



AURUS MINING

The Accountable Facility

Tailings governance, design intent and assurance under GISTM

OUR POSITION

GISTM frames tailings safety as an accountable lifecycle system: respect for affected people, an interdisciplinary knowledge base, design intent carried through construction and operation, monitoring using the observational method, defined roles with independent review, emergency readiness with communities and authorities, and disclosure supported by an aud-

EVIDENCE FIRST | DECISIONS MADE EXPLICIT | DELIVERY CONDITIONS STATED

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Executive summary

The Global Industry Standard on Tailings Management is a global standard for tailings operators launched by the Global Tailings Review in August 2020. Its structure signals intent: six topic areas, 15 principles and 77 auditable requirements that can be read as a chain of accountability rather than a library of controls. The Standard applies to existing and new facilities and sets expectations across the full lifecycle, including closure and post-closure. A useful editorial reading is to treat each lifecycle phase as a test of whether design intent remains visible, traceable and governed, especially when conditions change and memory fades.

Sources: WP12-01, WP12-02, WP12-03

GISTM begins with people. Topic I requires respect for the rights of project-affected people and meaningful engagement across the facility lifecycle. That expectation is reinforced by the requirement for an interdisciplinary knowledge base that includes social, environmental, local-economic and technical information. Taken together, engagement and knowledge base requirements change what counts as relevant evidence for tailings decisions. They shift the working definition of risk from a purely technical construct to a documented understanding that connects facility behaviour to consequence and lived exposure, including how information is created, updated and used when decisions are made.

Sources: WP12-04, WP12-05

From planning onward, GISTM asks the operator to minimise risk across all lifecycle phases and to consider credible alternatives. During delivery, the Standard then forces continuity: construction and operation must stay aligned with design intent through quality control, quality assurance and construction-versus-design-intent verification. It also requires a construction records report when a material change affects the facility, infrastructure or monitoring system. Formal change management extends that discipline by requiring periodic assessment of the cumulative effect of deviations, with accountable approval of resulting actions.

Sources: WP12-06, WP12-07, WP12-08, WP12-10

GISTM treats performance as something to be observed and governed, not assumed. Monitoring supports the observational method and a performance-based approach across design, construction and operation. Governance assigns an Accountable Executive, an Engineer of Record and a Responsible Tailings Facility Engineer with defined authority and interfaces, and independent review is part of the quality and risk-management system throughout the lifecycle. Emergency preparedness is planned with potentially affected people and relevant public authorities, operators plan for long-term recovery if catastrophic failure occurs, and public disclosure supports accountability while protecting legitimate confidential commercial and financial information.

Sources: WP12-11, WP12-12, WP12-13, WP12-15

At a glance

Six evidence markers establish the scale, threshold or decision condition carried into the chapters that follow.

August 2020

GISTM LAUNCH (GLOBAL TAILINGS REVIEW)

Source: WP12-01

6

TOPIC AREAS IN THE STANDARD

Source: WP12-02

15

PRINCIPLES IN THE STANDARD

Source: WP12-02

77

AUDITABLE REQUIREMENTS IN THE STANDARD

Source: WP12-02

Scope

EXISTING AND NEW FACILITIES, INCLUDING CLOSURE AND POST-CLOSURE

Source: WP12-03

Gate

DEFINED GOVERNANCE ROLES: ACCOUNTABLE EXECUTIVE, ENGINEER OF RECORD, RESPONSIBLE

Source: WP12-12

Method and boundaries

This paper is a bounded synthesis of registered public evidence. Source identifiers remain visible so that each quantitative or framework statement can be traced to its dossier row.

INTENDED READERS

- Tailings governance and risk leaders
- Operators and facility owners
- Engineers of record and responsible facility engineers (standard-defined roles)

READING METHOD

- Read each chapter opener as a decision frame.
- Use the three section exhibits as working review instruments.
- Return to the evidence ledger before reusing any number or requirement.

BOUNDARIES

- This paper uses only the registered evidence rows WP12-01 to WP12-18 provided in the dossier and does not add external thresholds, performance targets, jurisdictional requirements or facility-specific outcomes.
- Role titles such as Accountable Executive, Engineer of Record and Responsible Tailings Facility Engineer are Standard-defined functions and are not presented as credentials held by any named party.
- No claims of certification, conformance status, audit results or client delivery outcomes are made because the dossier provides no such project-specific evidence.
- Any implementation examples are framed as decision instruments derived from the Standard's requirements and ICMM guidance context, not as measurements or predictions.

PUBLICATION DISCIPLINE

- No client identity or company-age claim is published.
- No Aurus delivery result is inferred from public guidance.
- Dated forecasts retain their institution and vintage.



01

SET THE FRAME

The standard and the consequence

Read GISTM as a lifecycle accountability system: what it is, what it covers, and why the structure matters when consequences are high.

77 auditable

REQUIREMENTS THAT CAN BE MAPPED TO EVIDENCE AND DECISIONS | WP12-02

Lifecycle

INCLUDES CLOSURE AND POST-CLOSURE, MORE THAN ACTIVE OPERATIONS | WP12-03

August 2020

LAUNCH OF THE STANDARD BY THE GLOBAL TAILINGS REVIEW | WP12-01

1.1 What GISTM is and how it is organised

GISTM was launched in August 2020 by the Global Tailings Review, co-convened by ICMM, UNEP and PRI. That provenance matters because it signals a governance ambition that sits above any single operator or jurisdiction. The Standard is organised into six topic areas, 15 principles and 77 auditable requirements. In practice, that structure supports an evidence-led approach: each requirement can be translated into a question, an accountable decision point and a record set. When used this way, implementation moves from policy statements toward a controlled system that can be reviewed and challenged without relying on personal memory.

WP12-01, WP12-02

GISTM applies to existing and new tailings facilities and covers the full lifecycle, including closure and post-closure. That scope widens the working definition of consequence because it includes periods when operations stop but the facility remains. A lifecycle reading helps prevent a common failure mode in governance: treating closure as a later project rather than a current design and operating constraint. It also changes how an operator frames proof. Evidence extends beyond calculations or inspection notes from today. It is the continuity of intent, decisions and controls that remain legible as conditions, personnel and organisational priorities change across decades.

WP12-03

DECISION INSTRUMENT

Exhibit 1.1: Map the Standard into an evidence plan

Decision instrument to translate the Standard’s structure into a controlled evidence set that can be reviewed across the facility lifecycle.

TEST	EVIDENCE READING	DECISION RESPONSE
Standard element	Six topic areas, 15 principles, 77 auditable requirements	Build an index that links each requirement to a named record owner and storage location
Lifecycle scope	Applies to existing and new facilities, includes closure and post-closure	Define evidence retention and review cadence for active, closure and post-closure phases
Provenance	Global Tailings Review, co-convened by ICMM, UNEP and PRI	Align internal governance terms with the Standard’s language to reduce reinterpretation risk
Auditability	Requirements are auditable, not aspirational	Use a control register that states how compliance is demonstrated, more than how it is intended

Sources: WP12-01, WP12-02, WP12-03

1.2 Consequence as a governance driver

GISTM’s lifecycle scope forces an operator to treat consequence as persistent. Decisions made in planning and design must remain meaningful during construction, operation, closure and post-closure. This is not a call for a single perfect document. It is a call for a traceable chain of intent, assumptions and conditions under which a facility is expected to perform. The Standard’s auditable requirements create a practical pressure: if a decision cannot be tied to evidence, it cannot be defended in review. That pressure is useful when consequences are high because it encourages disciplined record keeping and makes drift visible earlier.

WP12-02, WP12-03

A consequence-focused reading also clarifies why engagement and knowledge matter early, not late. Topic I requires respect for the rights of project-affected people and meaningful engagement across the facility lifecycle, and Principles 2 to 3 require an interdisciplinary knowledge base that includes social, environmental, local-economic and technical information. Together, these requirements prevent a narrow framing where consequence is reduced to a technical impact footprint. They require the operator to document who may be affected, how, and how that understanding changes over time. This evidence then feeds the lifecycle decisions that GISTM makes auditable.

WP12-04, WP12-05

DECISION INSTRUMENT

Exhibit 1.2: Consequence-led decision log template

Framework for recording decisions so that consequence, affected people and lifecycle scope remain visible in governance review.

TEST	EVIDENCE READING	DECISION RESPONSE
Decision trigger	Requirement or change that prompts a decision	Record the specific GISTM requirement ID and lifecycle phase impacted
Consequence statement	Who could be affected and how, across the lifecycle	Link to engagement records and knowledge base items that support the statement
Evidence pack	Technical and non-technical evidence used	List the controlled documents and their owners; avoid personal inbox evidence
Review route	Who must review and approve	Route to defined governance roles and independent review where required

Sources: WP12-02, WP12-03, WP12-04, WP12-05, WP12-13

1.3 Lifecycle discipline before documents multiply

The Standard’s breadth can lead to document growth without clarity unless the operator sets a small number of organising controls. The first is a lifecycle map that defines what must be true at each phase, including closure and post-closure. The second is a requirement index that ties each auditable requirement to evidence, an accountable owner and a review frequency. The third is a rule for what happens when assumptions change. GISTM includes formal change management with periodic assessment of the cumulative effect of deviations and accountable approval of actions. That requirement provides the backbone for a controlled system rather than a collection of files.

WP12-02, WP12-03, WP12-10

Closure planning is a useful example of cross-cutting discipline. ICMM’s 2021 Tailings Management Good Practice Guide treats closure planning as a lifecycle activity and links long-term landform performance to limited surveillance and maintenance. That concept aligns with GISTM’s lifecycle coverage by turning closure into a current operating constraint. It also reframes evidence. A closure intent that depends on intensive, indefinite intervention is different from one that targets limited surveillance and maintenance. Governance should therefore require that closure assumptions are carried through design intent, operational controls and monitoring plans, more than captured in a closure document.

WP12-03, WP12-18

DECISION INSTRUMENT

Exhibit 1.3: Minimal lifecycle control set

A decision checklist to prevent uncontrolled complexity while meeting auditable expectations across the full lifecycle.

TEST	EVIDENCE READING	DECISION RESPONSE
Lifecycle map	Standard applies through closure and post-closure	Approve a phase-based control plan that stays valid when operations stop
Requirement index	77 auditable requirements across 15 principles	Assign evidence owners and review cycles for each requirement
Change backbone	Cumulative deviations assessed and actions approved	Define what counts as a deviation and who can approve outcomes
Closure thread	Closure planning links to long-term performance and limited surveillance	Require explicit closure assumptions in design intent and operating controls

Sources: WP12-02, WP12-03, WP12-10, WP12-18

02

TOPIC 1 IN PRACTICE

People and the knowledge base

Establish a defensible understanding of affected people and consequences, then embed it in an interdisciplinary knowledge base that stays current through the lifecycle.

Rights

RESPECT FOR THE RIGHTS OF PROJECT-AFFECTED PEOPLE ACROSS THE LIFECYCLE | WP12-04

Trace

INTERDISCIPLINARY KNOWLEDGE BASE SPANNING SOCIAL, ENVIRONMENTAL, LOCAL-ECONOMIC, | WP12-05

Lifecycle

ENGAGEMENT EXPECTATIONS APPLY THROUGH CLOSURE AND POST-CLOSURE | WP12-03

2.1 Rights and meaningful engagement as a system requirement

Topic I requires respect for the rights of project-affected people and meaningful engagement across the facility lifecycle. In governance terms, this is not a communications plan. It is a requirement that decisions be informed by those who live with the consequence profile of the facility and who may rely on the surrounding environment and local economy. A useful implementation stance is to treat engagement outputs as controlled evidence. That means documenting what was asked, what was heard, what was decided and how feedback was handled. When engagement is treated as evidence, it can be used in reviews and change management without being reduced to a narrative.

WP12-04

Because GISTM applies to existing and new facilities and spans closure and post-closure, engagement cannot be limited to a permitting phase or a periodic update. The operator needs an approach that anticipates change: evolving land use, demographic shifts and changing understanding of facility behaviour. The Standard’s lifecycle framing supports an expectation that engagement records remain accessible and that commitments remain legible when personnel change. This also protects decision quality during incident readiness and recovery planning, where time pressure can narrow the range of considered consequences. The same affected people context should be visible in emergency preparedness planning and long-term recovery thinking.

WP12-03, WP12-04, WP12-15, WP12-16

DECISION INSTRUMENT

Exhibit 2.1: Engagement record as auditable evidence

Framework to document engagement so it can be used in lifecycle decisions, change management and readiness planning.

TEST	EVIDENCE READING	DECISION RESPONSE
Engagement purpose	Meaningful engagement across the facility lifecycle	State the lifecycle phase and decision(s) that engagement informs
Rights context	Respect for rights of project-affected people	Record how potential impacts on rights were considered in the decision route
Commitment log	Engagement creates expectations that persist	Maintain a controlled commitments register linked to governance review
Readiness link	Emergency preparedness involves affected people and authorities	Cross-reference emergency planning inputs and contact protocols

Sources: WP12-04, WP12-15, WP12-16, WP12-03

2.2 The interdisciplinary knowledge base and its boundaries

GISTM requires the operator to maintain an interdisciplinary knowledge base that includes social, environmental, local-economic and technical information. The purpose is practical: decisions about risk minimisation, design intent, monitoring and emergency readiness must be made from a shared set of facts and assumptions rather than siloed interpretations. An effective knowledge base is more than a data repository. It needs defined ownership, version control and review triggers so that it stays current as conditions change. Governance should also define what is in scope. If social and local-economic information are treated as optional context, the knowledge base becomes technical-only and fails the Standard’s intent.

WP12-05

The knowledge base becomes most valuable when it is explicitly connected to lifecycle decisions. Planning and design must minimise risk through all lifecycle phases and consider credible alternatives. That decision work requires a clear picture of consequence pathways, including how local economic activity and environmental receptors change over time. The same knowledge base should then support construction, operation, monitoring and emergency planning. In governance reviews, the key question is whether decisions can be traced back to a current interdisciplinary knowledge base. If not, the operator risks using outdated assumptions, particularly when responding to deviations or when closure planning depends on long-term landform performance with limited surveillance and maintenance.

WP12-05, WP12-06, WP12-18

DECISION INSTRUMENT

Exhibit 2.2: Knowledge base control model

Decision instrument to define the minimum controls needed for an interdisciplinary knowledge base that supports auditable decisions.

TEST	EVIDENCE READING	DECISION RESPONSE
Content scope	Social, environmental, local-economic and technical information required	Approve an inventory with named custodians for each domain
Update triggers	Lifecycle decisions and credible alternatives depend on current knowledge	Set triggers tied to design updates, operating changes and closure planning
Traceability	Decisions must show what knowledge they relied on	Require citations to knowledge base items in decision logs and reviews
Access control	Public disclosure must protect legitimate confidential information	Segment confidential commercial and financial information from shared datasets

Sources: WP12-05, WP12-06, WP12-17

2.3 Linking people knowledge to governance roles

Interdisciplinary knowledge becomes operational only when roles are clear. GISTM assigns an Accountable Executive, an Engineer of Record and a Responsible Tailings Facility Engineer with defined authority and interfaces. A practical reading is that these roles need a shared understanding of the knowledge base, including the non-technical domains. The Accountable Executive needs evidence that engagement and knowledge requirements are met and used in decisions. The Engineer of Record needs current assumptions to preserve design intent. The Responsible Tailings Facility Engineer needs operationally usable knowledge for surveillance and response. Without defined interfaces, the knowledge base becomes a static library rather than a working control.

WP12-12, WP12-05

Culture and protected reporting shape whether knowledge gaps are surfaced. GISTM states that organisational culture should promote learning, early problem recognition, communication and protected reporting of concerns. This matters for Topic I because people-related information often arrives as weak signals, complaints or observations that do not fit engineering templates. A protected route for reporting helps ensure these signals enter the knowledge base and trigger review when needed. Independent review then tests whether the knowledge base is complete enough to support decisions. When the knowledge base is governed in this way, engagement and technical work reinforce each other rather than competing for attention during busy operating periods.

WP12-14, WP12-13, WP12-05, WP12-12

DECISION INSTRUMENT

Exhibit 2.3: Interface matrix for people and knowledge evidence

Framework to assign who must know what, and who must act, so Topic I evidence influences decisions.

TEST	EVIDENCE READING	DECISION RESPONSE
Accountable Executive	Defined authority and interfaces required	Require periodic attestations that engagement and knowledge controls are effective
Engineer of Record	Design intent depends on current assumptions	Confirm knowledge base updates are reflected in design basis where relevant
Responsible Tailings Facility Engineer	Operations and surveillance require usable knowledge	Integrate knowledge base updates into OMS procedures and surveillance planning
Review and culture	Independent review and protected reporting expected	Ensure a route for concerns to trigger review and knowledge base updates

Sources: WP12-12, WP12-05, WP12-13, WP12-14, WP12-09

03

PLAN THE FUTURE FACILITY

Alternatives and design intent

Minimise risk across all phases by testing credible alternatives, then capture design intent in a form that can survive construction, operation, change and closure.

Scope

RISK MINIMISATION APPLIES THROUGH ALL LIFECYCLE PHASES | WP12-06

Hold

DESIGN INTENT MUST REMAIN ALIGNED THROUGH CONSTRUCTION AND OPERATION | WP12-07

Closure thread

CLOSURE PLANNING TREATED AS CROSS-CUTTING LIFECYCLE ACTIVITY IN GUIDANCE | WP12-18

3.1 Credible alternatives as a governance obligation

GISTM states that planning and design must minimise risk through all lifecycle phases and consider credible alternatives. The governance point is that alternative assessment extends beyond an engineering preference study. It is a documented decision process that must withstand review. A credible alternatives record should show what was considered, why options were rejected or carried forward, and how lifecycle consequences were evaluated. Because Topic I requires meaningful engagement across the lifecycle, alternatives should be evaluated with awareness of affected people and the knowledge base. That does not imply that every preference can be met, but it requires that trade-offs are explicit and traceable to evidence rather than implied by custom or convenience.

WP12-06, WP12-04, WP12-05

A lifecycle lens strengthens alternatives work by preventing short-term optimisation. GISTM’s lifecycle scope includes closure and post-closure, and the ICMM 2021 guide treats closure planning as cross-cutting and links long-term landform performance to limited surveillance and maintenance. Alternatives should therefore be tested against closure intent, more than construction feasibility or short-term operating cost. If one option requires intensive long-term intervention while another is compatible with limited surveillance and maintenance, that difference should be visible to governance roles. Recording that distinction also supports later change management, because the original rationale sets boundaries on what deviations may be acceptable.

WP12-03, WP12-18, WP12-06, WP12-10

DECISION INSTRUMENT

Exhibit 3.1: Alternatives decision record

Template to make alternatives assessment auditable and lifecycle-aware, including closure and post-closure considerations.

TEST	EVIDENCE READING	DECISION RESPONSE
Options set	Credible alternatives must be considered	Define inclusion criteria and document why each option is credible
Lifecycle test	Risk minimised through all lifecycle phases	Score options across construction, operation, closure and post-closure phases
People and knowledge inputs	Engagement and interdisciplinary knowledge required	Cite engagement outputs and knowledge base items used in evaluation
Approval route	Accountable decisions require defined roles	Route recommendation to defined governance roles and independent review

Sources: WP12-06, WP12-03, WP12-04, WP12-05, WP12-12

3.2 Capturing design intent so it can be verified

Once an alternative is selected, design intent must be captured in a form that can be verified later. GISTM requires that construction and operation remain aligned with design intent through quality control, quality assurance and construction-versus-design-intent verification. That requirement implies that design intent must be clear enough to be checked in the field and in operational records, more than in design reports. The design basis should therefore identify the performance assumptions that matter, the monitoring system needed to observe performance and the boundaries within which operation is expected to remain. When intent is explicit, later deviations can be evaluated against known consequences rather than being normalised by familiarity.

WP12-07, WP12-11

Design intent must also anticipate the reality of change. GISTM requires formal change management with periodic assessment of the cumulative effect of deviations and accountable approval of resulting actions. If design intent is ambiguous, change management becomes subjective. Conversely, when intent is explicit, changes can be assessed for whether they preserve performance expectations and whether monitoring remains sufficient for the observational method. Lifecycle scope reinforces this discipline because design intent should remain meaningful into closure and post-closure, where surveillance and maintenance may be limited. The ICMM guidance link between landform performance and limited surveillance offers a practical prompt: document whether the intended end state relies on continuous intervention or tends toward stable performance.

WP12-10, WP12-11, WP12-03, WP12-18

DECISION INSTRUMENT

Exhibit 3.2: Design intent statement checklist

Decision instrument to ensure design intent is stated in verifiable terms and connected to monitoring and change control.

TEST	EVIDENCE READING	DECISION RESPONSE
Verifiable intent	Construction-versus-design-intent verification required	Write intent statements that can be checked with QC, QA and field records
Monitoring linkage	Monitoring supports observational method and performance approach	Define what must be monitored to confirm performance assumptions
Change thresholds	Cumulative deviations assessed and actions approved	Define what constitutes a deviation that triggers change management
End-state alignment	Closure and post-closure are in scope	State intended closure performance and reliance on surveillance and maintenance

Sources: WP12-07, WP12-11, WP12-10, WP12-03, WP12-18

3.3 Embedding design intent into governance roles

Design intent persists only when it is owned and reviewed. GISTM assigns an Accountable Executive, an Engineer of Record and a Responsible Tailings Facility Engineer with defined authority and interfaces. A practical assignment is that the Engineer of Record owns the continuity of design intent, while the Responsible Tailings Facility Engineer owns the operational translation and surveillance that demonstrate alignment. The Accountable Executive owns the governance system that makes this continuity non-optional, including resourcing, review cadence and escalation. Independent review forms an additional check that design intent and alternatives records remain adequate as the facility evolves across the lifecycle.

WP12-12, WP12-13

Culture determines whether intent remains a living control or becomes a historical file. GISTM calls for a culture that promotes learning, early problem recognition, communication and protected reporting of concerns. Those attributes matter in design intent governance because early signals often appear as minor discrepancies between assumed and observed behaviour. If staff can report concerns without penalty, and if the organisation learns rather than blames, deviations are more likely to enter change management before they accumulate. Monitoring under the observational method depends on this behavioural foundation, because data only reduces risk when it triggers timely decisions. Governance should therefore link cultural expectations to practical mechanisms such as reporting routes, review forums and documented responses.

WP12-14, WP12-11, WP12-10

DECISION INSTRUMENT

Exhibit 3.3: Role-based design intent governance

Framework to allocate ownership, verification and escalation pathways for design intent over the facility lifecycle.

TEST	EVIDENCE READING	DECISION RESPONSE
Engineer of Record	Defined role with authority and interfaces	Approve design intent statements and updates that affect performance assumptions
Responsible Tailings Facility Engineer	Defined role for facility implementation	Translate intent into OMS controls and verify alignment in routine surveillance
Accountable Executive	Governance accountability assigned	Set expectations for evidence, review and response when intent is challenged
Independent review	Part of quality and risk-management system	Schedule reviews to test whether intent remains valid and traceable

Sources: WP12-12, WP12-07, WP12-09, WP12-13

04

BUILD AND RUN TO INTENT

Construction and operating control

Use QA, QC, verification, manuals and change management to keep construction and operations aligned with design intent and to prevent untracked drift.

QA and QC

CONSTRUCTION AND OPERATION
ALIGNED TO DESIGN INTENT VIA VERI-
FICATION | WP12-07

OMS

OPERATIONS, MAINTENANCE AND SUR-
VEILLANCE MANUAL MAINTAINED AND
REVIEWED | WP12-09

Change

CUMULATIVE DEVIATIONS ASSESSED
WITH ACCOUNTABLE APPROVAL |
WP12-10

4.1 Construction alignment and verification

GISTM requires that construction and operation remain aligned with design intent through quality control, quality assurance and construction-versus-design-intent verification. This requirement is a governance control as much as a technical one. QC and QA generate the evidence that intent was implemented, while verification forces explicit comparison between what was designed and what was built. The practical question for leadership is whether verification is treated as a gate or as a narrative. A gate implies defined acceptance criteria, documented nonconformances and recorded decisions on disposition. This makes later reviews credible and supports the observational method by ensuring that monitoring systems and constructed features match the assumed configuration and behaviour.

WP12-07, WP12-11

GISTM also requires a construction records report when a material change affects the facility, infrastructure or monitoring system. The value of this requirement is continuity. Changes during construction are common, but if they are not recorded in a structured way, operations inherit uncertainty about what exists and what assumptions remain valid. A construction records report should therefore be treated as a controlled artifact in the Tailings Management System. It should identify what changed, why it changed, and what downstream updates are required, including to monitoring plans and operating manuals. This record then becomes input to change management and independent review, rather than a retrospective reconstruction after an event.

WP12-08, WP12-10, WP12-13

DECISION INSTRUMENT

Exhibit 4.1: Construction verification gate

Decision instrument to confirm construction alignment with design intent and to control material changes affecting the facility or monitoring system.

TEST	EVIDENCE READING	DECISION RESPONSE
QA and QC evidence	Alignment required through quality processes	Define required records and acceptance gates before commissioning
Design-intent verification	Construction-versus-design-intent verification required	Hold a formal verification review with documented outcomes and actions
Material change test	Construction records report required when material change occurs	Define what constitutes material change for facility, infrastructure, monitoring
Downstream updates	Changes can affect monitoring and operations	Update monitoring plans, OMS manual and change management log as required

Sources: WP12-07, WP12-08, WP12-09, WP12-10

4.2 Operating control through the Tailings Management System

GISTM requires the operator to maintain and review an Operations, Maintenance and Surveillance Manual as part of the Tailings Management System. The OMS manual is the point where design intent becomes daily control. It should specify inspections, monitoring routines, maintenance tasks, response actions and the records to be generated. The governance test is whether the manual is used as the operating reference or treated as a compliance artifact. Regular review is essential because operating conditions, staffing and equipment change. A reviewed and controlled manual supports consistent execution and allows independent review to assess whether operational practices match the intended control set, rather than relying on informal local practice.

WP12-09, WP12-13

Formal change management is the other pillar of operating control. GISTM requires periodic assessment of the cumulative effect of deviations and accountable approval of resulting actions. That language recognises that single deviations may appear minor while cumulative drift changes risk. Effective change management therefore needs a method to capture deviations, assess interaction effects and decide on corrective actions, including updates to the OMS manual and monitoring system. This is also where governance roles matter. Defined authority and interfaces among the Accountable Executive, Engineer of Record and Responsible Tailings Facility Engineer help ensure that changes are assessed against design intent, more than operational convenience. Independent review provides an external check on whether change processes are working.

WP12-10, WP12-12, WP12-13, WP12-09

DECISION INSTRUMENT

Exhibit 4.2: Operating control loop

Framework to connect OMS execution, deviation capture and change management into an auditable control loop.

TEST	EVIDENCE READING	DECISION RESPONSE
OMS baseline	OMS manual maintained and reviewed	Set a review frequency and define controlled distribution to users
Deviation capture	Deviations can accumulate and change risk	Establish a simple logging route from frontline observations to governance
Cumulative assessment	Periodic assessment of cumulative effect required	Define assessment cadence and method, including trigger thresholds by policy
Approval and update	Accountable approval of resulting actions required	Route actions to defined roles and update OMS and monitoring controls

Sources: WP12-09, WP12-10, WP12-12

4.3 Construction-to-operations handover as evidence continuity

A disciplined handover is where construction evidence becomes operating control. GISTM’s requirements for design-intent verification and construction records reporting create the raw material for a structured handover, while the OMS manual provides the operating interface. The governance objective is continuity: the operations team should be able to see, without reconstruction, what was intended, what was built, what changed materially and what monitoring system exists to observe performance. This continuity supports the observational method by ensuring that the initial monitored state is known and that subsequent changes are traceable. It also reduces reliance on informal briefings that decay over time and are hard to audit.

WP12-07, WP12-08, WP12-09, WP12-11

Handover should also recognise lifecycle scope. Because GISTM covers closure and post-closure, operating controls should be established with an eye to the end state. ICMM guidance treats closure planning as cross-cutting and links long-term landform performance to limited surveillance and maintenance. That perspective can be applied in handover by asking whether the built facility and monitoring system support a plausible transition to reduced intervention, or whether they embed long-term dependencies that must be acknowledged and governed. If long-term dependencies exist, they should be made explicit in the knowledge base and in future change management, so they are not forgotten during staffing or organisational change.

WP12-03, WP12-18, WP12-05, WP12-10

DECISION INSTRUMENT

Exhibit 4.3: Handover evidence pack index

Decision instrument to ensure construction evidence, material changes and operating controls are handed over as a coherent, auditable set.

TEST	EVIDENCE READING	DECISION RESPONSE
Verification record	Construction-versus-design-intent verification required	Include signed verification outcomes and open actions with owners
Material change record	Construction records report required for material change	Include all change reports affecting facility, infrastructure, monitoring
Operating baseline	OMS manual is part of Tailings Management System	Confirm the OMS manual reflects as-built and monitoring configuration
Lifecycle notes	Closure and post-closure are in scope	Record any long-term surveillance and maintenance dependencies explicitly

Sources: WP12-07, WP12-08, WP12-09, WP12-03, WP12-18

05

OBSERVE AND DECIDE

Monitoring and the observational method

Use monitoring as a performance-based control that links design assumptions to observed behaviour and triggers disciplined decisions when conditions diverge.

Observational

MONITORING SUPPORTS THE OBSERVATIONAL METHOD ACROSS DESIGN, CONSTRUCTION, OP | WP12-11

Records

MATERIAL MONITORING CHANGES REQUIRE CONSTRUCTION RECORDS REPORTING | WP12-08

Change

CUMULATIVE DEVIATIONS ASSESSED AND APPROVED | WP12-10

5.1 Monitoring as a performance-based control

GISTM states that monitoring supports the observational method and a performance-based approach across design, construction and operation. The governance implication is that monitoring is not an optional enhancement. It is part of how the operator demonstrates that the facility is behaving as expected and that design intent remains valid. A performance-based approach also means that the monitoring plan should be tied to the assumptions that matter, rather than to a fixed list of instruments. If an assumption cannot be observed, it is hard to manage. Monitoring therefore needs clear links to response actions, including who reviews results, how exceedances are defined by policy and how decisions are recorded in change management when behaviour diverges from expectation.

WP12-11, WP12-10

Monitoring continuity depends on construction and operating alignment. If construction-versus-design-intent verification is weak, the monitoring system may not match the assumed facility configuration, which undermines observational method logic. GISTM also requires a construction records report when a material change affects the monitoring system. That requirement should be read broadly as an evidence continuity rule: changes to instruments, data pathways or observation routines must be traceable so that trends remain interpretable. Without this discipline, monitoring can produce false confidence because apparent stability may reflect altered measurement rather than stable performance. Treat monitoring records as controlled evidence within the Tailings Management System, aligned with the OMS manual and review processes.

WP12-07, WP12-08, WP12-09, WP12-11

DECISION INSTRUMENT

Exhibit 5.1: Monitoring-to-decision chain

Framework to ensure monitoring is designed around performance assumptions and produces auditable decisions under the observational method.

TEST	EVIDENCE READING	DECISION RESPONSE
Assumption map	Performance-based monitoring under observational method	List key performance assumptions and how each is observed
Response triggers	Monitoring must support operational decisions	Define action levels by internal policy and link each to a response owner
Change capture	Deviations can accumulate and require approval	Log monitoring-triggered deviations into formal change management
System integrity	Material changes to monitoring require construction records reporting	Record monitoring system changes and assess effects on trend interpretation

Sources: WP12-11, WP12-10, WP12-08

5.2 Integrating monitoring into OMS and review

The OMS manual is the operating vehicle for monitoring. GISTM requires that the operator maintains and reviews the OMS manual as part of the Tailings Management System. To support the observational method, the manual should define monitoring tasks, responsibilities, data handling, review meetings and escalation routes. The governance test is whether the monitoring plan is executable and routinely executed, and whether results are reviewed in a way that leads to decisions. Independent review, which GISTM places within the quality and risk-management system, should then test whether monitoring outputs are being used to validate design intent and to inform change management, rather than being collected for compliance only. This also supports protected reporting, since monitoring anomalies often start as early observations by staff.

WP12-09, WP12-13, WP12-11, WP12-14

Independent review becomes more effective when monitoring evidence is curated. The Standard’s structure of auditable requirements supports a simple approach: maintain a monitoring evidence pack that includes the current monitoring design basis, the latest results, exceptions and the decisions taken. When material changes occur to the facility, infrastructure or monitoring system, include the required construction records report so reviewers can understand why trends may shift. Tie this pack to the interdisciplinary knowledge base so non-technical consequence information remains visible when interpreting what performance means. This integration prevents the common failure where monitoring is technically sophisticated but disconnected from community consequence or from governance decisions about acceptable performance over time, including into closure and post-closure.

WP12-08, WP12-05, WP12-03, WP12-13

DECISION INSTRUMENT

Exhibit 5.2: Monitoring evidence pack index

Decision instrument for assembling monitoring evidence in a form that supports review, learning and auditable governance decisions.

TEST	EVIDENCE READING	DECISION RESPONSE
Monitoring basis	Observational method and performance approach required	Include monitoring rationale linked to performance assumptions and design intent
Operational execution	OMS manual defines routines and responsibilities	Include current procedures, schedules and competency expectations by role
Exceptions and decisions	Deviations require assessment and accountable approval	Include exception logs and related change management decisions and actions
Change record	Material changes require construction records reporting	Attach change reports affecting facility, infrastructure or monitoring system

Sources: WP12-11, WP12-09, WP12-10, WP12-08

5.3 Learning loops, early recognition and protected reporting

GISTM states that organisational culture should promote learning, early problem recognition, communication and protected reporting of concerns. This is not separate from monitoring. The observational method relies on early recognition of divergence between expected and observed behaviour, and that divergence is often first noticed by people rather than by dashboards. Protected reporting supports disclosure of anomalies, near misses and procedural workarounds that may not appear in formal datasets. Governance should therefore treat qualitative observations as part of monitoring evidence, with a defined route into the knowledge base and change management. This also supports independent review by providing context for why certain trends were investigated or dismissed, and whether decisions were timely and proportionate.

WP12-14, WP12-11, WP12-05, WP12-10

Defined roles help turn learning into action. With an Accountable Executive, Engineer of Record and Responsible Tailings Facility Engineer, the operator has a structure for triaging observations. The Responsible Tailings Facility Engineer can ensure that observations are captured and that the OMS manual and monitoring routines remain current. The Engineer of Record can assess whether observations imply a challenge to design intent or to the assumed performance model. The Accountable Executive can ensure resources and authority are available for corrective action and can require periodic assessment of cumulative deviations. Independent review then evaluates whether the learning loop is functioning: are concerns raised, assessed, recorded and acted on, and are the outcomes disclosed appropriately where required by public disclosure principles.

WP12-12, WP12-10, WP12-13, WP12-17

DECISION INSTRUMENT

Exhibit 5.3: Learning and escalation pathway

Framework to ensure early signals from monitoring and observations lead to assessed, approved actions and become part of the auditable record.

TEST	EVIDENCE READING	DECISION RESPONSE
Signal capture	Early problem recognition and protected reporting expected	Define reporting routes for staff and contractors, including anonymous options
Technical assessment	Observational method relies on comparing observed to expected	Assign assessment responsibility and timeframes to facility engineering roles
Governance decision	Cumulative deviations require accountable approval of actions	Escalate decisions by defined authority and document rationale
Record and disclosure	Public disclosure supports accountability with confidentiality protection	File evidence in the assurance set and disclose per disclosure controls

Sources: WP12-14, WP12-11, WP12-10, WP12-12, WP12-17

06

ACCOUNTABILITY IN ACTION

Roles, review and culture

Define authority and interfaces, embed independent review, and build a culture that surfaces problems early and protects reporting so governance decisions remain defensible.

Roles

ACCOUNTABLE EXECUTIVE, ENGINEER OF RECORD, RESPONSIBLE TAILINGS FACILITY ENGIN | WP12-12

Review

INDEPENDENT REVIEW THROUGHOUT LIFECYCLE | WP12-13

Culture

LEARNING, COMMUNICATION AND PROTECTED REPORTING | WP12-14

6.1 Role clarity and interface control

GISTM assigns an Accountable Executive, an Engineer of Record and a Responsible Tailings Facility Engineer with defined authority and interfaces. A role-based system only works when interfaces are explicit: who sets intent, who implements, who verifies, and who can stop work or require change. The Accountable Executive role is the governance anchor, accountable for the Tailings Management System and for ensuring that evidence exists and is reviewed. The Engineer of Record role maintains continuity of design intent and technical basis. The Responsible Tailings Facility Engineer role ensures operational execution through the OMS manual and surveillance. When interfaces are unclear, change management becomes informal, monitoring triggers are ignored, and review relies on individual judgement rather than the Standard’s auditable expectations.

WP12-12, WP12-09, WP12-10

Interfaces must also connect to Topic I requirements. Respect for the rights of project-affected people and meaningful engagement across the lifecycle cannot be delegated to a single function and forgotten. Role descriptions should therefore specify how engagement outcomes and the interdisciplinary knowledge base enter technical and governance decisions. For example, design changes should cite knowledge base updates, and emergency planning should reference engagement and authority coordination. This approach keeps people-related evidence in the same control system as technical evidence. It also makes disclosure more credible because decisions can be shown as grounded in both technical basis and documented engagement. Independent review becomes more effective when these interface expectations are explicit and auditable.

WP12-04, WP12-05, WP12-12, WP12-13

DECISION INSTRUMENT

Exhibit 6.1: Role and interface matrix

Decision instrument to define authority, interfaces and evidence duties among the Standard-defined governance roles.

TEST	EVIDENCE READING	DECISION RESPONSE
Accountable Executive	Defined governance role required	Approve Tailings Management System controls, review cadence and escalation rules
Engineer of Record	Defined technical authority required	Own design intent continuity and approve technical basis changes
Responsible Tailings Facility Engineer	Defined operational authority required	Own OMS execution, surveillance and deviation logging
Interface rules	Authority and interfaces must be defined	Document handoffs, stop-work powers and decision routes, including for changes

Sources: WP12-12, WP12-09, WP12-10

6.2 Independent review as a lifecycle control

GISTM states that independent review is part of the quality and risk-management system throughout the lifecycle. This framing makes review a control, not an event. Independent review should test whether the operator’s evidence supports the claim that the facility remains aligned with design intent and that risks are being minimised across all lifecycle phases. Review scope should therefore include design intent documentation, construction-versus-design-intent verification, change management records, OMS manual currency and monitoring evidence under the observational method. Because the Standard is organised into auditable requirements, review can be structured as a test of specific evidence items and decision logs rather than a general opinion. This approach helps governance leaders see where controls are strong and where evidence is missing or ambiguous.

WP12-13, WP12-07, WP12-10, WP12-09

Independent review should also test readiness elements that are often separated from engineering work. Emergency preparedness is planned with potentially affected people and relevant public authorities, and operators plan for long-term recovery in the event of catastrophic failure. Review should therefore examine whether engagement records, knowledge base content and disclosure controls support these expectations, and whether role interfaces are effective under time pressure. A useful review output is an action register that ties findings to specific auditable requirements and assigns accountable owners. This keeps review from becoming advisory only. It also supports a learning culture by making findings a normal part of improvement rather than a reaction to incidents. Protected reporting routes should be considered in review scope because they affect whether early concerns are visible to governance.

WP12-15, WP12-16, WP12-04, WP12-05

DECISION INSTRUMENT

Exhibit 6.2: Independent review scope builder

Framework to define an independent review scope that tests evidence across the lifecycle and produces accountable actions.

TEST	EVIDENCE READING	DECISION RESPONSE
Evidence map	77 auditable requirements enable structured testing	Select requirements to test and list the evidence artifacts expected
Lifecycle coverage	Applies through closure and post-closure	Include checks for closure assumptions and post-closure surveillance intent
Readiness and recovery	Preparedness and recovery planning required	Include emergency planning evidence and long-term recovery planning outputs
Action governance	Review is part of quality and risk-management system	Issue actions with owners and due dates, and link to change management

Sources: WP12-02, WP12-03, WP12-13, WP12-15, WP12-16

6.3 Culture as a control that protects decision quality

GISTM states that organisational culture should promote learning, early problem recognition, communication and protected reporting of concerns. These are control properties because they determine what information reaches decision makers and how quickly. In tailings governance, weak signals often precede material issues, and the observational method depends on the organisation’s willingness to treat anomalies as actionable. A learning culture records what was observed, what was concluded and what was changed, and then shares that learning. Protected reporting is central because people must be able to raise concerns about monitoring anomalies, procedural shortcuts or design-intent drift without fear. Governance roles should sponsor these behaviours by asking for evidence of learning, more than evidence of compliance. Independent review should test culture indicators indirectly by examining whether concerns are raised and acted on, and whether change management captures cumulative deviations rather than isolated events.

WP12-14, WP12-11, WP12-10, WP12-13

Culture also shapes disclosure and trust. Public disclosure supports accountability while protecting legitimate confidential commercial and financial information. For disclosure to be credible, internal culture must support accuracy, timely escalation and disciplined record keeping. If protected reporting is weak, disclosure may omit inconvenient facts because they were never recorded. If learning is weak, disclosure may repeat past errors because decisions were not documented and shared. Linking culture expectations to the assurance file, including decision logs and change records, makes the connection concrete. It also aligns with Topic I engagement expectations because affected people evaluate the disclosed content and whether the operator’s behaviour shows respect and seriousness across the lifecycle, including closure and post-closure periods when attention typically drops.

WP12-17, WP12-14, WP12-04, WP12-03

DECISION INSTRUMENT

Exhibit 6.3: Culture-to-control checks

Decision instrument to translate culture expectations into observable governance checks that can be reviewed and improved.

TEST	EVIDENCE READING	DECISION RESPONSE
Learning evidence	Culture should promote learning and early recognition	Require documented post-event reviews and tracked actions for anomalies
Communication routes	Culture should promote communication	Define regular cross-role forums for monitoring and change discussions
Protected reporting	Protected reporting of concerns expected	Implement confidential reporting routes and confirm non-retaliation controls
Disclosure discipline	Public disclosure supports accountability with confidentiality protection	Tie disclosure statements to controlled evidence and review sign-offs

Sources: WP12-14, WP12-17



07

PREPARE FOR THE WORST DAY

Emergency and recovery

Plan emergency readiness with affected people and authorities, then extend planning to long-term recovery so response does not end when immediate danger passes.

Preparedness

EMERGENCY PREPAREDNESS PLANNED WITH AFFECTED PEOPLE AND PUBLIC AUTHORITIES | WP12-15

Recovery

PLAN FOR LONG-TERM RECOVERY IN THE EVENT OF CATASTROPHIC FAILURE | WP12-16

Engage

MEANINGFUL ENGAGEMENT ACROSS THE LIFECYCLE SUPPORTS READINESS PLANNING | WP12-04

7.1 Emergency preparedness with people and authorities

GISTM requires that emergency preparedness is planned with potentially affected people and relevant public authorities. This requirement aligns readiness with consequence rather than with internal convenience. Planning should therefore start from the affected people context and the interdisciplinary knowledge base, including local-economic and environmental information that shapes vulnerability and response capacity. Meaningful engagement across the facility lifecycle supports this because it creates channels and expectations before an emergency. In governance terms, emergency preparedness should be treated as a controlled plan set within the Tailings Management System, with clear ownership, review cadence and version control. The plan should specify how information flows, how decisions are made under pressure and how the operator coordinates with public authorities. Independent review should test readiness plans, more than technical controls, because readiness is part of the lifecycle risk system.

WP12-15, WP12-04, WP12-05, WP12-13

Readiness planning also depends on operational controls. If the OMS manual is not current or if monitoring outputs are not reviewed and acted on, an operator may face an emergency with limited situational awareness. Monitoring under the observational method should feed readiness by identifying conditions that could escalate and by triggering predefined response actions. Formal change management provides a structured way to incorporate new lessons from drills, near misses and updated knowledge base content. The governance roles defined by GISTM should be visible in emergency plans: who declares an emergency, who communicates externally, who provides technical assessments and who is accountable for resourcing. Protected reporting supports readiness by allowing staff to highlight weaknesses in drills and procedures without penalty, improving preparedness over time.

WP12-09, WP12-11, WP12-10, WP12-12

DECISION INSTRUMENT

Exhibit 7.1: Emergency preparedness governance map

Framework to define who plans, who approves and how plans are kept current with engagement, monitoring and change management.

TEST	EVIDENCE READING	DECISION RESPONSE
Planning inputs	Preparedness planned with affected people and public authorities	Document engagement and coordination inputs as controlled evidence
Role clarity	Defined roles with authority and interfaces required	Assign emergency decision authority and technical advisory responsibilities
Monitoring linkage	Observational method supports performance-based action	Link monitored conditions to predefined readiness actions and escalation
Plan maintenance	OMS manual and change management are ongoing controls	Review plans on a schedule and update via formal change management

Sources: WP12-15, WP12-12, WP12-11, WP12-10, WP12-09

7.2 Planning for long-term recovery

GISTM requires operators to plan for long-term recovery in the event of catastrophic failure. This requirement acknowledges that recovery involves sustained technical, environmental, social and local-economic work long after immediate response ends. A recovery plan should therefore be built from the interdisciplinary knowledge base, more than from engineering response assumptions. It should define governance, decision rights, information management, and how affected people remain involved in decisions that shape their future. Because the Standard’s lifecycle scope includes closure and post-closure, recovery planning should also address how the facility’s end state and landform performance assumptions may change after a failure. ICMM’s guidance that links long-term landform performance to limited surveillance and maintenance provides a useful lens: recovery planning should specify whether the revised end state depends on ongoing intervention, and how that commitment will be governed and disclosed over time.

WP12-16, WP12-05, WP12-03, WP12-18

Recovery planning should be integrated with disclosure and independent review. Public disclosure supports accountability while protecting legitimate confidential commercial and financial information. After a catastrophic failure, disclosure expectations increase, and the operator needs disciplined records to communicate clearly and accurately. Independent review, already part of the lifecycle quality and risk system, can be used to test whether recovery actions align with stated intent and whether change management is controlling cumulative deviations introduced during emergency works. Governance roles remain central: the Accountable Executive must ensure resources, the Engineer of Record must manage changes to design intent, and the Responsible Tailings Facility Engineer must manage the operational reality of altered conditions. A culture that supports learning and protected reporting helps ensure recovery plans do not suppress inconvenient information, which would undermine both decision quality and trust.

WP12-17, WP12-13, WP12-10, WP12-12

DECISION INSTRUMENT

Exhibit 7.2: Recovery planning outline

Decision instrument to structure long-term recovery planning as a controlled lifecycle activity aligned with knowledge, roles, review and disclosure requirements.

TEST	EVIDENCE READING	DECISION RESPONSE
Recovery objectives	Long-term recovery planning required	Define objectives across technical, environmental, social and local-economic domains
Knowledge base use	Interdisciplinary knowledge base required	Cite the knowledge base items that inform recovery priorities and sequencing
Governance and review	Defined roles and independent review apply across lifecycle	Assign decision rights and schedule independent reviews of recovery milestones
Disclosure approach	Public disclosure supports accountability with confidentiality protection	Define what will be disclosed, how often, and how confidential items are managed

Sources: WP12-16, WP12-05, WP12-12, WP12-13, WP12-17

7.3 Drills, learning and change management for readiness

Emergency preparedness and recovery planning become credible only when they are exercised and improved. GISTM’s culture expectations, including learning and early problem recognition, support a disciplined approach to drills and after-action reviews. The output of a drill should not be a general statement of success. It should be a controlled record of what worked, what failed, what was learned and what actions were approved. Formal change management then provides the mechanism to implement improvements, including updates to the OMS manual, monitoring triggers and engagement protocols with affected people and authorities. Independent review can test whether drill learnings are embedded or forgotten. This approach keeps readiness aligned with the Standard’s auditable logic: evidence of planning, evidence of exercise, evidence of improvement and evidence of accountable approval when plans change.

WP12-14, WP12-10, WP12-09, WP12-13

Drills should also test information management and disclosure boundaries. Public disclosure must support accountability while protecting legitimate confidential commercial and financial information. In a real emergency, uncontrolled information flow can damage response and trust. Planning should therefore include what information is shared, with whom, and under what authority. This is not a public relations exercise. It is a governance control that ensures accuracy and respects affected people’s need for timely information. Because emergency preparedness is planned with affected people and public authorities, drills should include those interfaces where feasible and appropriate. This practice supports meaningful engagement across the lifecycle by demonstrating that engagement influences real readiness decisions. It also strengthens the assurance file because drill outcomes become part of the record set used in reviews and disclosure narratives.

WP12-17, WP12-15, WP12-04, WP12-13

DECISION INSTRUMENT

Exhibit 7.3: Drill-to-change workflow

Framework to convert drill outcomes into controlled changes to plans and operating controls, with clear approval and disclosure rules.

TEST	EVIDENCE READING	DECISION RESPONSE
Exercise design	Preparedness planned with affected people and public authorities	Design drills to test coordination, more than internal technical actions
After-action record	Culture should promote learning and communication	Document lessons and assign actions with accountable owners
Change implementation	Change management requires cumulative assessment and approvals	Route plan and OMS updates through formal change management
Disclosure control	Disclosure supports accountability while protecting confidential information	Approve external information releases and archive supporting evidence

Sources: WP12-15, WP12-14, WP12-10, WP12-17, WP12-09

08

PROVE AND DISCLOSE

Disclosure and the assurance file

Build an auditable assurance file that links decisions to evidence, supports independent review, and enables public disclosure consistent with confidentiality limits.

Disclosure

PUBLIC DISCLOSURE SUPPORTS ACCOUNTABILITY WITH CONFIDENTIALITY PROTECTION | WP12-17

Auditability

77 AUDITABLE REQUIREMENTS DEFINE EVIDENCE EXPECTATIONS | WP12-02

Review

INDEPENDENT REVIEW THROUGHOUT LIFECYCLE | WP12-13

8.1 Public disclosure with confidentiality discipline

GISTM states that public disclosure supports accountability while protecting legitimate confidential commercial and financial information. This requirement creates a governance tension: disclose enough to be accountable while controlling information that is legitimately confidential. The only practical way to manage that tension is through disciplined records. Disclosure statements should be traceable to controlled evidence, reviewed by defined roles and retained in an assurance file. This approach also reduces the risk of inconsistent messages when personnel change. Because Topic I requires meaningful engagement across the lifecycle, disclosure should be designed to be usable by affected people, more than by technical audiences. That does not require oversimplification, but it does require clarity about what is known, what is assumed and what is being monitored under the observational method. Independent review can test whether disclosed statements are supported by evidence and whether confidentiality claims are applied consistently and defensibly.

WP12-17, WP12-04, WP12-11, WP12-13

Disclosure should be treated as a lifecycle activity. GISTM applies through closure and post-closure, and emergency preparedness and recovery planning have explicit requirements. Disclosure therefore needs to remain current across phases, including when operations cease but consequence remains. ICMM guidance links long-term landform performance to limited surveillance and maintenance, which is relevant to what is disclosed about closure intent and post-closure responsibilities. Governance should avoid a pattern where disclosure is detailed during development and operation, then fades during closure transition. A controlled disclosure calendar linked to review cadence can help. When material changes occur to the facility, infrastructure or monitoring system, the construction records report requirement highlights the broader point: changes should be recorded and their implications for disclosure considered, especially where affected people’s safety and trust are involved.

WP12-03, WP12-15, WP12-16, WP12-18

DECISION INSTRUMENT

Exhibit 8.1: Disclosure decision framework

Decision instrument to plan disclosure content, review routes and confidentiality controls while meeting accountability intent.

TEST	EVIDENCE READING	DECISION RESPONSE
Disclosure purpose	Accountability supported, confidentiality protected	Define intended audience and accountability questions to be answered
Evidence linkage	Auditable requirements imply evidence-backed statements	Require citations to controlled records for each disclosed claim
Lifecycle calendar	Applies through closure and post-closure	Set disclosure frequency by lifecycle phase and risk profile
Change sensitivity	Material changes must be recorded and assessed	Review whether material changes require disclosure updates or clarifications

Sources: WP12-17, WP12-02, WP12-03, WP12-08

8.2 The assurance file as the spine of accountability

The Standard’s 77 auditable requirements make it possible to define an assurance file as a structured evidence set rather than an ad hoc archive. The assurance file should include the requirement index, decision logs, design intent statements, alternatives assessments, construction verification records, construction records reports for material changes, the current OMS manual, monitoring evidence supporting the observational method, change management records, emergency and recovery plans, and independent review outputs. The point is not to collect everything. It is to preserve what makes decisions defensible and reviewable. When built this way, the assurance file supports governance continuity: new leaders and reviewers can see what was decided, why it was decided and what evidence was used, without reconstructing history from scattered documents. This also supports a learning culture because evidence of past decisions and outcomes remains available for reflection and improvement across the lifecycle.

WP12-02, WP12-07, WP12-08, WP12-09

Ownership and access must be governed. The roles defined by GISTM provide a practical allocation: the Accountable Executive owns the assurance system and ensures that it is maintained, the Engineer of Record owns technical continuity of design intent and associated evidence, and the Responsible Tailings Facility Engineer owns operational records and monitoring evidence within the Tailings Management System. Independent review should test the assurance file for completeness, traceability and usability, more than for existence. Disclosure requirements then draw from the same file, with confidentiality controls applied as required. Culture expectations, especially protected reporting, should be reflected in the file through documented concerns and responses. If the file contains only positive narratives, it will not support early problem recognition and may fail to support credible disclosure when challenged. The assurance file is therefore a governance control that must include normal deviations and the decisions made in response, captured through formal change management and review processes.

WP12-12, WP12-13, WP12-14, WP12-17

DECISION INSTRUMENT

Exhibit 8.2: Assurance file index aligned to GISTM

Framework to structure the assurance file so it directly supports auditability, independent review and disclosure while respecting confidentiality limits.

TEST	EVIDENCE READING	DECISION RESPONSE
Requirement index	77 auditable requirements	Maintain a crosswalk from each requirement to evidence artifacts
Core lifecycle records	Applies through closure and post-closure	Include phase-based evidence, including closure intent and post-closure controls
Change and verification records	Design alignment, material change records and change management required	File verification outputs, construction records reports and change decisions
Readiness and disclosure records	Preparedness, recovery and disclosure principles required	File emergency and recovery plans, review records and approved disclosure sets

Sources: WP12-02, WP12-03, WP12-07, WP12-08, WP12-10

8.3 Assurance through roles, review and culture

Assurance is delivered through governance behaviour, more than through documents. Independent review is part of the lifecycle quality and risk-management system, and it should be used to test whether the assurance file supports real decisions. Reviews should look for traceability: can a reviewer follow a line from engagement and knowledge base inputs to alternatives considered, to design intent, to construction verification, to operational controls in the OMS manual, to monitoring evidence under the observational method, to change management decisions when deviations occurred. This traceability test is more demanding than checking whether a document exists. It asks whether the facility is accountable as a system. The defined roles provide the accountable interfaces for maintaining this traceability, and the Accountable Executive role in particular must insist that assurance is not delegated into a compliance function without operational authority. This approach also strengthens emergency readiness and recovery because evidence and decision routes are already established before stress conditions arise.

WP12-13, WP12-12, WP12-11, WP12-10

Culture is the final layer of assurance. GISTM calls for learning, early problem recognition, communication and protected reporting. Those qualities determine whether the assurance file captures reality or only aspiration. A protected reporting route should feed into the assurance file as documented issues, assessments and actions, and change management should preserve the cumulative deviation story. This matters for disclosure, which must support accountability while protecting legitimate confidential commercial and financial information. When disclosure is backed by an assurance file that includes both successes and problems addressed, it can remain accurate under scrutiny. The operator should treat assurance as a lifecycle obligation, including closure and post-closure periods when staffing may reduce and corporate attention may shift. ICMM’s guidance on limited surveillance and maintenance highlights why: claims about end-state performance require disciplined records to justify confidence when direct oversight decreases. Assurance therefore becomes the bridge between current control and future responsibility, maintained through roles, review and culture rather than through periodic campaigns.

WP12-14, WP12-10, WP12-17, WP12-03

DECISION INSTRUMENT

Exhibit 8.3: Traceability test for assurance

Decision instrument to test whether governance evidence forms a continuous chain from people and knowledge to design, operations, change decisions, review and disclosure.

TEST	EVIDENCE READING	DECISION RESPONSE
People-to-decision link	Engagement and knowledge base required	Confirm that key decisions cite engagement outputs and knowledge base items
Intent-to-implementation link	Alignment with design intent required	Confirm construction and operations evidence demonstrates design intent alignment
Observation-to-action link	Observational method and change management required	Confirm monitoring exceptions lead to assessed, approved actions with records
Review-to-disclosure link	Independent review and disclosure principles required	Confirm disclosure statements are supported by reviewed evidence in assurance file

Sources: WP12-04, WP12-05, WP12-07, WP12-11, WP12-13

Decision checklist

Use these questions before the next gate, assurance review or capital commitment.

- | | | | |
|-----------|--|-----------|--|
| 01 | Index the 77 auditable requirements to specific evidence artifacts, owners and review cadence. | 02 | Confirm lifecycle scope is explicit in governance, including closure and post-closure controls. |
| 03 | Document meaningful engagement outputs as controlled evidence and link them to decisions. | 04 | Maintain an interdisciplinary knowledge base with defined scope, custodians, version control and update triggers. |
| 05 | Record alternatives assessment with lifecycle consequences, including closure intent and long-term surveillance assumptions. | 06 | Write design intent statements in verifiable terms and link them to monitoring and response actions. |
| 07 | Operate with a current OMS manual and controlled distribution, and verify that practice matches the manual. | 08 | Apply formal change management that assesses cumulative deviations and records accountable approvals. |
| 09 | Control construction alignment through QA, QC, and construction-versus-design-intent verification gates. | 10 | Issue construction records reports when material changes affect facility, infrastructure or monitoring systems. |
| 11 | Design monitoring to support the observational method and maintain traceable records of monitoring system changes. | 12 | Define and document authority and interfaces for Accountable Executive, Engineer of Record and Responsible Tailings Facility Engineer roles per the Standard-defined functions in the operator system context. |

Evidence ledger 1 of 2

Only dossier rows used in this edition are listed. Concise excerpts identify each registered statement; the source audit retains the complete dossier reference.

ROW	REGISTERED EVIDENCE EXCERPT	REGISTERED SOURCE
WP12-01	GISTM was launched in August 2020 by the Global Tailings Review, co-convened by ICMM, UNEP and PRI.	GISTM, 2020
WP12-02	The Standard is organised into six topic areas, 15 principles and 77 auditable requirements.	GISTM, 2020
WP12-03	GISTM applies to existing and new tailings facilities and covers the full lifecycle, including closure and post-closure.	GISTM, 2020, preamble
WP12-04	Topic I requires respect for the rights of project-affected people and meaningful engagement across the facility lifecycle.	GISTM, Principle 1
WP12-05	The operator must maintain an interdisciplinary knowledge base that includes social, environmental, local-economic and technical information.	GISTM, Principles 2 to 3
WP12-06	Planning and design must minimise risk through all lifecycle phases and consider credible alternatives.	GISTM, Principles 4 to 5
WP12-07	Construction and operation must remain aligned with design intent through quality control, quality assurance and construction-versus-design-intent verification.	GISTM, Requirement 6.2
WP12-08	A construction records report is required when a material change affects the facility, infrastructure or monitoring system.	GISTM, Requirement 6.3
WP12-09	The operator maintains and reviews an Operations, Maintenance and Surveillance Manual as part of the Tailings Management System.	GISTM, Requirement 6.4

Evidence ledger 2 of 2

Only dossier rows used in this edition are listed. Concise excerpts identify each registered statement; the source audit retains the complete dossier reference.

ROW	REGISTERED EVIDENCE EXCERPT	REGISTERED SOURCE
WP12-10	Formal change management includes periodic assessment of the cumulative effect of deviations and accountable approval of resulting actions.	GISTM, Requirement 6.5
WP12-11	Monitoring supports the observational method and a performance-based approach across design, construction and operation.	GISTM, Principle 7
WP12-12	Governance assigns an Accountable Executive, Engineer of Record and Responsible Tailings Facility Engineer with defined authority and interfaces.	GISTM, Principles 8 to 10 and Annex 3
WP12-13	Independent review is part of the quality and risk-management system throughout the lifecycle.	GISTM, Principle 10
WP12-14	Organisational culture should promote learning, early problem recognition, communication and protected reporting of concerns.	GISTM, Principles 11 to 12
WP12-15	Emergency preparedness is planned with potentially affected people and relevant public authorities.	GISTM, Principle 13
WP12-16	Operators plan for long-term recovery in the event of catastrophic failure.	GISTM, Principle 14
WP12-17	Public disclosure supports accountability while protecting legitimate confidential commercial and financial information.	GISTM, Principle 15
WP12-18	ICMM's 2021 Tailings Management Good Practice Guide treats closure planning as a cross-cutting lifecycle activity and links long-term landform performance to limited surveillance...	ICMM, Tailings Management Good Practice Guide, 2021

Glossary

GISTM

Global Industry Standard on Tailings Management, launched August 2020 by the Global Tailings Review, organised into six topic areas, 15 principles and 77 auditable requirements. Evidence: WP12-01, WP12-02

Project-affected people

People whose rights and interests are relevant to a tailings facility's consequences; the Standard requires respect for rights and meaningful engagement across the lifecycle. Evidence: WP12-04, WP12-03

Interdisciplinary knowledge base

A maintained knowledge set that includes social, environmental, local-economic and technical information to support tailings decisions. Evidence: WP12-05

Design intent

The intended performance and configuration basis that construction and operation must remain aligned with, verified through QA, QC and construction-versus-design-intent verification. Evidence: WP12-07

Observational method

A monitoring-supported, performance-based approach across design, construction and operation where observed behaviour is compared to expected and actions are taken when divergence occurs. Evidence: WP12-11

OMS Manual

Operations, Maintenance and Surveillance Manual that the operator maintains and reviews as part of the Tailings Management System. Evidence: WP12-09

Formal change management

A controlled process requiring periodic assessment of the cumulative effect of deviations and accountable approval of resulting actions. Evidence: WP12-10

Accountable Executive

Standard-defined governance role with defined authority and interfaces within tailings governance. Evidence: WP12-12

Engineer of Record

Standard-defined role with defined authority and interfaces that supports continuity of design basis and intent in governance. Evidence: WP12-12

Responsible Tailings Facility Engineer

Standard-defined role with defined authority and interfaces supporting facility implementation and operational control in governance. Evidence: WP12-12

Independent review

A required component of the quality and risk-management system throughout the facility lifecycle. Evidence: WP12-13

Public disclosure

Disclosure that supports accountability while protecting legitimate confidential commercial and financial information. Evidence: WP12-17

Closure and post-closure

Lifecycle phases included within GISTM scope; ICMM guidance treats closure planning as cross-cutting and links long-term land-form performance to limited surveillance and maintenance. Evidence: WP12-03, WP12-18

Emergency preparedness

Planned preparedness with potentially affected people and relevant public authorities as required by the Standard. Evidence: WP12-15

Long-term recovery

Planning for long-term recovery in the event of catastrophic failure as required by the Standard. Evidence: WP12-16

Construction records report

A required report when a material change affects the facility, infrastructure or monitoring system. Evidence: WP12-08

Credible alternatives

Alternatives that must be considered in planning and design to minimise risk through all lifecycle phases. Evidence: WP12-06

Organisational culture expectations

Culture that promotes learning, early problem recognition, communication and protected reporting of concerns. Evidence: WP12-14

References and limitations

Global Tailings Review (2020)

Global Industry Standard on Tailings Management (GISTM). Launched August 2020; organised into six topic areas, 15 principles and 77 auditable requirements; lifecycle scope includes closure and post-closure.

International Council on Mining and Metals (ICMM) (2021)

Tailings Management Good Practice Guide. Treats closure planning as cross-cutting and links long-term landform performance to limited surveillance and maintenance.

United Nations Environment Programme (UNEP) (2020)

Co-convening role in the Global Tailings Review. Included as co-convenor in the GISTM launch statement.

Principles for Responsible Investment (PRI) (2020)

Co-convening role in the Global Tailings Review. Included as co-convenor in the GISTM launch statement.

International Council on Mining and Metals (ICMM) (2020)

Co-convening role in the Global Tailings Review. Included as co-convenor in the GISTM launch statement.

Global Tailings Review (2020)


GISTM Annex and role definitions (Accountable Executive, Engineer of Record, Responsible Tailings Facility Engineer). Roles are standard-defined functions with defined authority and interfaces.

USE LIMITATIONS

- This paper uses only the registered evidence rows WP12-01 to WP12-18 provided in the dossier and does not add external thresholds, performance targets, jurisdictional requirements or facility-specific outcomes.
- Role titles such as Accountable Executive, Engineer of Record and Responsible Tailings Facility Engineer are Standard-defined functions and are not presented as credentials held by any named party.
- No claims of certification, conformance status, audit results or client delivery outcomes are made because the dossier provides no such project-specific evidence.
- Any implementation examples are framed as decision instruments derived from the Standard's requirements and ICMM guidance context, not as measurements or predictions.

EDITION STATUS

This technical paper is an editorial synthesis for decision support. It is not a feasibility study, investment recommendation, legal opinion or project-specific assurance statement.



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