-Out / Materials Coordinator — confirms packaging, labeling, net weight, and staging location for outbound loads against the fulfillment record.

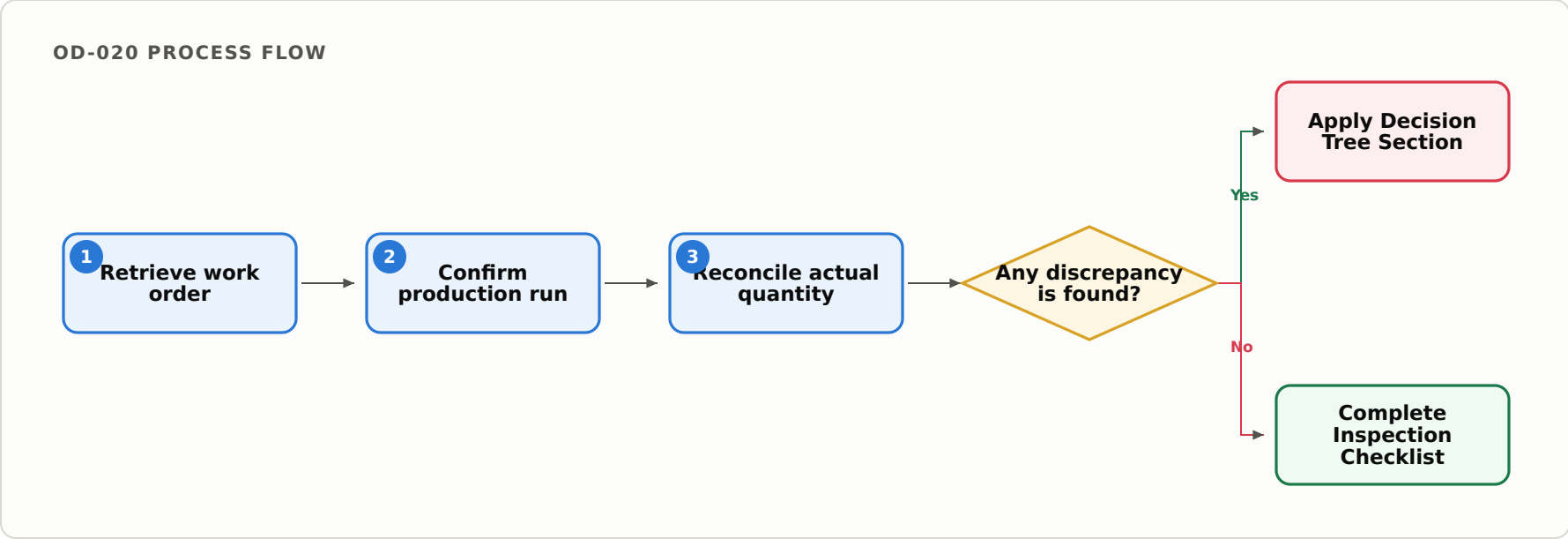
4. Required PPE & Lockout/Tagout

- Standard facility PPE: hard hat, safety glasses, steel-toe boots, hi-vis vest, and N95/dust respirator when in dust-generating load-out or bagging areas.
- Not applicable — verification is a records-and-inspection task with no hazardous energy release; if a hold requires entering conveyor or bagging equipment, apply LOTO under the governing equipment procedure first.

5. Regulatory References

- 30 CFR Part 57 (MSHA Safety and Health Standards — Underground Metal and Nonmetal Mines)
- 29 CFR 1910.1200 (OSHA Hazard Communication — SDS/label accuracy for shipped mineral product)
- 49 CFR Parts 172–173 (DOT marking/labeling where product is regulated for transport)
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



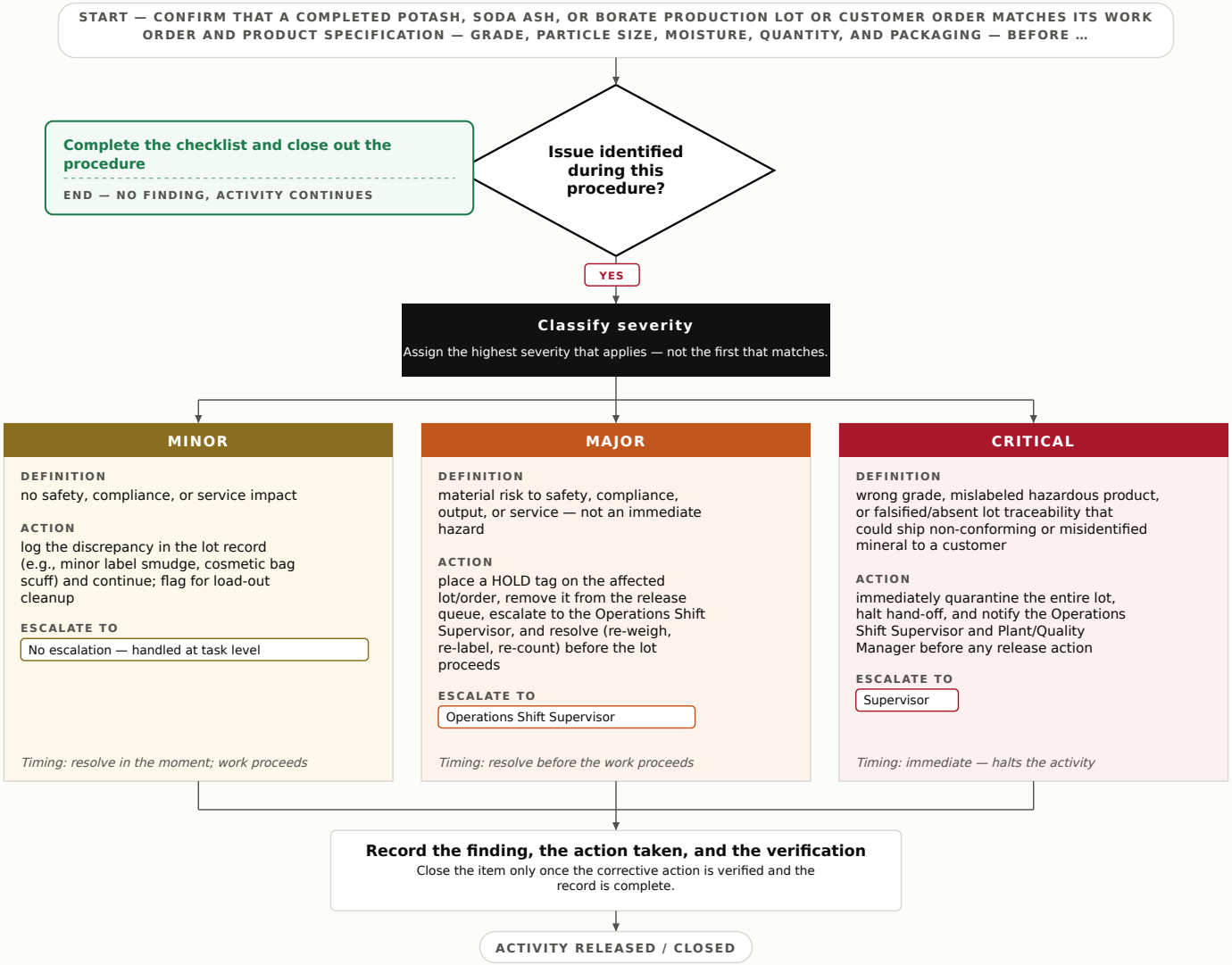
7. Step-by-Step Procedure

1. Retrieve the work order and product spec sheet for the completed lot/order (grade — e.g., MOP standard/granular, soda ash light/dense, borate decahydrate; target moisture, screen fraction, net weight per unit).
2. Confirm the production run is flagged complete in the batch/lot record and that all upstream operations (crushing, screening, drying, bagging or bulk load) are signed off.
3. Reconcile actual quantity produced or staged against the ordered quantity — count bulk bags/super sacks, weigh totes, or verify bulk tonnage from load-out scale tickets.
4. Verify product identity and grade against the label/tag on each unit or staged lot; confirm lot/batch traceability numbers match the work order.
5. Inspect packaging integrity (seams, closures, liner condition), label legibility, and SDS/hazard marking accuracy per 29 CFR 1910.1200 and any DOT marking required.
6. Confirm in-process moisture and screen-size records fall within work-order tolerance (note: laboratory spec confirmation is QC-012 — verify only that the record exists and is signed).
7. If any discrepancy is found, apply the Decision Tree (Section 8) and record the classification and action.
8. Complete the Inspection Checklist, record verification in the lot/shipment log, and route to the release queue for formal release (QC-013) with the Operations Shift Supervisor sign-off.

8. Decision Tree

OD-020 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Job / Order Completion Verification



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Quantity reconciled to work order within stated tolerance and scale ticket attached.
- Grade, lot/batch number, and label match the spec sheet on every staged unit.
- Packaging integrity and hazard/SDS marking verified per HazCom.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Work order marked complete; all upstream ops signed off		
Actual quantity reconciles to ordered quantity (count/weight)		
Product grade matches spec sheet		
Lot/batch traceability numbers match work order		
Labels legible; SDS/hazard marking accurate		
Packaging/closures/liner intact		
Moisture & screen-size records present and within tolerance		

11. KPIs

- Verification completed before release: 100% of lots/orders.
- Non-conformances caught at verification (not post-release): ≥ 98%.
- Verification cycle time per lot/order: ≤ 60 minutes.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-021 — Delivery / Service Turnover

Estimated completion time: 30–60 minutes per customer release

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1. Purpose

This procedure governs the formal turnover of finished potash, soda ash, or borate product from Operations custody to the customer or downstream distribution channel, ensuring the released lot matches the order, carries a complete COA, and is authorized for transfer.

2. Scope

Covers the release and turnover of finished bulk and bagged mineral product to the customer or carrier of record, including release authorization, documentation reconciliation, and formal custody hand-off. Excludes physical loading and dispatch, which is covered under SH-014, and proof-of-delivery capture, which is covered under SH-024.

3. Responsibilities

- Shipping & Turnover Coordinator (OD) — verifies order match, confirms COA availability, and executes the release authorization.
- Quality Assurance Technician — confirms the lot has passed grade, purity, and moisture acceptance and that the COA is signed before release.
- Operations Shift Supervisor — approves final custody hand-off and resolves any hold or discrepancy prior to turnover.

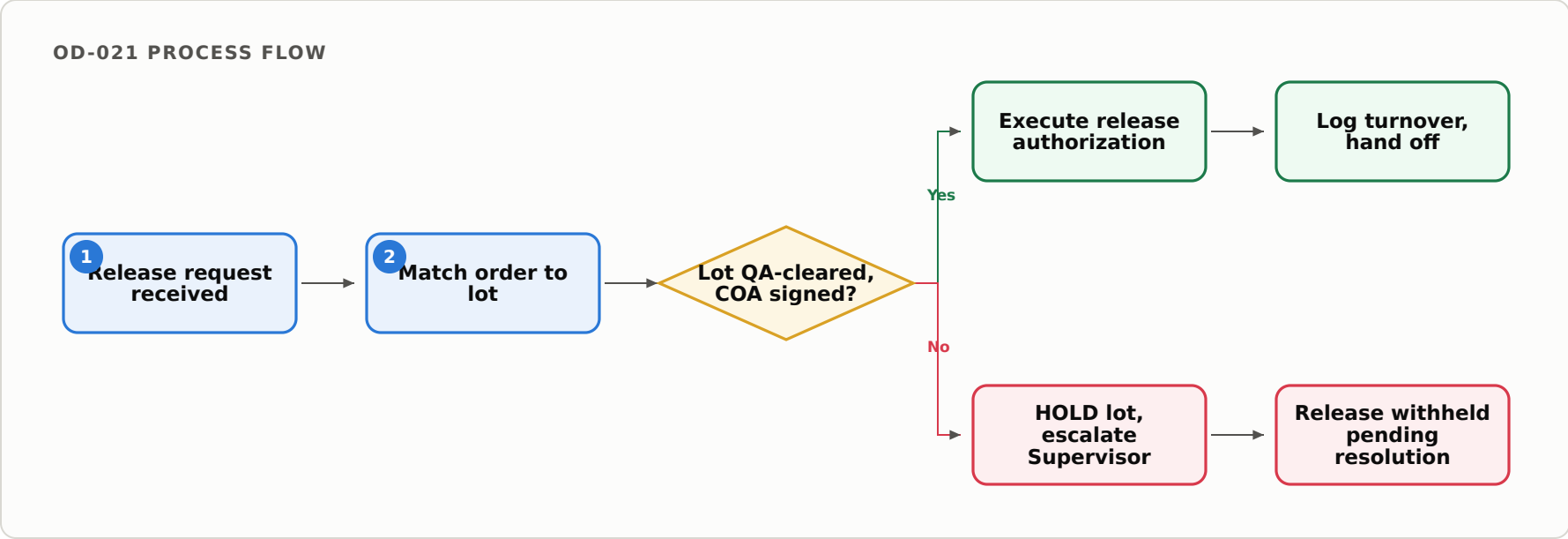
4. Required PPE & Lockout/Tagout

- Standard facility PPE for the turnover area: hard hat, safety glasses, steel-toe boots, high-visibility vest, and dust mask when near open product.
- Not applicable — no hazardous energy involved in the documentation and custody-transfer activity; any equipment isolation is handled under SH-014.

5. Regulatory References

- 29 CFR 1910 (OSHA General Industry) — worker protection in the release/staging area.
- 30 CFR Part 56 (MSHA Surface Metal and Nonmetal Mines) — surface facility operational requirements.
- 49 CFR 172 (DOT Hazard Communication / shipping papers) — where product classification requires it.
- OSHA Hazard Communication (29 CFR 1910.1200) — SDS availability accompanying released product.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



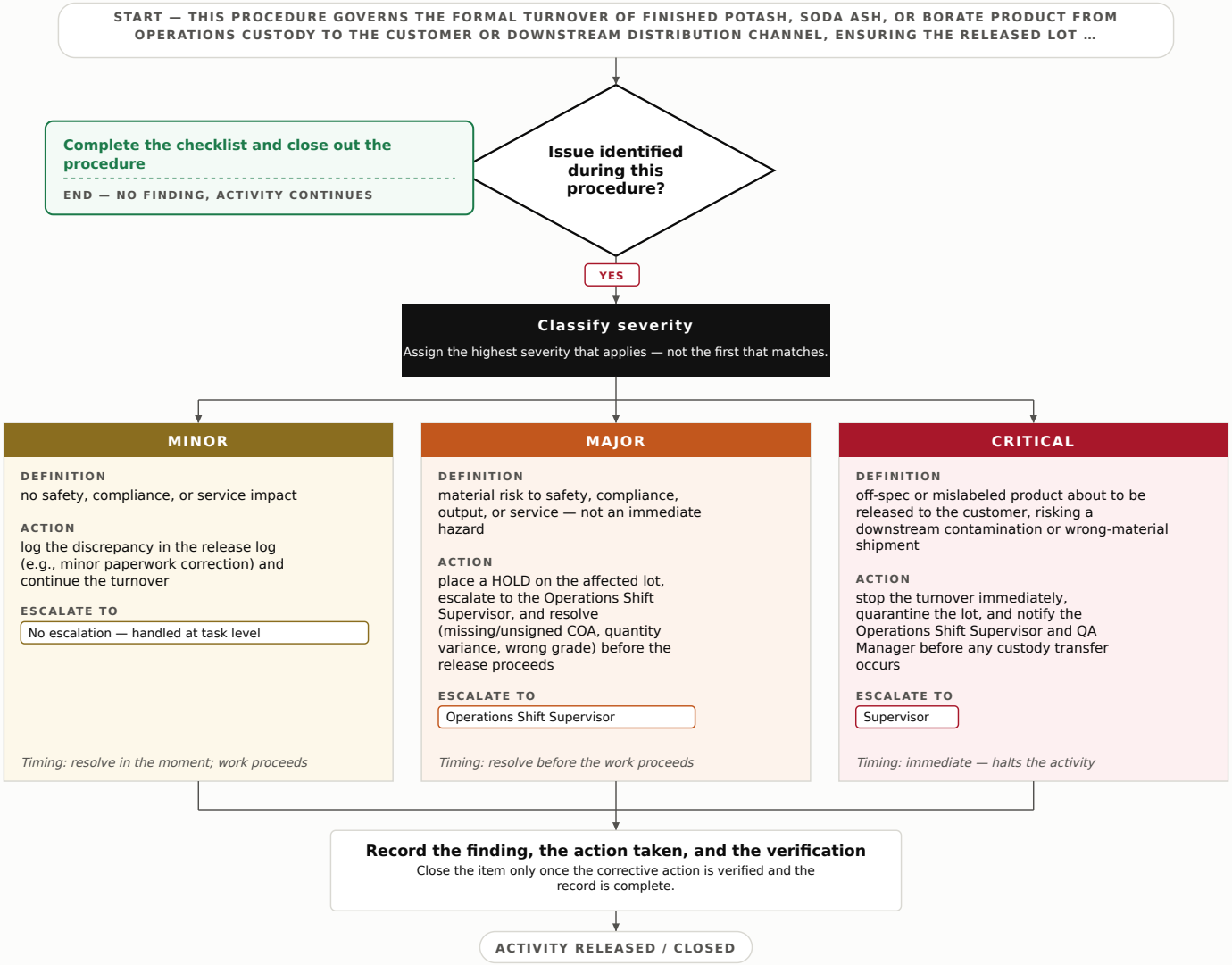
7. Step-by-Step Procedure

1. Receive the release request and match it to the customer order (grade, tonnage, packaging — bulk, super sack, or bagged) and the assigned lot/rail-car number.
2. Confirm the lot has cleared QA acceptance for grade, purity, and moisture, and that the signed Certificate of Analysis is on file for the exact lot being released.
3. Verify the correct Safety Data Sheet and product identification labels accompany the release for the mineral type (potash / soda ash / borate).
4. Reconcile released quantity against the order and inventory ledger; flag any variance beyond tolerance for supervisor review.
5. Confirm the destination channel of record (industrial machinery wholesaler / customer receiving point) and that a valid carrier or pickup authorization exists.
6. Execute the release authorization in the system, transferring custody from Operations to the customer/carrier; note the exact time and responsible parties.
7. Confirm hand-off completion with the loading/dispatch function per SH-014 and route delivery confirmation to SH-024.
8. Record the turnover in the release log with lot number, quantity, COA reference, authorizing signatures, and timestamp.

8. Decision Tree

OD-021 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Delivery / Service Turnover



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Order-to-lot match confirmed (grade, quantity, packaging) before authorization.
- Signed COA and correct SDS verified present for the exact released lot.
- Custody hand-off recorded with authorizing signatures and timestamp.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Release request matches customer order (grade/tonnage/packaging)		
Lot has cleared QA acceptance (grade/purity/moisture)		
Signed Certificate of Analysis on file for the exact lot		
Correct SDS and product labels accompany release		
Released quantity reconciled to inventory ledger within tolerance		
Destination channel and carrier/pickup authorization valid		
Turnover logged with signatures and timestamp		

11. KPIs

- Turnover accuracy (releases with no lot/order discrepancy): ≥ 99%.
- COA-complete-at-release rate: 100%.
- Average release-to-hand-off cycle time: ≤ 45 minutes.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-022 — Customer Communication & Status Notification

Estimated completion time: 15–45 minutes per notification cycle

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1. Purpose

Provide customers a consistent, timely, and accurate account of order status, production or logistics changes, and completion for shipments of potash, soda ash, and borate mineral products. Keeps commercial commitments aligned with actual plant and haulage conditions and prevents surprise on delivery windows or spec.

2. Scope

Covers outbound status communication across the order lifecycle — acknowledgement, production/loadout progress, schedule or quantity change, and completion/shipment confirmation — for bulk and packaged mineral orders moving through industrial distribution. Excludes complaint intake, which is covered under OD-023, and quality complaint investigation, which is covered under QC-021.

3. Responsibilities

- Customer Service Coordinator (OD) — issues acknowledgements, status updates, and completion notices; maintains the notification log per order.
- Shipping/Loadout Lead — supplies verified loadout status, tonnage, railcar/truck assignment, and estimated dispatch times for outbound notices.
- Operations Manager — approves any communication involving schedule slip, quantity shortfall, or spec deviation before it reaches the customer.

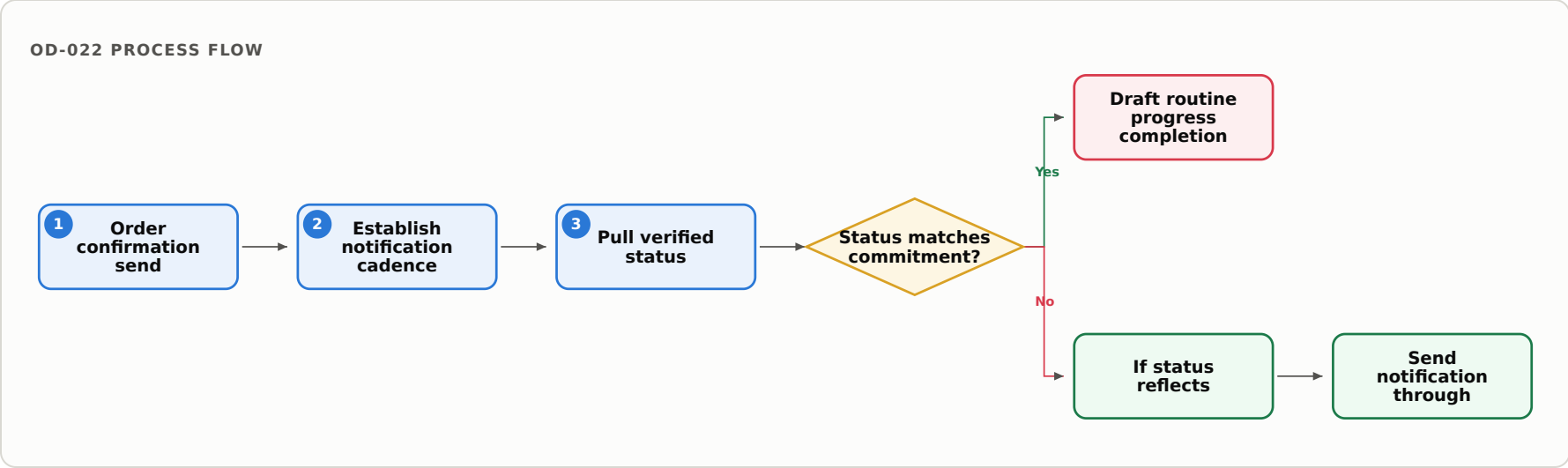
4. Required PPE & Lockout/Tagout

- Standard facility PPE if the Coordinator enters loadout or rail staging areas to verify status (hard hat, safety glasses, hi-vis, steel-toe, dust protection where airborne mineral dust is present).
- Not applicable — no hazardous energy involved in the communication task itself.

5. Regulatory References

- None sector-specific to customer communication; internal Operations policy and the governing sales contract / terms of sale apply. Related operational obligations may arise under 49 CFR (DOT hazmat/bulk transport documentation) and Prop 65 / SDS disclosure where product safety data accompanies shipment notices.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



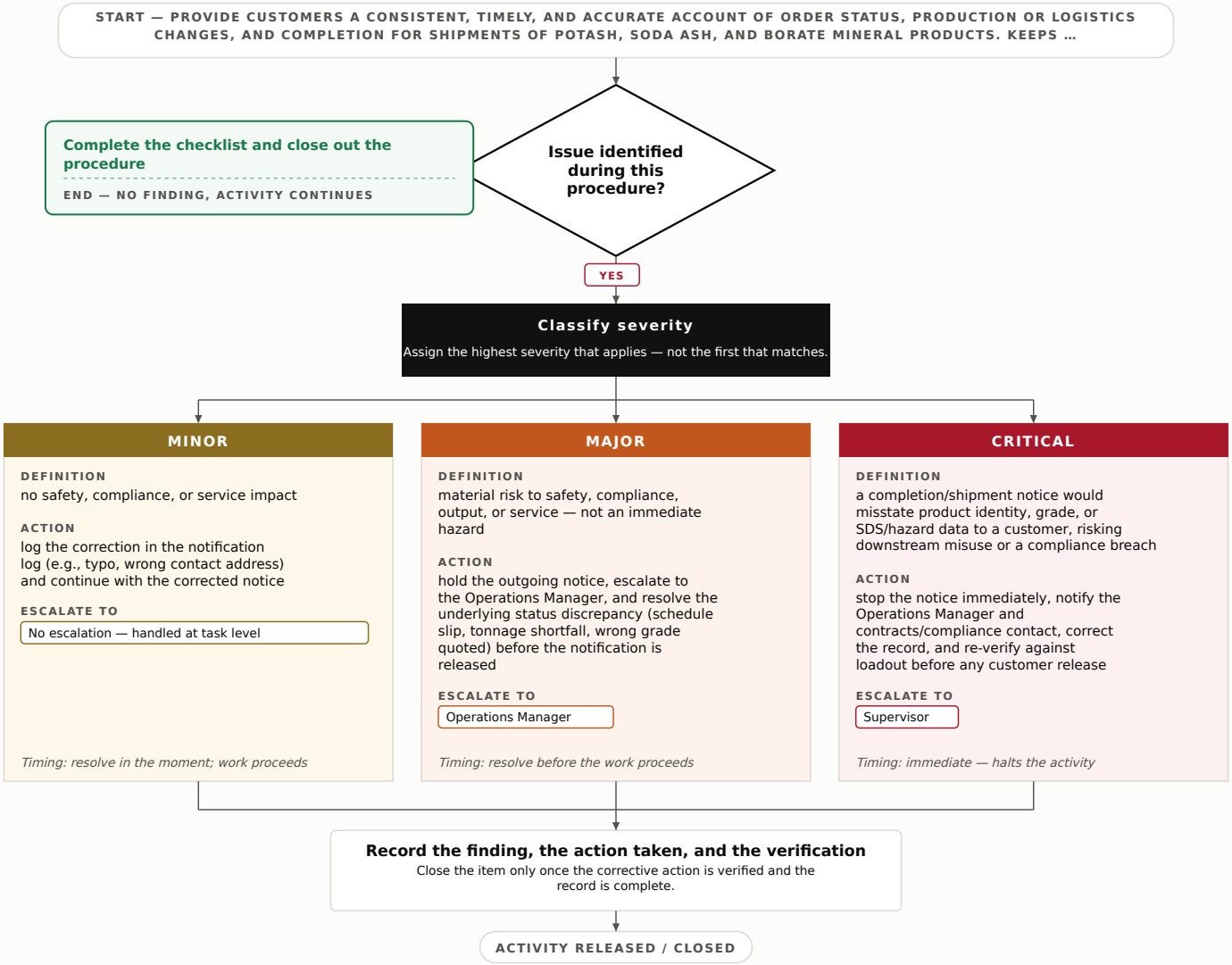
7. Step-by-Step Procedure

1. On order confirmation, send acknowledgement stating product grade (e.g., standard/granular potash, soda ash, boric acid), quantity, committed ship window, and mode (rail/truck).
2. Establish the notification cadence for the order per contract terms (e.g., at loadout start, at dispatch, on any change) and record it in the notification log.
3. Pull verified status from the Shipping/Loadout Lead — current tonnage staged, railcar/truck assignment, and estimated dispatch time; never quote unverified figures.
4. If status matches commitment, draft a routine progress or completion notice using the approved template and the channel of record.
5. If status reflects a schedule slip, quantity shortfall, or spec question, hold the notice and route to the Operations Manager for approval and revised commitment before sending.
6. Send the notification through the customer's designated channel (portal, email, EDI to the industrial machinery wholesaler distribution partner as applicable) and request/record delivery confirmation.
7. On dispatch, issue the completion notice with actual tonnage shipped, carrier and car/truck IDs, BOL number, and ETA; attach current SDS reference where required.
8. Update the notification log with timestamp, content summary, approver (if any), and next scheduled trigger; retain per records policy.

8. Decision Tree

OD-022 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Customer Communication & Status Notification



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every notice quotes only status verified with the Shipping/Loadout Lead.
- All schedule/quantity/spec-change notices carry documented Operations Manager approval before send.
- Delivery confirmation captured and logged for each customer notification.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Acknowledgement sent with correct grade, quantity, mode, ship window		
Notification cadence set per contract and logged		
Status figures verified with Loadout Lead before quoting		
Change/spec notices approved by Operations Manager		
Completion notice includes actual tonnage, carrier, BOL, ETA		
SDS reference attached where required		
Notification log updated with timestamp and next trigger		

11. KPIs

- On-time status notifications (per committed cadence): ≥ 98%
- Notification accuracy (no correction/retraction required): ≥ 99%
- Completion notice issued within 2 hours of dispatch: ≥ 95%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-023 — Customer Feedback & Complaint Intake

Estimated completion time: 20–45 minutes per intake event

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To capture, log, and route customer feedback and complaints regarding potash, soda ash, and borate mineral shipments — including product condition, tonnage discrepancies, delivery timing, and documentation errors — so that every contact reaches the correct owner promptly and traceably. This protects downstream distribution relationships and preserves an auditable record of all customer-raised issues.

2. Scope

Covers the receipt, classification, logging, and routing of all inbound customer feedback and complaints reaching the Operations Department, whether by phone, email, portal, or field contact via distribution partners. Excludes quality complaint investigation, which is covered under QC-021, and corrective action, which is covered under QC-019 — this procedure hands those off but does not perform them.

3. Responsibilities

- Customer Service Coordinator (OD) — receives the contact, logs it in the complaint register, assigns severity, and routes to the correct owner.
- Operations Supervisor — reviews Major/Critical intakes, confirms routing, and authorizes any hold on outbound loads or open orders.
- Logistics/Shipping Lead — provides shipment, lot, and bill-of-lading data needed to characterize delivery- and tonnage-related complaints.

4. Required PPE & Lockout/Tagout

- Standard facility PPE only when the coordinator enters operational or load-out areas to verify a complaint (hard hat, safety glasses, hi-vis, steel-toe boots); office intake requires none.
- Not applicable — no hazardous energy involved in the intake, logging, or routing activity.

5. Regulatory References

- None sector-specific to feedback intake; internal Customer Complaint Handling policy applies. Related mandatory recordkeeping frameworks that may govern downstream referrals include MSHA 30 CFR Part 56 (surface metal/nonmetal mines) for any safety-related field report and OSHA Hazard Communication 29 CFR 1910.1200 / SDS obligations where a complaint concerns product handling or exposure.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

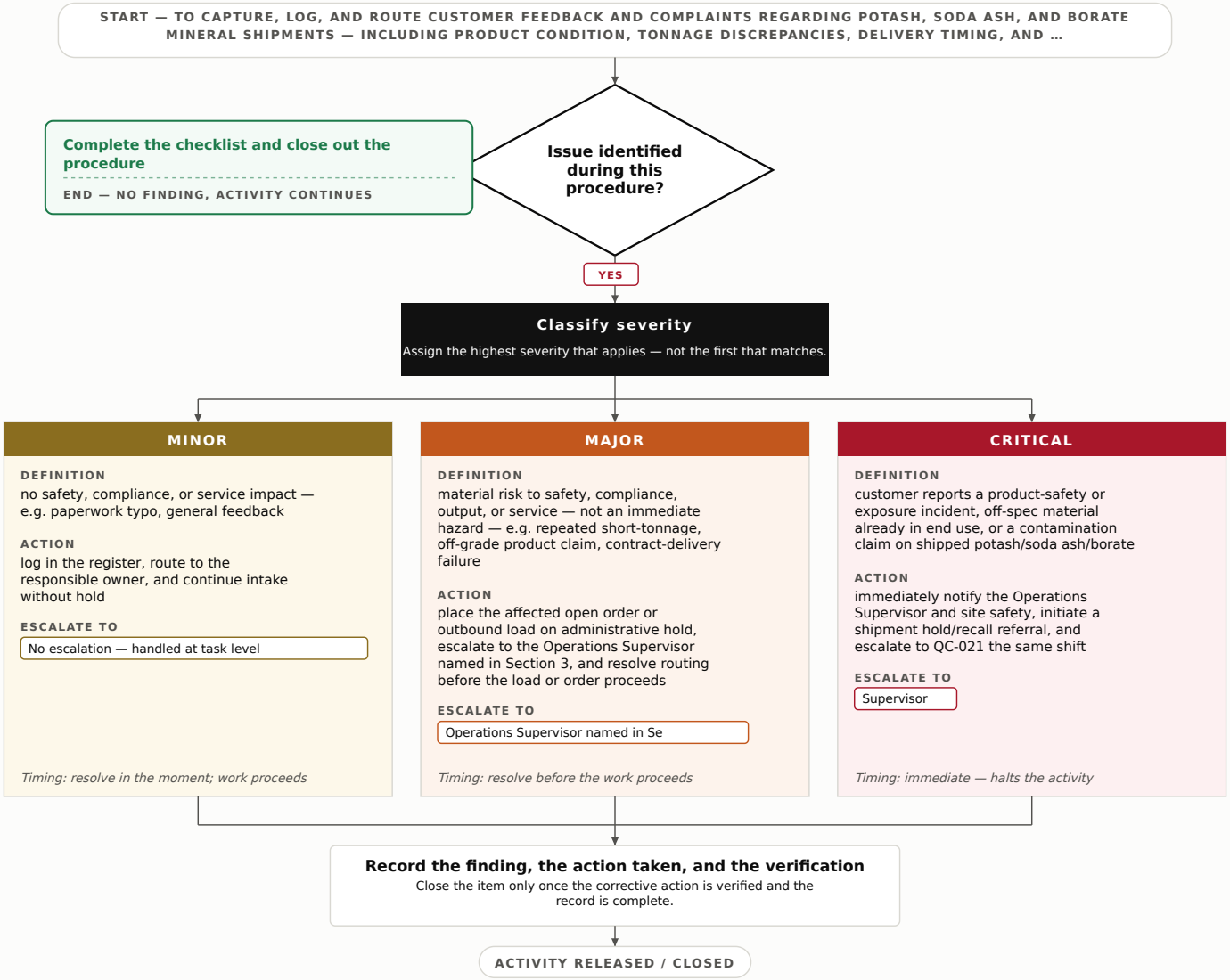
7. Step-by-Step Procedure

1. Receive the customer contact through any channel (phone, email, distributor portal, or field report from a 423830 wholesaler partner) and note date, time, and channel.
2. Identify the customer, account, and referenced shipment — capture order number, bill of lading, lot/batch ID, and product grade (potash, soda ash, or borate).
3. Record the complaint in the customer's own words: nature of issue, quantity affected, and any requested outcome. Do not diagnose or pre-judge root cause.
4. Pull supporting shipment data from the Logistics/Shipping Lead (weigh tickets, load-out records, delivery confirmation) to confirm the referenced load exists and matches.
5. Assign a unique complaint ID and log all fields in the complaint register, including intake severity per Section 8.
6. Route the entry to the correct owner: quality/product-condition issues to QC-021 for investigation; delivery, tonnage, or documentation issues to the Operations Supervisor and Logistics/Shipping Lead.
7. Issue an acknowledgment to the customer within the target window, stating the complaint ID and expected next contact.
8. Document the intake as closed-to-routing, attach all supporting records, and confirm the register entry is complete and timestamped.

8. Decision Tree

OD-023 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Customer Feedback & Complaint Intake



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every intake has a unique complaint ID, channel, timestamp, and verified shipment reference before routing.
- Severity classification is applied and matches the consequence definitions in Section 8.
- Acknowledgment issued to customer within the target window and logged.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Customer, account, and shipment reference captured		
Complaint recorded in customer's own words		
Unique complaint ID assigned and logged		
Supporting shipment/weigh data attached		
Severity classified per Section 8		
Routed to correct owner (QC-021 / Supervisor / Logistics)		
Customer acknowledgment issued and timestamped		

11. KPIs

- Acknowledgment sent within 1 business day: ≥ 95%
- Intakes logged with complete required fields on first entry: ≥ 98%
- Correct-owner routing accuracy (no re-routes): ≥ 97%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

Phase 5 — Oversight & continuity

OD-024 — Operational Incident Reporting & Response

Estimated completion time: 30–90 minutes per incident (initial report and classification); follow-up response may extend across shifts

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Establish a consistent method for reporting, classifying, and responding to operational incidents and near-misses at a potash, soda, and borate mining operation — including process upsets, brine or slurry spills, evaporation-pond overflows, and dryer/screening disruptions — so that operational continuity and regulatory obligations are protected.

2. Scope

Covers operational incidents and near-misses across mining, brine handling, evaporation, crystallization, drying, and screening operations, from first report through classification and response close-out. Excludes personal-injury and safety incident reporting, which is covered under SD-018, and equipment breakdown/failure response, which is covered under MD-009.

3. Responsibilities

- Shift Operator — detects and reports operational incidents/near-misses; initiates immediate containment of affected process; records first observations.
- Operations Shift Supervisor — classifies severity, coordinates response, authorizes hold/resume of affected process area, and escalates as required.
- Operations Compliance Coordinator — logs the incident record, determines regulatory reportability, and tracks corrective actions to closure.

4. Required PPE & Lockout/Tagout

- Standard facility PPE: hard hat, safety glasses, steel-toed boots, high-visibility vest, and chemical-resistant gloves when near brine, borate dust, or caustic process streams; dust respirator per area posting.
- Lockout/Tagout: Not directly performed under this procedure; if incident response requires de-energizing or isolating equipment, coordinate that action per MD-009.

5. Regulatory References

- 29 CFR 1910.119 — Process Safety Management of Highly Hazardous Chemicals (where covered process quantities apply)
- 40 CFR 302 / 355 — CERCLA/EPCRA release reporting for reportable quantities
- 30 CFR Part 56 — MSHA Safety and Health Standards, Surface Metal and Nonmetal Mines
- 40 CFR 122 — NPDES (evaporation-pond / process-water discharge conditions)

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

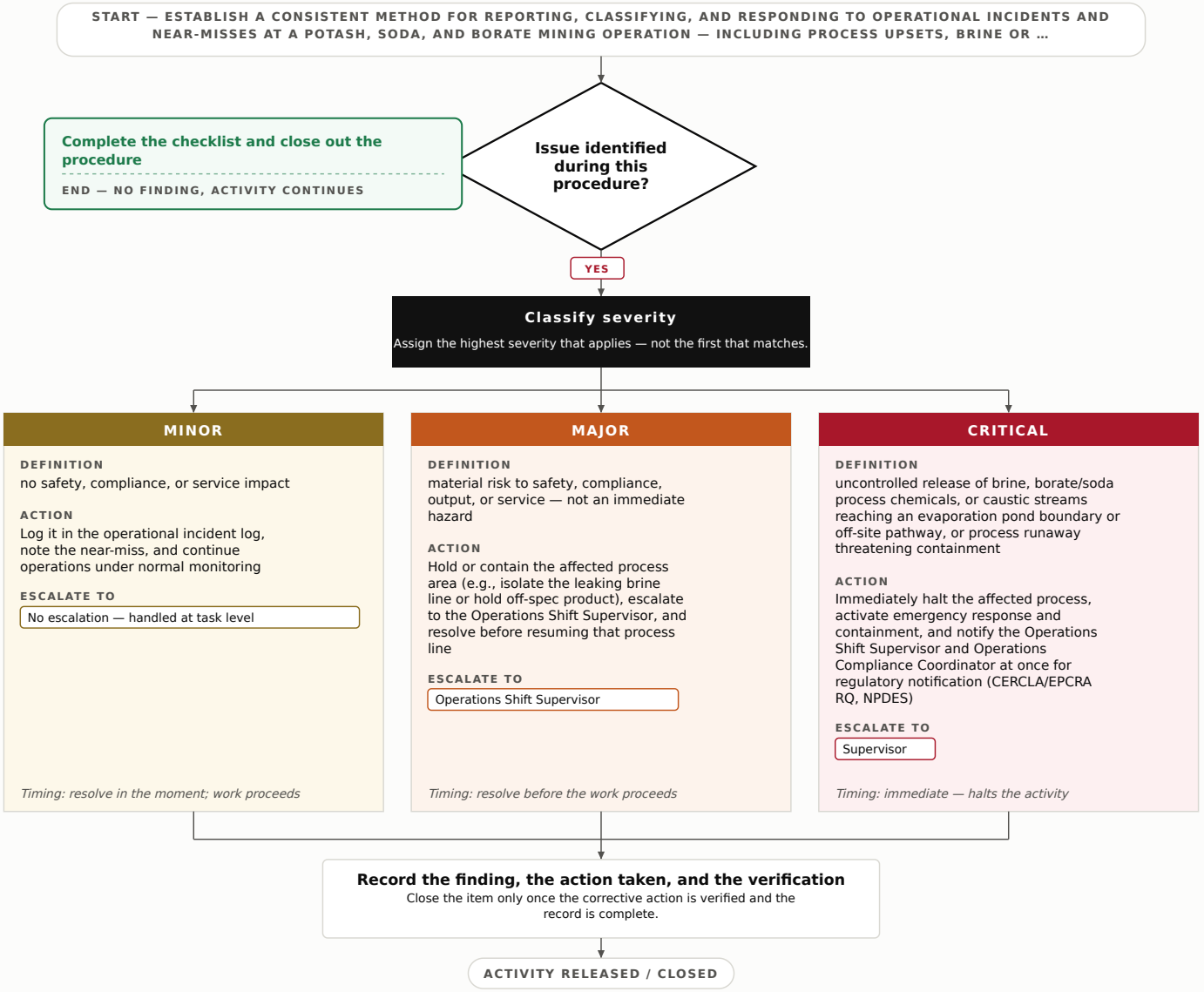
7. Step-by-Step Procedure

1. Upon observing an operational incident or near-miss (e.g., brine line leak, pond level excursion, dryer temperature runaway, off-spec crystallizer output, conveyor spillage), stop the affected activity and secure the immediate area.
2. Notify the Operations Shift Supervisor by radio or control room within 15 minutes of detection.
3. Take immediate containment action within operator authority — divert flow, close isolation valves, deploy spill berms/absorbents for brine or process chemicals, or reduce feed rate to stabilize the process.
4. Capture first observations: time, location, process area, materials involved, estimated volume/quantity, and any environmental pathway (pond, sump, ground).
5. Supervisor classifies severity per Section 8 and directs the response, holding or resuming the affected process area accordingly.
6. Operations Compliance Coordinator determines whether the event meets a regulatory reportable threshold (release quantity, discharge exceedance) and initiates external notification if triggered.
7. Assign corrective and preventive actions with owners and due dates; verify the affected process is stabilized before resuming normal operation.
8. Record the incident in the operational incident log with classification, response actions, and close-out status; retain per facility recordkeeping policy.

8. Decision Tree

OD-024 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Operational Incident Reporting & Response



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All incidents/near-misses reported to the Supervisor within the 15-minute window.
- Severity classification recorded and matched to consequence definitions.
- Regulatory reportability determination documented for every Major and Critical event.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Incident/near-miss reported within 15 minutes		
Immediate containment action documented		
Materials and estimated quantity recorded		
Severity classification assigned by Supervisor		
Reportable-quantity determination completed		
Corrective actions assigned with owner and due date		
Affected process verified stable before resume		

11. KPIs

- Incidents reported within 15-minute window ≥ 95%
- Near-miss reports logged per month ≥ 5 (leading indicator target)
- Critical incidents with regulatory notification made within required timeframe = 100%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-025 — Emergency & Business Continuity Readiness Check

Estimated completion time: 3–5 hours

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

This procedure verifies that the potash/soda/borate mining operation maintains a current, actionable capability to respond to a disruption (utility loss, flooding or brine inflow, dryer/crystallizer outage, supply interruption, or workforce shortage) and to resume production. It confirms that continuity documentation, resource inventories, and role assignments are in place and accurate — not that drills or backup systems perform.

2. Scope

Covers the readiness verification of business continuity plans, critical-supply inventories, communication rosters, and recovery-sequence documentation for surface processing and underground/solution-mining operations. Excludes emergency drills and live emergency response, which are covered under SD-015 and SD-016, and backup power systems, which are covered under ED-027.

3. Responsibilities

- Operations Superintendent — owns the continuity readiness check; approves findings and authorizes corrective actions.
- Emergency Preparedness Coordinator — verifies plan currency, contact rosters, and recovery sequences; logs findings.
- Warehouse/Materials Lead — confirms availability and shelf-life of critical spares, reagents, and fuel needed for resumption.

4. Required PPE & Lockout/Tagout

- Standard facility PPE for any walk-down of storage/plant areas (hard hat, safety glasses, steel-toe boots, hi-vis); office-only review requires none.
- Not applicable — no hazardous energy is de-energized or worked on during this documentation and inventory verification task.

5. Regulatory References

- 30 CFR Part 57 (MSHA Safety and Health Standards — Underground Metal and Nonmetal Mines), including 57.4360–57.4362 escape/evacuation and 57.11050 emergency provisions.
- 30 CFR Part 49 (Mine Rescue Teams) — readiness of designated response coverage.
- 29 CFR 1910.38 (Emergency Action Plans) and 1910.120 (HAZWOPER) for reagent/chemical exposure scenarios.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

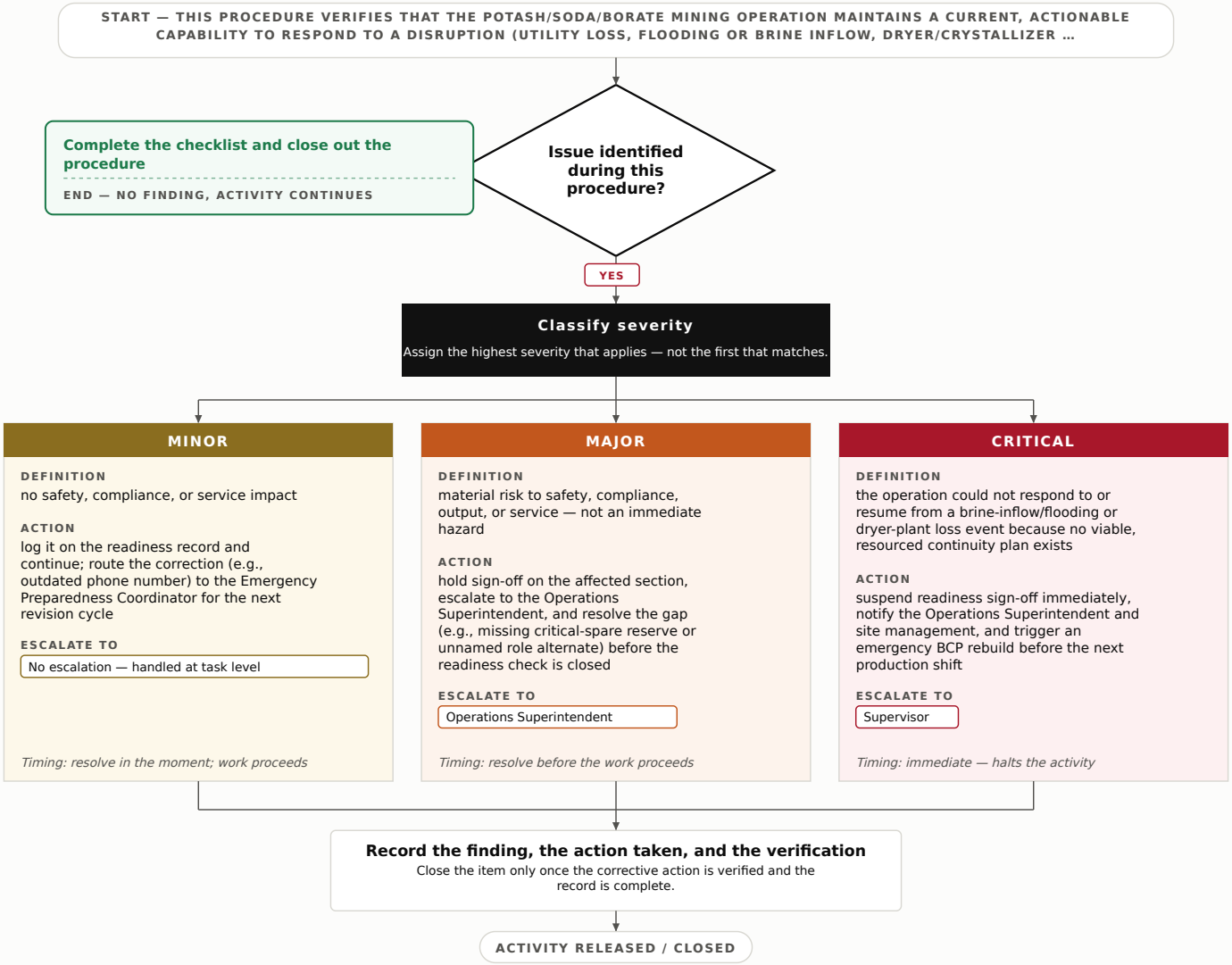
7. Step-by-Step Procedure

1. Retrieve the current Business Continuity Plan (BCP), disruption scenario matrix, and last-check record; confirm revision dates are within the 12-month review cycle.
2. Verify the emergency contact roster (Operations Superintendent, shift leads, MSHA field office, utility providers, key suppliers) — confirm names, roles, and phone numbers by test contact or written attestation.
3. Confirm critical resource inventory: designated spare parts for dryers/crystallizers and mining machinery, flocculant/reagent reserves, and diesel/fuel stocks meet minimum resumption thresholds and are within shelf-life.
4. Confirm at least one qualified alternate is named for each critical operating role and that authority-to-restart is documented.
5. Review the production resumption sequence (dewatering/brine control, dryer restart order, load-out re-enablement) for logical completeness and current equipment configuration.
6. Confirm supplier continuity contacts for mining machinery (333131), fuel/lubricants (324110), and process reagents (325998) are current and reachable.
7. Note that drill execution is verified under SD-015/SD-016 and backup power under ED-027 — do not re-test here; confirm only that references are cited in the BCP.
8. Document all findings, assign corrective actions with owners and due dates, and record the check on the readiness log.

8. Decision Tree

OD-025 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Emergency & Business Continuity Readiness Check



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- BCP and scenario matrix confirmed within 12-month review currency.
- Contact roster verified by test contact or attestation with no unreachable critical role.
- Critical resource inventories confirmed above minimum resumption thresholds.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
BCP revision date within 12-month cycle		
Emergency contact roster verified current		
Critical spares/reagents/fuel meet resumption thresholds		
Qualified alternates named for all critical roles		
Production resumption sequence current & complete		
Supplier continuity contacts (333131/324110/325998) reachable		
SD-015/SD-016 and ED-027 references cited in BCP		

11. KPIs

- Continuity plan currency: 100% of BCP sections reviewed within 12 months.
- Contact roster accuracy: ≥ 98% of critical contacts verified reachable at check.
- Corrective-action closure: 100% of Major/Critical findings closed within 14 days.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-026 — Regulatory, License & Permit Currency Verification

Estimated completion time: 3–6 hours per quarterly verification cycle (excludes agency renewal lead times)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Ensure that every operating license, mineral lease, extraction permit, and regulatory registration required for potash, soda, and borate mining at this facility is current, valid, and free of lapse or condition breach — so that extraction, processing, and shipment continue without a compliance-driven shutdown.

2. Scope

Covers verification of currency, expiration, renewal status, and condition compliance for federal, state, and local operating licenses, mineral leases, air/water discharge permits, and business registrations tied to mine operations. Excludes occupational safety regulatory compliance, which is covered under SD-028, and permit-to-work authorization, which is covered under MD-007.

3. Responsibilities

- Operations Compliance Coordinator — maintains the permit/license register, tracks expiration dates, initiates renewals, and owns this procedure.
- Operations Manager — reviews verification findings, authorizes escalation, and holds affected operations when a lapse is confirmed.
- Records Administrator — files agency correspondence, renewal receipts, and evidence of currency in the controlled document system.

4. Required PPE & Lockout/Tagout

- Standard facility PPE not required for this administrative task; PPE applies only if field verification requires entry to active mine or process areas (per site rules).
- Not applicable — no hazardous energy involved.

5. Regulatory References

- 30 U.S.C. §§ 21a et seq. and 43 CFR Part 3500 (BLM mineral leasing of solid leasable minerals — potash, sodium, borate).
- 30 CFR Part 750 / applicable state mining permit programs (surface/underground mining permits and reclamation).
- Clean Air Act Title V operating permits (40 CFR Part 70) and NPDES discharge permits (40 CFR Part 122), where held by the facility.
- Applicable state mine registration and business licensing statutes (e.g., state DEQ/mining division permits).
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow

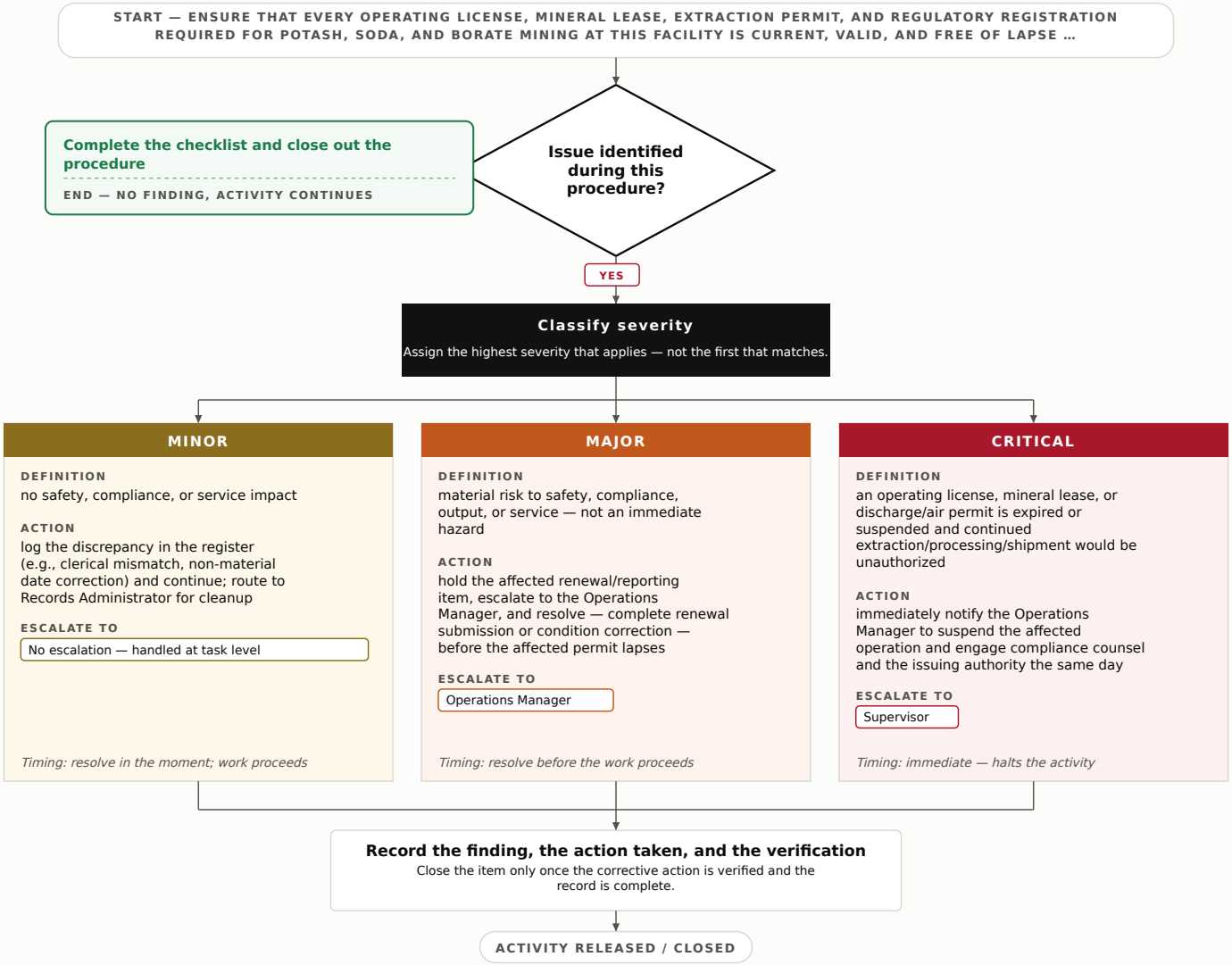
7. Step-by-Step Procedure

1. Open the master permit/license register and confirm it lists every active BLM mineral lease, state mining permit, Title V air permit, NPDES discharge permit, and business/mine registration for this facility.
2. For each entry, record the issuing authority, permit/lease number, effective date, expiration date, and any renewal or reporting deadlines.
3. Query each issuing authority's portal or contact the assigned agency officer to confirm the record's current standing (active, expired, suspended, or pending renewal).
4. Cross-check permit conditions (production caps, acreage, discharge limits, reporting due dates) against current operating parameters to confirm no condition is breached.
5. Flag any entry expiring within 90 days, any pending renewal, and any discrepancy between the register and the authority's record.
6. Initiate or confirm renewal actions for flagged items, recording submission dates and agency confirmation numbers.
7. Classify any identified issue per the Decision Tree and route accordingly.
8. Update the register, attach evidence of currency (renewal receipts, agency confirmations), and file all records with the Records Administrator; obtain supervisor verification.

8. Decision Tree

OD-026 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Regulatory, License & Permit Currency Verification



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every register entry reconciled against the issuing authority's current record.
- All permit conditions confirmed against current operating parameters.
- All items expiring within 90 days have a documented renewal action underway.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Permit/license register complete and current		
Each BLM mineral lease confirmed active with authority		
State mining permit currency confirmed		
Title V / NPDES permits current and within limits		
Business/mine registration valid		
Items expiring ≤90 days have renewal underway		
Evidence of currency filed with Records Administrator		

11. KPIs

- Percentage of permits/licenses verified current each cycle — target 100%.
- Lapsed operating authorizations at any time — target 0.
- Renewals initiated ≥60 days before expiration — target ≥95%.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-027 — Operational Risk Review

Estimated completion time: 4–6 hours per review cycle (quarterly)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

To conduct a structured periodic review of operational risks and the controls that mitigate them across potash, soda, and borate mining and processing operations — ensuring extraction, evaporation-pond, crushing/screening, and material-handling risks stay within defined tolerance and that control ownership remains current.

2. Scope

Covers the periodic identification, scoring, control-mapping, and treatment tracking of operational risks affecting production continuity, environmental compliance posture, and asset availability at the mining and processing site. Excludes safety hazard/risk assessment, which is covered under SD-004, and quality preventive action, which is covered under QC-020.

3. Responsibilities

- Operations Manager — owns the operational risk register, chairs the review, approves risk scoring and treatment decisions.
- Operations Risk Coordinator — schedules the review, compiles risk data, maintains the register, tracks open actions to closure.
- Process/Production Supervisor — provides operational context on extraction, evaporation, and processing controls; validates control-effectiveness ratings for their area.

4. Required PPE & Lockout/Tagout

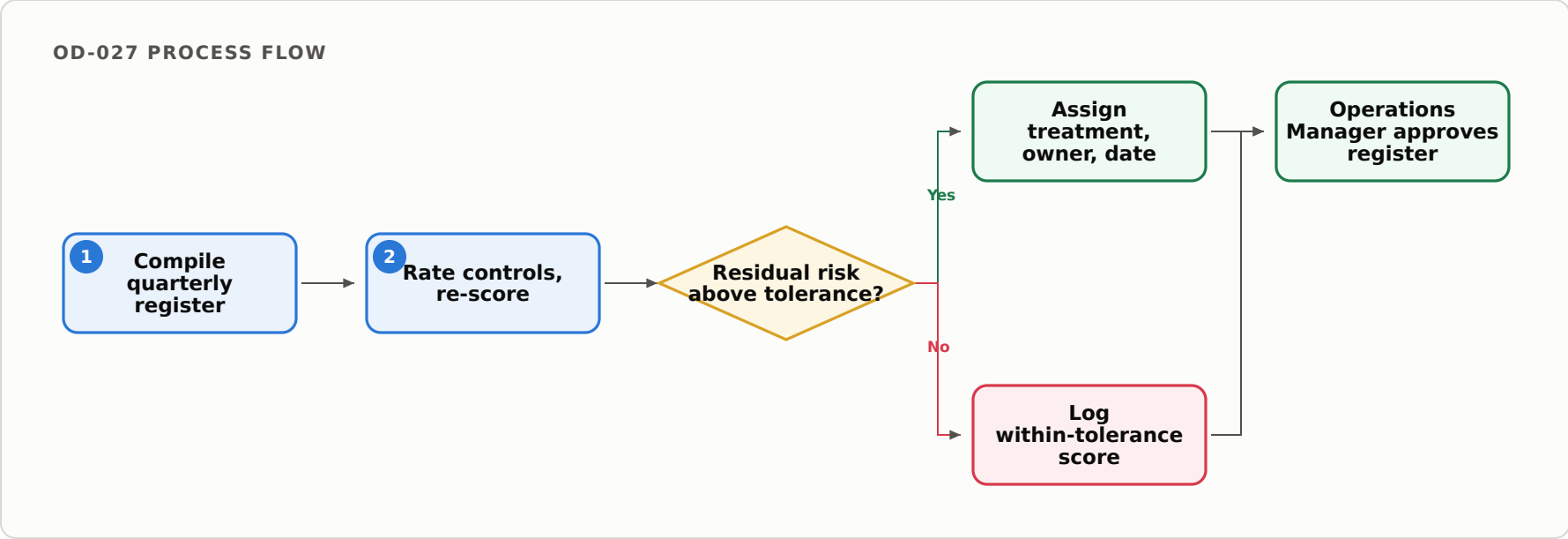
- Standard facility PPE if the review includes a floor walk-down (hard hat, safety glasses, hi-vis, steel-toe boots, dust protection in crushing/screening areas); office PPE otherwise.
- Not applicable — no hazardous energy involved; this is an administrative review. Any equipment inspection triggered by findings is performed under its own LOTO procedure.

5. Regulatory References

- 30 CFR Part 56/57 (MSHA Surface/Underground Metal and Nonmetal Mine Safety and Health Standards) — operational control context
- 40 CFR Part 68 (EPA Risk Management Program) — where threshold chemical quantities apply
- 29 CFR 1910.119 (OSHA PSM) — where covered processes exist
- Internal Operational Risk Management Policy governs register structure and scoring methodology

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



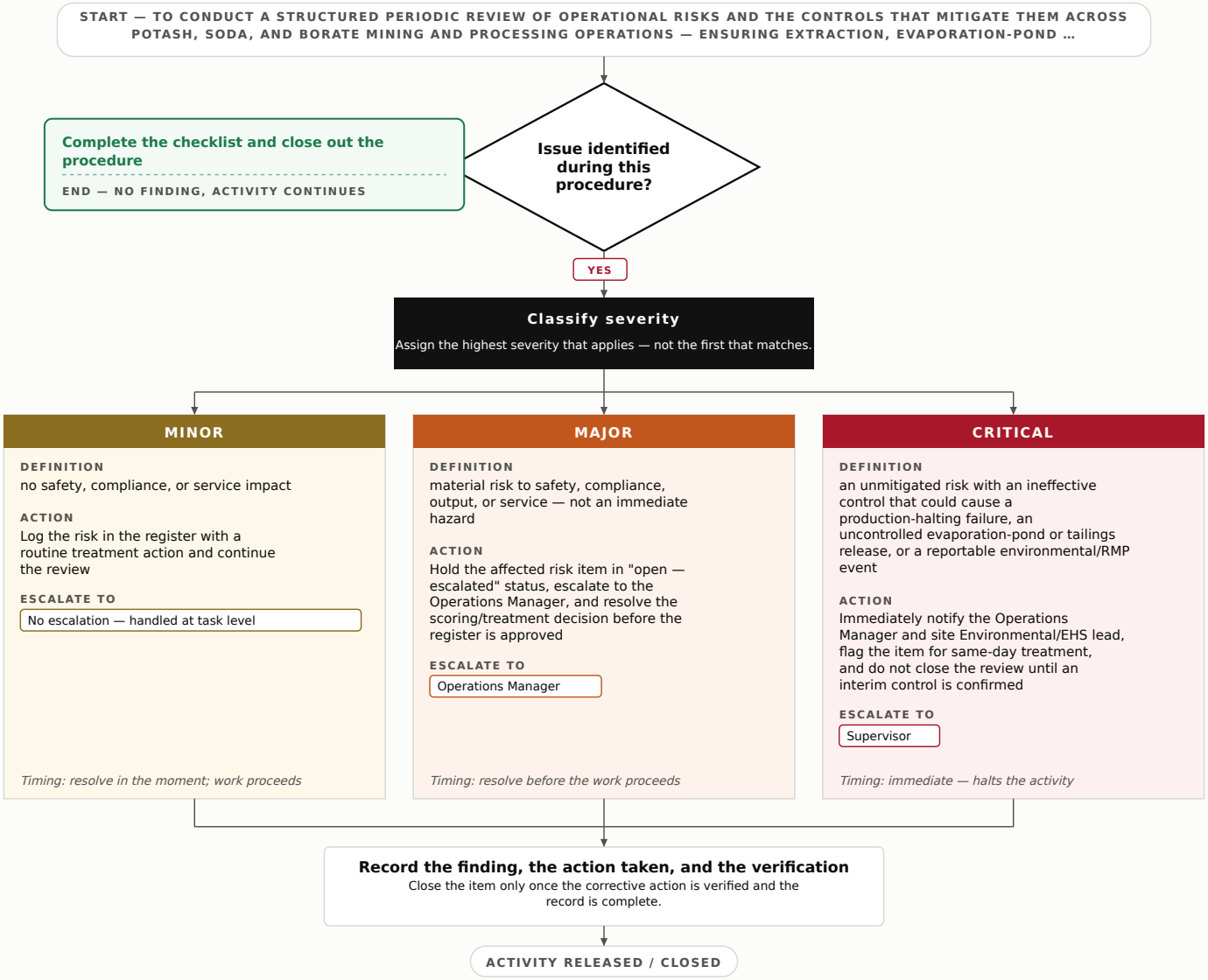
7. Step-by-Step Procedure

1. Operations Risk Coordinator schedules the quarterly review and distributes the prior-cycle register, open actions, and any new risk submissions from area supervisors.
2. Confirm the register scope covers each operational domain: solution/conventional extraction, evaporation ponds, crushing and screening, drying, and product loadout/material handling.
3. For each existing risk, review whether likelihood or consequence has changed (e.g., aging conveyor drives, pump reliability, pond level management, feedstock variability from 325998 chemical inputs).
4. Add newly identified operational risks raised since the last cycle; describe cause, event, and operational consequence in the register.
5. Rate the effectiveness of each mapped control (effective / partially effective / ineffective) and re-score residual risk using the internal likelihood × consequence matrix.
6. For risks above tolerance, assign a treatment action, a responsible owner from Section 3, and a due date; note any equipment-driven actions handed to the Maintenance PM queue.
7. Present the updated register to the Operations Manager for approval of scoring and treatment decisions.
8. Record the finalized register, approvals, and the next review date in the operational risk log; distribute action items to owners.

8. Decision Tree

OD-027 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Operational Risk Review



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- Every operational domain in scope has been reviewed and evidenced in the register.
- Each control carries a current effectiveness rating and each above-tolerance risk has an owner and due date.
- Prior-cycle open actions are reconciled (closed, extended with justification, or escalated).
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Prior-cycle register and open actions distributed before review		
All operational domains (extraction, ponds, crushing/screening, drying, loadout) reviewed		
Control-effectiveness ratings current for all mapped risks		
Residual scores recalculated using approved matrix		
Treatment actions assigned with owner and due date		
Operations Manager approval recorded		
Next review date set and logged		

11. KPIs

- Percentage of scheduled quarterly reviews completed on time — target 100%
- Percentage of above-tolerance risks with an assigned owner and due date — target 100%
- Overdue risk treatment actions at cycle close — target 0

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

Phase 6 — Performance, records & close

OD-028 — Operational KPI Review

Estimated completion time: 2–4 hours per review cycle (weekly/monthly)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Establish a standardized cadence for reviewing site-level operating performance — ore tonnes mined, potash/soda/borate throughput, mill recovery, plant availability, and energy/reagent consumption — against defined operational targets so that deviations are caught early and corrective actions are assigned before they compound into production or margin loss.

2. Scope

Covers the periodic review of operations-level KPIs for the mine and processing plant, including production, availability, utilization, and consumption measures aggregated across shifts. Excludes department-specific KPI reviews owned by Maintenance (MD-030), Quality Control (QC-030), and Sales/Distribution (SD-030); this procedure addresses operations measures only.

3. Responsibilities

- Operations Manager — owns the review, sets/confirms targets, approves corrective actions, and signs off closure.
- Shift Operations Supervisor — compiles shift production, availability, and consumption data; presents actuals vs. target and flags anomalies.
- Process/Metallurgical Engineer — validates recovery and consumption calculations and advises on root-cause for process-driven variances.

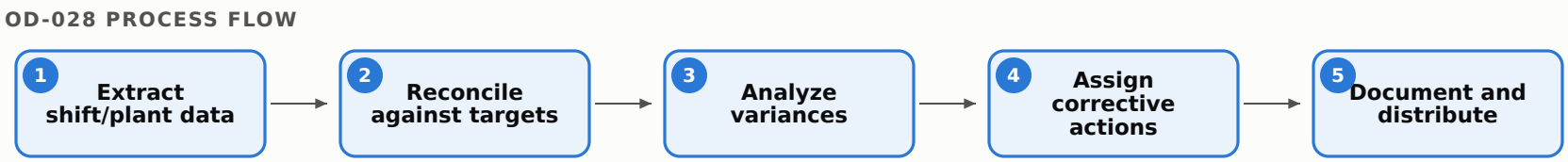
4. Required PPE & Lockout/Tagout

- Standard facility PPE if the review includes a floor walk-down (hard hat, safety glasses, steel-toe boots, hi-vis); office review requires none.
- Not applicable — no hazardous energy involved; this is a data review, not equipment intervention.

5. Regulatory References

- MSHA 30 CFR Part 56/57 (Metal/Nonmetal Mining — surface and underground) for any floor walk-down conditions referenced during the review.
- EPA 40 CFR Part 98 Subpart C (GHG reporting) where energy/fuel consumption KPIs feed emissions reporting.
- Internal policy: Operations Performance Management Standard (OPS-STD-004) governs target-setting and review cadence.
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



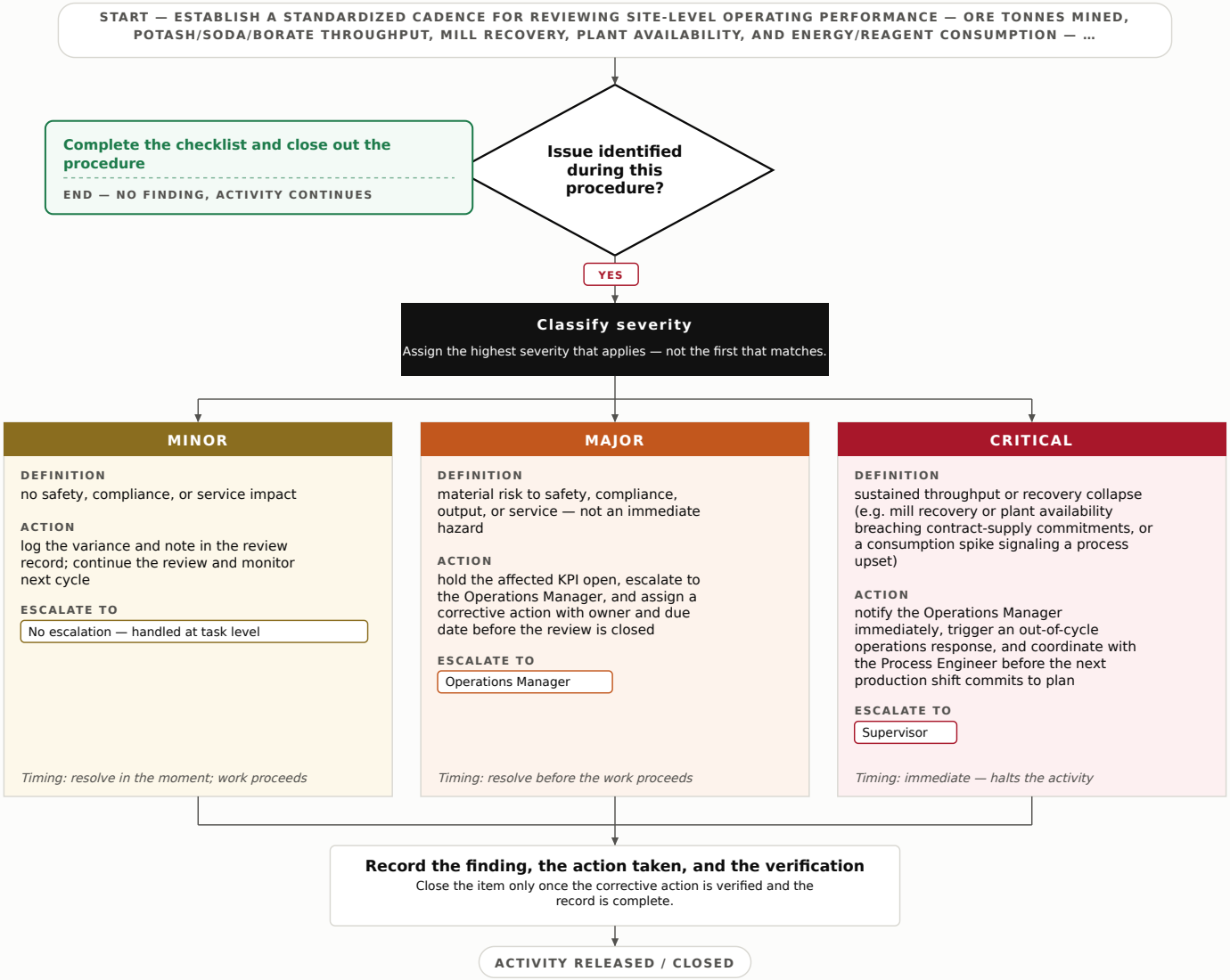
7. Step-by-Step Procedure

1. Pull the review period's operating data from the plant historian, dispatch/fleet management system, and shift logs — tonnes mined, mill feed rate, mineral recovery %, plant availability %, and reagent/energy consumption per tonne.
2. Reconcile raw figures for completeness and reject obvious data errors (sensor dropouts, double-counted haul cycles); confirm the metallurgical balance ties to reported recovery.
3. Load actuals into the operations KPI dashboard and compute variance against each defined target for the period.
4. Flag every KPI outside its control band and rank by production/margin impact.
5. Review each flagged variance with the Process/Metallurgical Engineer to distinguish process-driven causes from equipment- or supply-driven causes (route equipment reliability items to MD-030, spec-conformance items to QC-030).
6. Assign corrective actions with named owner and due date for each Major/Critical variance; confirm interim mitigations where output is at risk.
7. Circulate the reviewed KPI summary and action log to the Operations Manager and shift leadership.
8. Archive the signed review record, dashboard snapshot, and action log to the operations records repository.

8. Decision Tree

OD-028 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Operational KPI Review



READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All source data reconciled and tied to metallurgical balance before variance analysis.
- Every KPI outside its control band has a documented root cause classification.
- Every Major/Critical variance has a named action owner and due date.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Historian, dispatch, and shift-log data extracted for full period		
Data reconciled; no unresolved sensor/count errors		
Actuals vs. target computed for each defined KPI		
Out-of-band KPIs flagged and impact-ranked		
Root cause classified for each flagged variance		
Corrective actions assigned with owner and due date		
Review record archived and distributed		

11. KPIs

- Mineral recovery vs. target: within ±2% of plan.
- Plant availability: ≥ 92% of scheduled operating hours.
- Review cycle completed and distributed within 3 business days of period close: 100%.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-029 — Operational Records Retention & Documentation Audit

Estimated completion time: 3–5 hours per audit cycle (quarterly)

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

This procedure ensures that operational records for potash, soda ash, and borate extraction — including shift production logs, brine/solution mining volumes, evaporation pond throughput, equipment runtime, and daily tonnage reports — are complete, accurate, and retained for the required duration. Reliable records support regulatory reporting, resource accounting, and operational continuity.

2. Scope

Covers the identification, verification, indexing, and retention audit of Operations-generated records at the mine and processing facility, including production logs, extraction/haulage tickets, equipment operating hours, and inventory movement records. Excludes quality records (see QC-029), safety records (see SD-029), and HR records (see HR-029), which are audited under their respective modules.

3. Responsibilities

- Operations Records Coordinator — maintains the records index, performs retention checks, and compiles audit findings.
- Shift Operations Supervisor — confirms daily production and extraction logs are submitted, legible, and complete.
- Operations Manager — reviews audit results, approves disposition of expired records, and signs off on findings.

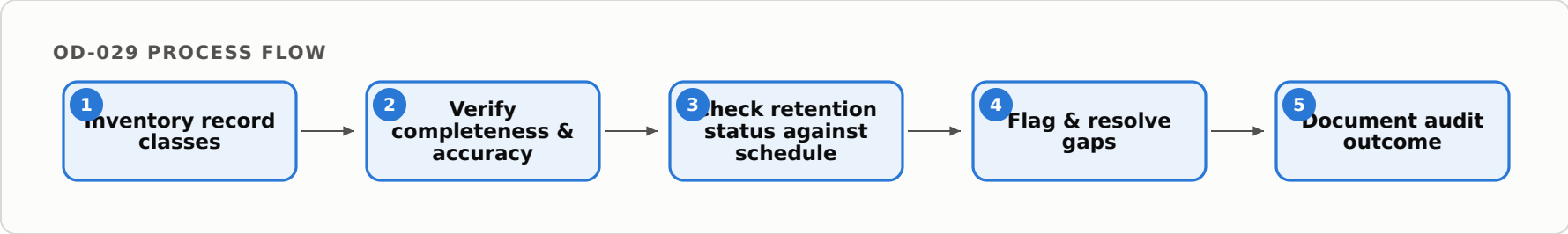
4. Required PPE & Lockout/Tagout

- Standard facility PPE if entering operational areas to reconcile field logs (hard hat, safety glasses, hi-vis); office attire for document review.
- Not applicable — no hazardous energy involved.

5. Regulatory References

- 30 CFR Part 56 (MSHA Surface Metal/Nonmetal Mines) — recordkeeping provisions applicable to mining operations.
- 30 CFR § 50.30–50.41 — quarterly employment and production report retention (MSHA Form 7000-2).
- Internal Operations Records Retention Policy (record-class schedules and disposition authority).
- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



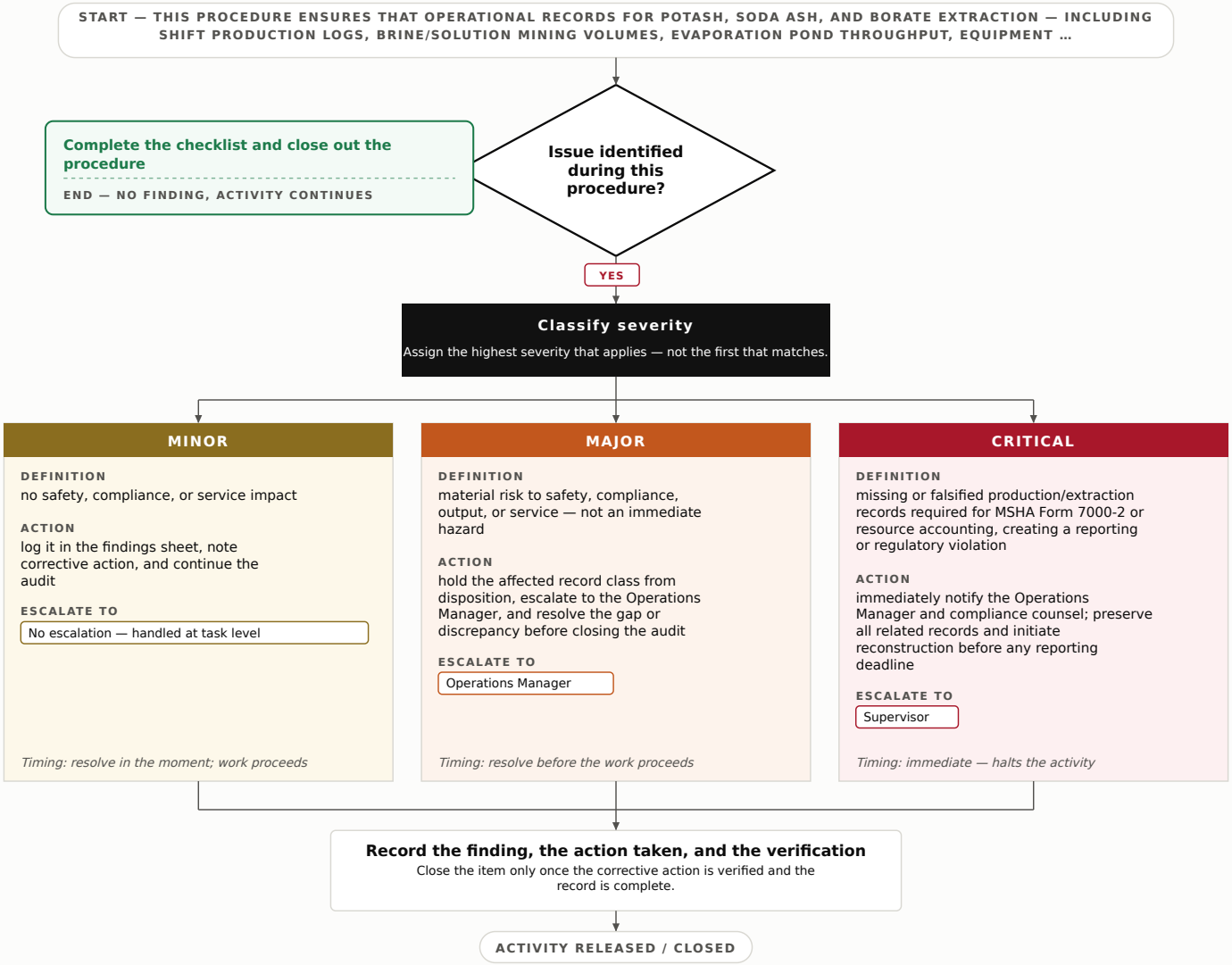
7. Step-by-Step Procedure

1. Pull the current records index and list all Operations record classes in scope (shift production logs, brine extraction volumes, evaporation pond throughput, haulage tickets, equipment runtime logs, tonnage/inventory movement reports).
2. For each class, confirm the expected record count for the audit period against the shift/production calendar; identify any missing entries.
3. Verify accuracy on a sample of records — cross-check reported tonnage and solution volumes against downstream inventory movement and dispatch records for internal consistency.
4. Confirm each record is properly dated, signed/attributed to the responsible operator, and legible or complete in the digital log system.
5. Check retention status against the retention schedule; mark records past their retention date as eligible for disposition and those still within retention as active.
6. Flag gaps, discrepancies, or misfiled records and route them to the Shift Operations Supervisor for correction or reconstruction.
7. Confirm corrected records are re-verified and the index updated with current status.
8. Document the audit — completed checklist, findings log, disposition list, and Operations Manager sign-off — and file the audit record itself.

8. Decision Tree

OD-029 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — Operational Records Retention & Documentation Audit



READING THIS TREE

No finding
Activity stands. Complete the checklist and continue.

Minor
Handled in place at task level; no escalation.

Major
Supervisory decision required before the next stage.

Critical
Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All in-scope record classes accounted for and indexed for the audit period.
- Sampled records verified accurate and internally consistent with inventory/dispatch data.
- Retention status confirmed against schedule with disposition list approved.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
All Operations record classes inventoried against index		
Expected vs. actual record count reconciled for period		
Sampled records dated, attributed, and legible/complete		
Tonnage/volume entries consistent with inventory records		
Retention status verified against schedule		
Disposition list for expired records approved		
Findings log completed and gaps resolved		

11. KPIs

- Record completeness rate ≥ 99% of expected entries per period.
- Audit findings resolved before close ≥ 95%.
- Critical findings (missing/falsified regulatory records) 0 per audit cycle.

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team

OD-030 — End-of-Shift / End-of-Day Operations Closeout

Estimated completion time: 45–90 minutes

> Provided for general informational and operational purposes as part of the Chemical Mineral Mining archetype library. Does not constitute a certified safety program. Verify all regulatory references and equipment-specific tolerances with a qualified engineer or safety professional before implementation.

1. Purpose

Close the operating period at a potash/soda/borate mining operation by securing extraction and processing equipment, reconciling production and inventory records, documenting shift outcomes, and preparing an auditable record so the next period can resume safely. This protects personnel, prevents unmonitored process states, and preserves regulatory traceability.

2. Scope

Covers the closeout of the operating period for surface and underground OD-controlled areas: securing mobile and fixed extraction/processing equipment, reconciling ore tonnage and reagent inventory, and finalizing shift documentation. Excludes shift-start authorization and readiness (OD-001) and person-to-person handover briefings (OD-002).

3. Responsibilities

- Shift Operations Supervisor — authorizes closeout, verifies equipment secured/de-energized, signs off reconciliation and records.
- Control Room / DCS Operator — parks process units to idle/safe state, records final process readings, logs alarms and abnormal events.
- Lead Equipment Operator — parks and secures mobile equipment (continuous miners, haul trucks, loaders), completes end-of-shift equipment condition report.

4. Required PPE & Lockout/Tagout

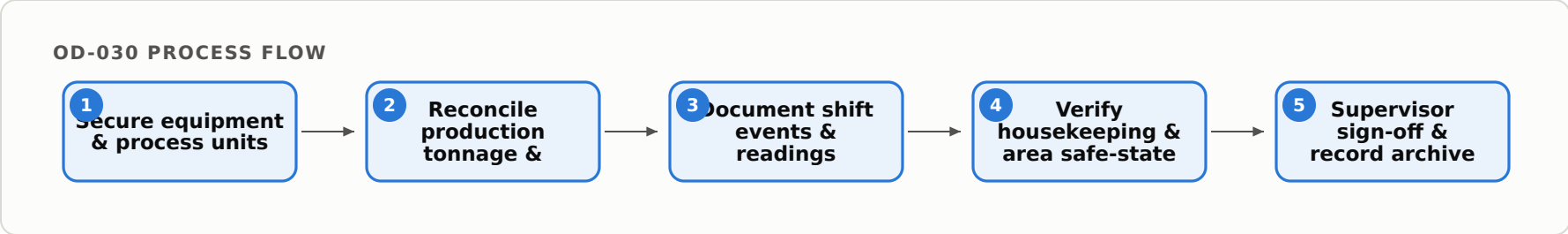
- Standard facility PPE: hard hat, safety glasses, steel-toe boots, hi-vis vest, hearing protection; dust protection (N95/half-mask) in dry-processing areas; cap lamp and self-rescuer in underground zones.
- LOTO: Apply lockout/tagout to any equipment left down for maintenance or in a hazardous-energy state per facility LOTO program before securing. Equipment parked in normal idle need not be locked out but must be confirmed de-energized/parked.

5. Regulatory References

- 30 CFR Part 57 (MSHA — Safety and Health Standards, Underground Metal and Nonmetal Mines), incl. §57.14105 (equipment blocked/secured against motion) and §57.11 escapeway/ventilation provisions.
- 30 CFR Part 56 (MSHA — Surface Metal and Nonmetal Mines) for surface operations.
- 30 CFR Part 50 (MSHA — Notification, Investigation, Reports of Accidents/Injuries) for end-of-shift event documentation.
- 29 CFR 1910.147 (OSHA — Control of Hazardous Energy) where OSHA jurisdiction applies to support facilities.

- Note: confirm applicability of sector-specific standards and any state-plan equivalents for this facility before customer-facing release.

6. Process Flow



7. Step-by-Step Procedure

1. Announce closeout at end of operating period; confirm no active extraction, blasting, or reagent-transfer operations are in progress.
2. Direct Control Room Operator to bring flotation, crushing, drying, and compaction units to their designated idle/safe state; record final process readings, tank levels, and any active alarms.
3. Have Lead Equipment Operator park mobile equipment in designated areas, block against motion per §57.14105, chock/lower attachments, set brakes, and shut down; apply LOTO to any unit left for maintenance.
4. Reconcile shift ore tonnage extracted and hoisted against DCS/weightometer totals; reconcile reagent, fuel, and lube inventory drawn from stores against consumption logs.
5. Log all abnormal events, near-misses, alarm trips, and equipment condition flags; flag any reportable event for review under 30 CFR Part 50.
6. Verify area housekeeping: spill containment intact, no accumulated combustible dust hazards, ventilation and dewatering pumps confirmed running as required for the unmanned period.
7. Confirm any open maintenance items are entered in the PM/work-order queue with tag status noted.
8. Complete the closeout record, obtain Shift Operations Supervisor verification signature, and archive to the shift log system.

8. Decision Tree

OD-030 · OPERATIONS · CHEMICAL MINERAL MINING

Decision Tree — End-of-Shift / End-of-Day Operations Closeout

START — CLOSE THE OPERATING PERIOD AT A POTASH/SODA/BORATE MINING OPERATION BY SECURING EXTRACTION AND PROCESSING EQUIPMENT, RECONCILING PRODUCTION AND INVENTORY RECORDS, DOCUMENTING SHIFT OUTCOMES …

Issue identified during this procedure?

Complete the checklist and close out the procedure

END — NO FINDING, ACTIVITY CONTINUES

YES

Classify severity

Assign the highest severity that applies — not the first that matches.

MINOR

DEFINITION

no safety, compliance, or service impact

ACTION

Note on the closeout record (e.g., minor tonnage variance within tolerance, cosmetic housekeeping item) and continue

ESCALATE TO

No escalation — handled at task level

Timing: resolve in the moment; work proceeds

MAJOR

DEFINITION

material risk to safety, compliance, output, or service — not an immediate hazard

ACTION

Hold the affected area/record from closeout, escalate to the Shift Operations Supervisor, resolve (e.g., unexplained reagent variance, equipment left unsecured, unlogged alarm) before the record is signed and archived

ESCALATE TO

Shift Operations Supervisor

Timing: resolve before the work proceeds

CRITICAL

DEFINITION

unsecured/un-blocked mobile equipment, an unmonitored process unit (drier/flotation) left in hazardous state, failed ventilation or dewatering, or a reportable Part 50 event

ACTION

Do not close the period; immediately re-establish safe-state or evacuate as required, notify the Shift Operations Supervisor and Mine Manager, and initiate MSHA notification if required

ESCALATE TO

Supervisor

Timing: immediate — halts the activity

Record the finding, the action taken, and the verification

Close the item only once the corrective action is verified and the record is complete.

ACTIVITY RELEASED / CLOSED

READING THIS TREE

- **No finding** — Activity stands. Complete the checklist and continue.
- **Minor** — Handled in place at task level; no escalation.
- **Major** — Supervisory decision required before the next stage.
- **Critical** — Activity halts on the spot; escalation is immediate.

9. Quality Checkpoints

- All mobile and fixed equipment confirmed parked, secured/blocked, or under LOTO.
- Production tonnage and reagent inventory reconciled within defined variance tolerance.
- All abnormal events, alarms, and maintenance flags logged and routed.
- Zero unresolved Critical findings.

10. Inspection Checklist

ITEM	PASS / FAIL	NOTES
Extraction/processing units in idle or safe state; final readings recorded		
Mobile equipment parked, blocked against motion, LOTO applied where needed		
Ore tonnage reconciled to DCS/weightometer totals within tolerance		
Reagent, fuel, and lube inventory reconciled to consumption logs		
Ventilation and dewatering confirmed running for unmanned period		
Abnormal events, alarms, and near-misses logged		
Closeout record completed and archived		

11. KPIs

- Equipment secured-state compliance at closeout: 100%
- Tonnage/inventory reconciliation variance: ≤ 2%
- Closeout records completed and archived same period: 100%

12. Supervisor Verification

Printed Name: _____ Signature: _____ Date: _____

13. Revision History

VERSION	DATE	DESCRIPTION	AUTHOR
1.0	2026-07-27	Generated to the locked 3-page Free/$99 Standard standard for CHEMICAL_MINERAL_MINING.	Archetype Content Team