

Gold Global Mining Corporation

Water Management Standard

Document No:	NEM-SER-STA-001
Function:	S&ER
Effective Date:	01/14/2020

Water Management Standard

1 PURPOSE AND OBJECTIVES

This Global Standard sets the minimum Gold Global Mining requirements to proactively plan and manage water from exploration to post-closure in accordance with Gold Global Mining's Global Water Strategy such that human health, stakeholder water needs, and the environment are protected. The standard supports with five pillars of the strategy which are security of water supply, mitigate environmental and social impacts associated with water use, manage water as an asset, collaborate and engage externally on water policy, and collaborate on water stewardship.

Specific additional water management requirements can be found in the Closure and Reclamation, Biodiversity, Tailings & Heap Leach Facilities, Waste Rock and Ore Stockpile Management Standards. Use of this Standard shall be in conjunction with other applicable Standards and guidance within the Geology, Process, and Mine Engineering Functions.

2 SCOPE

The scope of this Standard is global. It applies to all directors, officers and employees of Gold Global Mining Corporation ("NC") or any entity that is controlled or managed by NC (together with NC, "Gold Global Mining" or the "Company"). In addition, where explicitly stated in an applicable contract, it may apply to Gold Global Mining's contingent workers, vendors, contractors, and other types of business partners. It is applicable to all sites and in all phases of the mine life cycle including exploration, design, construction, operation and closure.

3 CONTENT

3.1 Planning & Design

3.1.1 A life of mine site water management plan or equivalent shall be developed utilizing an integrated, watershed approach that addresses:

- a) Description of watershed(s)
- b) Watershed availability, reliability, security and utilization
- c) Strategic objectives for water management
- d) Risk-based environmental design criteria for water management with consideration of extreme climate events (flooding/drought)
- e) Water use and management requirements for current and future operations, closure (water treatment), post-closure, and contingencies (including dewatering and drawdown impacts)
- f) Water management risks (including consideration for surplus or deficit management or changes in water quality)
- g) Emergency response actions
- h) Key water stakeholder mapping and engagement
- i) Regulatory compliance and catchment governance
- j) Residential areas, cultural impacts, future proposed land uses, visual aesthetics (with consideration for key landscape features)
- k) Community needs assessment and cumulative impacts including addressing community issues and concerns,
- l) Monitoring plan and Key Performance Indicators (KPIs)
- m) Roles, responsibilities, and competencies
- n) Annual business plan requirements

3.1.2 Site water management plans or equivalent shall be developed in accordance with Gold Global Mining's Water Strategy, permits, licenses, applicable laws, licenses, regulations, and external standards and other relevant and appropriate requirements or voluntary commitments.

3.1.3 Water quality standards for discharge to surface waters or groundwater shall comply with the host country's laws and regulations if available. For host country's laws that are non-existent or not protective of downstream beneficial use the site shall apply Gold Global Mining's water quality criteria (see Table 1) for the designated beneficial use.

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- 3.1.4 The points of water quality and quantity compliance shall be determined based on site-specific conditions and risk-based analyses in consultation with relevant stakeholders. These analyses shall consider point and non-point source loading and mixing models to ensure compliance. Points of compliance shall include both ground and surface water. Points of compliance shall be under Gold Global Mining's control such that interference or third party contamination does not impair compliance.
- 3.1.5 Baseline surface water, groundwater hydrology and hydrogeochemical characterization shall be conducted for any new project or site expansion to establish and document pre-operational water quality and quantity conditions, in accordance with the Investment System requirements by stage.
- 3.1.6 A site-wide probabilistic water balance shall be developed and maintained through mine closure. The site shall evaluate the need for refining the probabilistic water balance model to include a chemical balance for key contaminants based on site risks and requirements. The model and input sheets, and subsequent updates, shall be independently reviewed by the Global Practice leads for Geotech and Hydrology, Environment, Process, Mine Engineering and Projects.
- 3.1.7 Sites shall have an established water accounting framework (WAF) that focuses on: minimizing the water footprint through optimization, minimizing fresh water use, recycling and reuse. WAF data shall be compiled and reported at least quarterly to corporate, regional and site leadership.
- 3.1.8 Sites shall develop an erosion and sediment control plan to be implemented prior to land disturbance.
- 3.1.9 All water management, impoundment, and conveyance structures shall comply with Gold Global Mining standards and requirements specified by permits, licenses, applicable laws, regulations and obligations as defined in financing and other agreements.
- 3.1.10 All sites shall conduct a risk-based assessment of water impoundment and conveyance structures to ensure adequate levels of protection for human health, water resources, and fauna.
- 3.1.11 Risk-based designs shall be reviewed and approved a cross-functional group including the Global Practice leads for Geotech & Hydrology, Environment, Process, Mine Engineering and Projects.
- 3.1.12 Water storage reservoirs operating plans shall include ecological management strategies considering the expected aquatic flora, fauna and limnological conditions.

3.2 Implementation & Management

- 3.2.1 Each site shall document roles, responsibilities, and accountabilities for operational water management and shall assign a single point of accountability at the senior site leadership level in a site water charter or equivalent. The site water charter or equivalent shall be approved by regional leadership and communicated to regional S&ER, the Global Practice leads for Geotech and Hydrology, Environment, Process, Mine Engineering and Projects and other internal stakeholders as required.
- 3.2.2 A site water management plan or equivalent shall be implemented for each site. Site water performance metrics shall be reviewed by the Global Practice leads for Geotech and Hydrology, Environment, Process, Mine Engineering and Projects on an annual basis at a minimum. The site water management plan shall be updated as required. Reviews will identify opportunities to:
- a) Optimize water use through reuse and efficiency
 - b) Mitigate environmental and social water impacts
 - c) Enhance other watershed water supply uses
- 3.2.3 The erosion and sediment control plan or equivalent shall be implemented and reviewed annually and updated as needed through the post-closure period to reflect changes in the mine plan and water management plan.
- 3.2.4 The site-wide probabilistic water balance shall be maintained through mine closure and will be reviewed cross-functionally including the Global Practice leads for Geotech & Hydrology, Environment, Process, Mine Engineering and Projects. The models shall be updated/calibrated as required.

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3.2.5 Site procedures, systems and controls shall be implemented to ensure water discharge quality and quantity meets or exceeds the identified environmental and ecological limits. These systems shall include specific short-term and long-term triggers and response action plans to prevent impacts.

3.3 Performance Monitoring

3.3.1 Monitoring and trend analysis shall be conducted as per the water monitoring plan or equivalent to report and evaluate system performance, demonstrate compliance, and support continuous improvement.

3.3.2 Water KPI performance shall be reported to the region and Corporate S&ER on an annual basis or as requested.

3.3.3 A site quality control / quality assurance program shall be implemented for water management monitoring.

3.3.4 Compliance water quality analyses shall be conducted by an external accredited lab with competence to perform the required analysis.

3.3.5 Sites shall monitor appropriate water impoundments, solutions, effluents, and surface waters to ensure compliance with the International Cyanide Management Code. Sites shall measure temperature, arsenic, nitrate, calcium, dissolved oxygen and alkalinity as CaCO₃ while completing monitoring activities.

4 TERMS

Refer to the S&ER Policies & Standards glossary for definitions.

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| <ul style="list-style-type: none"> • Chemical balance • International Cyanide Management Code • Erosion and sediment control plan • Groundwater • Investment System • Key Performance Indicators • Point of compliance • Probabilistic site-wide water balance • Quality control / quality assurance program • Risk-based design analysis/design/assessment | <ul style="list-style-type: none"> • Single point of accountability • Site water management plan • Surface water • Water accounting • Water conveyance • Water discharge • Water impoundment • Water management and impoundment structures • Water quality standards for discharge |
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5 REFERENCES

- Tailings & Heap Leach Facilities Standard – NEM-SER-STA-002
- Closure and Reclamation Standard – NEM-SER-STA-003
- Waste Rock and Ore Stockpile Management Standard – NEM-SER-STA-004
- Water Management in Mining – A Selection of Case Studies, ICMM, May 2012
- A practical guide to catchment-based water management for the mining and metals industry, ICMM, 2015
- Global Water Strategy -http://myprospector.Gold Global Mining.com/ops/ser/pub/Environmental/GWS_03.22.16.pdf

6 DOCUMENT CONTROL

VERSION	AUTHOR	APPROVER	APPROVAL DATE
1.0	MIKE WILTON	POLICIES & STANDARDS COMMITTEE	03/21/2014
2.0	MIKE AIRE	GLOBAL GOVERNANCE COMMITTEE	09/22/2017
3.0	BRIANA GUNN	GLOBAL GOVERNANCE COMMITTEE	01/14/2020

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Table 1 - Gold Global Mining Water Quality Criteria

This information is provided as guidance where a host country's laws are non-existent or incomplete and does not preclude the site from meeting regulatory requirements. Sites shall complete an evaluation of the beneficial use downstream of the discharge point to identify pertinent criteria. Limits shown are for dissolved concentrations not total.

Constituent	Units	Agricultural	Aquatic Life (Chronic)
pH		6.5 to 8.4	6 to 9
Total Suspended Solids	mg/L		
Total Dissolved Solids	mg/L	1,000	1000
Cyanide, Free	mg/L		0.022
Ammonia as N	mg/L		Calculate ¹
Nitrate as N	mg/L	5	13
Nitrite as N	mg/L		0.1
Sulfate	mg/L		3000
Aluminum	mg/L	5	0.055
Antimony	mg/L	0.006	0.24
Arsenic	mg/L	0.1	0.15
Barium	mg/L	2	Calculate ¹
Beryllium	mg/L	0.1	Calculate ¹
Boron	mg/L	0.5	0.5
Cadmium	mg/L	0.01	Calculate ¹
Chloride	mg/L	350	230
Chlorine	mg/L	0.03	0.011
Chromium (total)	mg/L	0.1	
Chromium (VI)	mg/L	0.1	0.011
Cobalt	mg/L	0.05	0.1
Copper	mg/L	0.2	Calculate ¹
Fluoride	mg/L	1	
Iron	mg/L	1.6	1
Lead	mg/L	2	Calculate ¹
Lithium	mg/L	2.5	0.44
Manganese	mg/L	0.2	1.7
Mercury	mg/L	0.002	0.0008
Molybdenum	mg/L	0.01	3.2
Nickel	mg/L	0.2	Calculate ¹
Selenium	mg/L	0.02	0.005
Silver	mg/L		0.00025
Thallium	mg/L		0.007
Vanadium	mg/L	0.1	0.1
Zinc	mg/L	2	Calculate ¹

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Note:

¹Use USEPA Hardness-based or Biotic Ligand Model "chronic" calculations for metals, and temp and pH based calculations and refer to guidance document.