EAGLE GOLD PROJECT

HEAP LEACH AND PROCESS FACILITIES EMERGENCY RESPONSE PLAN

Version 2019-01

MAY 2019

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DOCUMENT CONTROL

Submission History

Version Number	Version Date	Document Description and Revisions Made
2014-01	June 2014	Original submission drafted in June 2014 and submitted as an Appendix to the Heap Leach and Process Facilities Plan submitted August 2014 to the Department of Energy, Mines and Resources in support of an application for a Quartz Mining Licence and to the Yukon Water Board in support of an application for a Type A Water Use License for the full Construction, Operation and Closure of the Project.
2017-01	Nov 2017	Revisions made to reflect the current site general arrangement and submitted to the Department of Energy, Mines and Resources and the Yukon Water Board in advance of Heap Leach Facility construction.
2019-01	May 2019	Revisions made to reflect current personnel position titles, organizational chart and updated reference material and submitted to the Department of Energy, Mines and Resources 60 days prior to operations pursuant to QML-0011.

Version 2019-01 of the Heap Leach and Process Facilities Emergency Response Plan (the Plan) for the Eagle Project has been revised in May 2019 to update Version 2017-01 submitted in November 2017. The table below is intended to identify modifications to the Plan and provide the rationale for such modifications

Version 2019-01 Revisions

Section	Revision/Rationale
2.0 Heap Leach and Process Facilities Emergency Response Plan Purpose	▪ References to updated International Cyanide Management Code material
Table 4.2-1 Emergency Response Designates	▪ Revised to include the Health, Safety and Security Manager to reflect current personnel position titles and organizational chart.
5.3 Communication with Stakeholders	▪ Revised to include the Health, Safety and Security Manager to reflect current personnel position titles and organizational chart.
6.0 Emergency Scenario Causes, Preventative Measures and Response	▪ Revised Section 6.0 for consistency with, and to make reference to, the Cyanide Management Plan and Cyanide Emergency Response Procedures (SGC-CMP-SOP-020).
7.0 Hydrogen Cyanide Information	▪ Updated to reference the Cyanide Emergency Response Procedures (SGC-CMP-SOP-020).

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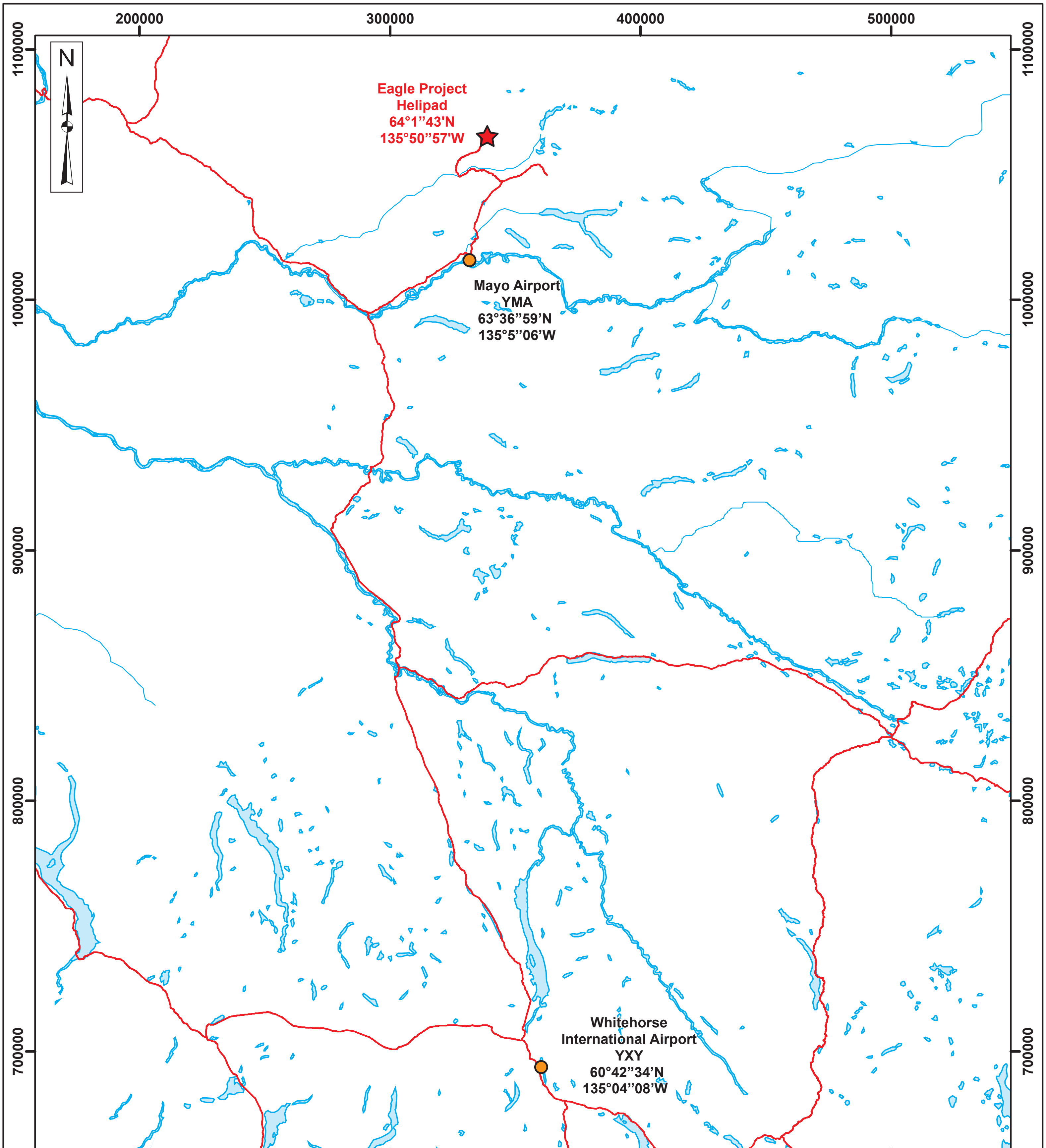
1 INTRODUCTION

StrataGold Corporation (SGC), a directly held wholly owned subsidiary of Victoria Gold Corp. has proposed to construct, operate, close and reclaim a gold mine in central Yukon. The Eagle Gold Project ('the' Project) is located 85 km from Mayo, Yukon using existing highway and access roads as shown on Figure 1.1-1.

The Project will involve open pit mining and gold extraction using a three-stage crushing process, heap leaching, and a carbon adsorption, desorption, and recovery system over the mine life.



Legend:

- Eagle Gold Project
- Watercourse
- Town / Village
- Waterbody
- Major Roadway

StrataGold Corporation

0 12.5 25 50
Kilometres
Scale = As Shown

EAGLE GOLD PROJECT
YUKON TERRITORY

Project Location

Projection:	Drawn By:	Date:	Figure:
Yukon Albers	SS	2014/05/23	1-1

2 HEAP LEACH AND PROCESS FACILITIES EMERGENCY RESPONSE PLAN PURPOSE

The purpose of this Heap Leach Facility Emergency Response Plan (the Plan) is to ensure that an adequate level of emergency preparedness and response is available in the event of an emergency scenario involving the Heap Leach Facility (HLF) or associated structures. The Plan is supplemental to the Eagle Gold Project Emergency Response Plan.

This plan was developed based on the following guidelines:

- Guidelines from the Canadian Dam Association (2013) including the Application of Dam Safety Guidelines to Mining Dams (CDA 2014);
- International Cyanide Management Code (2016);
- Type A and B Quartz Mining Undertakings - Information Package for Applicants (2012); and,
- Plan Requirement Guidance for Quartz Mining Projects (2013).

3 HEAP LEACH AND PROCESS FACILITIES OVERVIEW

The Heap Leach Facility (HLF) is a valley fill design which incorporates an earthfill/rockfill embankment that will provide stability to the base of the heap and the stacked ore. The embankment also creates an In-Heap Pond leaching configuration that provides storage of pregnant solution within the pore spaces of the ore.

The major design components for the HLF include the following: the embankment and the In-Heap Pond; a composite liner system; solution recovery wells; associated piping network for solution collection and distribution; a leak detection and recovery system (LDRS); and a downstream Events Pond to contain excess solution that results from extreme precipitation or emergency events.

3.1 HEAP LEACH EMBANKMENT AND IN-HEAP SOLUTION POND

The embankment is designed as an earthfill/rockfill structure with a geo-membrane lined upstream face to ensure containment integrity. The final embankment crest will be at 939.5 masl and includes an 8 m crest width for road and pipeline access, and 2.5H:1V upstream and downstream slopes.

The In-Heap Pond will store process solution within the pore space of the ore, directly up gradient of the confining embankment. In the event the design capacity is exceeded, the spillway in the In-Heap Pond will enable a controlled discharge of water to the Events Pond.

3.2 EVENTS POND

The Events Pond is sized to provide storage for the Probable Maximum Flood (PMF) storm event from the ultimate HLF (all phases). The PMF event rainfall depth was estimated to be 256 mm which is assumed to contribute entirely over the ultimate HLF pad footprint.

3.3 LINER SYSTEM

The liner for the HLF and the Events Pond will consist of a composite geomembrane and underlying low-permeability bedding material. The primary purpose of the composite liner system is to prevent the loss of process leach solution (PLS) for both environmental and economic reasons.

3.4 OVERLINER DRAIN FILL

The overliner drain fill (ODF) is a layer of crushed material placed over the entire In-Heap Pond and heap leach pad area including the upstream face of the confining embankment. The ODF minimizes the hydraulic head on the liner system to reduce the risk of PLS leakage and protects the liner system from damage during ore placement.

3.5 SOLUTION COLLECTION SYSTEM

Solution will be collected in the high permeability ODF at the base of the heap leach pad, with perforated collection pipes placed within the ODF to increase solution removal rates. The collection pipe network will direct the solution to the sump at the toe of the embankment for pumping through inclined riser pipes to the process plant.

The base of the sump will be constructed below the elevation of the surrounding liner and the liner system and LDRS will extend under the sump. Solution will be pumped from the sump through inclined risers to the process plant. The inclined arrangement will consist of thick-walled, steel pipes to allow for raising and lowering of a submersible pump. Pumps will have the capacity to meet the solution application throughflow. Back-up riser pipes will be installed to maintain access to the sump in the event that any of the riser pipes become blocked.

3.6 LEAK DETECTION AND RECOVERY SYSTEM

A LDRS will be constructed within the In-Heap Pond and the Events Pond and will consist of a monitoring sump equipped with an automatic, fluid-level activated pump located between the top and bottom liners. The pump will be sized to sufficiently remove fluids to minimize head on the bottom liner and will also be connected to a flow meter to provide the volumes recovered over specific time intervals.

3.7 UNDERDRAIN SYSTEM

The HLF underdrain system provides for the collection and drainage of subsurface water beneath the lined facility to limit upward pressure on the facility liner. The underdrain will be constructed with geofabric wrapped around granular drain rock backfill materials and 100 mm perforated pipes placed at regular intervals (approximately 75 m spacing). The drains will convey unaffected subsurface water to collector pipes that will discharge to an outlet monitoring vault. The vault is equipped with a pump system to return flows to the HLF for use as make up water or allow flows to outfall to receiving waters if discharge criteria are met.

3.8 SOLUTION CONVEYANCE AND PUMPING SYSTEMS

Barren solution containing cyanide will be applied to the ore stacked on the HLF to extract the gold. After passing through the ore, this solution will be collected by the solution collection system.

A series of barren solution pumps located at the Adsorption Desorption Recovery (ADR) facility will pump solution to the Heap Leach Pad. A series of pipe headers will distribute the solution to secondary and tertiary headers, and ultimately drip emitters placed under the surface of the ore.

The process pumping system includes pumps, pipelines, valves, and associated controls to move solution between the ADR plant and the HLF.

3.9 METAL RECOVERY AND PROCESSING FACILITY

Gold will be recovered from the PLS by activated carbon adsorption and pressurized cyanide/caustic desorption, followed by electrowinning onto stainless steel cathodes, and then subsequent on-site smelting to gold doré. This process is referred to as the adsorption, desorption and recovery process. The gold-barren leach solution that remains after passing the PLS through the carbon columns will be replenished with reagents for cyanide and pH control and re-circulated back to the HLF as barren solution.

Sodium cyanide briquettes will be added to the system via 1 tonne super sacks. The sodium cyanide will be mixed and then transferred to the cyanide mix storage tank. This concentrated cyanide solution will be metered into the barren solution tank, to the carbon columns, and to the strip solution tank, as required. Sodium hydroxide, or caustic solution, will be used in the system for acid neutralization and for preparing the fresh barren solution.

4 ORGANIZATION AND RESPONSIBILITY

4.1 EMERGENCY RESPONSE

Clearly defined roles and responsibilities are vital for effective and timely response to an emergency situation. The key roles for emergency response related to the Project are described below and depicted in Figure 4.1-1.

Discoverer

The Discoverer is any individual witnessing an emergency on the Project site and is responsible for initiating a Code 1 emergency response. The Discoverer will call out on their current radio channel “Code 1, Code 1, Code 1” and clearly state the nature and location of the emergency. The Discoverer will then change their radio to Channel 1 (Emergency Channel) and repeat “Code 1, Code 1, Code 1” and the nature and location of the emergency. The Discoverer will remain on Channel 1 and await response from the Emergency Responder.

Emergency Responder

The Emergency Responder will respond to the Discoverer on Channel 1 to request confirmation of the nature and location of the emergency. Once the emergency details have been confirmed, the Emergency Responder will provide instructions to the Discoverer on the appropriate immediate response the Discoverer should undertake.

The Emergency Responder will then contact Security who will be responsible for initiating a page for the Emergency Response Team (ERT).

Security

Security is responsible for paging the ERT at the request of the Emergency Responder. If no reply to the initial Code 1 call from the Discoverer is heard from the Emergency Responder, Security will assume the role of Emergency Responder to ensure a timely response.

Emergency Response Team

The ERT will mobilize to the scene and the first, or most senior ERT member, will conduct an initial assessment and assume command of the scene. The ERT team member who assumes control of the scene will not relinquish control of the scene until the arrival of the Emergency Response Coordinator (ERC).

Emergency Response Coordinator

The ERC will mobilize to the scene and, after being briefed on any developments, will assume control of the scene and direct the response of all personnel at the scene. After the ERC has provided direction for the response effort, which may include radioing for additional assistance from First Aid Attendants, he/she will appoint an appropriate ERT member to act as Team Captain and to assume control of the scene. The ERC will then report to the Incident Control Center (ICC) to brief the Incident Commander (IC).

First Aid Attendants

Any First Aid Attendants on the Project site that are not part of the ERT will immediately cease all activity upon hearing the Code 1 and ensure they are in a location where they can clearly hear any radio broadcasts for further assistance. If further assistance is required, they will mobilize to the scene or any other location as directed by the ERC.

If a First Aid Attendant is in the immediate area of the emergency they are to report to the scene and assist with the efforts of the Discoverer or identify themselves to the ERT as a First Aid Attendant and await further instructions.

Incident Commander

The Incident Commander will immediately report to the ICC when a Code 1 response has been initiated. The IC will be responsible for communicating the nature and extent of any emergency to SGC senior management.

Prior to the arrival of related Governmental Agencies, only the IC has the authority to order the evacuation of personnel from the Project site or the authority to give the “All Clear” order, indicating that it is safe to re-enter an area or building following an evacuation.

SGC Senior Management

SGC Senior Management will be responsible for communication with relevant Yukon Government agencies based on information provided by the IC.

All Other Site Personnel

All site personnel that are not directly involved in emergency response efforts will cease work, unless the cessation of their work could result in an emergency situation, and will observe radio silence until an “All Clear” has been given.

Incident Command Center

Each incident in which a Code 1 response has been raised will require the activation of the Incident Control Center. The ICC will be able to receive and send critical communications (telephone, VHF radio and fax) and will be operated continuously throughout the incident. The ICC is located in the Administrative Office Boardroom on site and chaired by the Incident Commander. A secondary location will be established in the SGC Vancouver office.

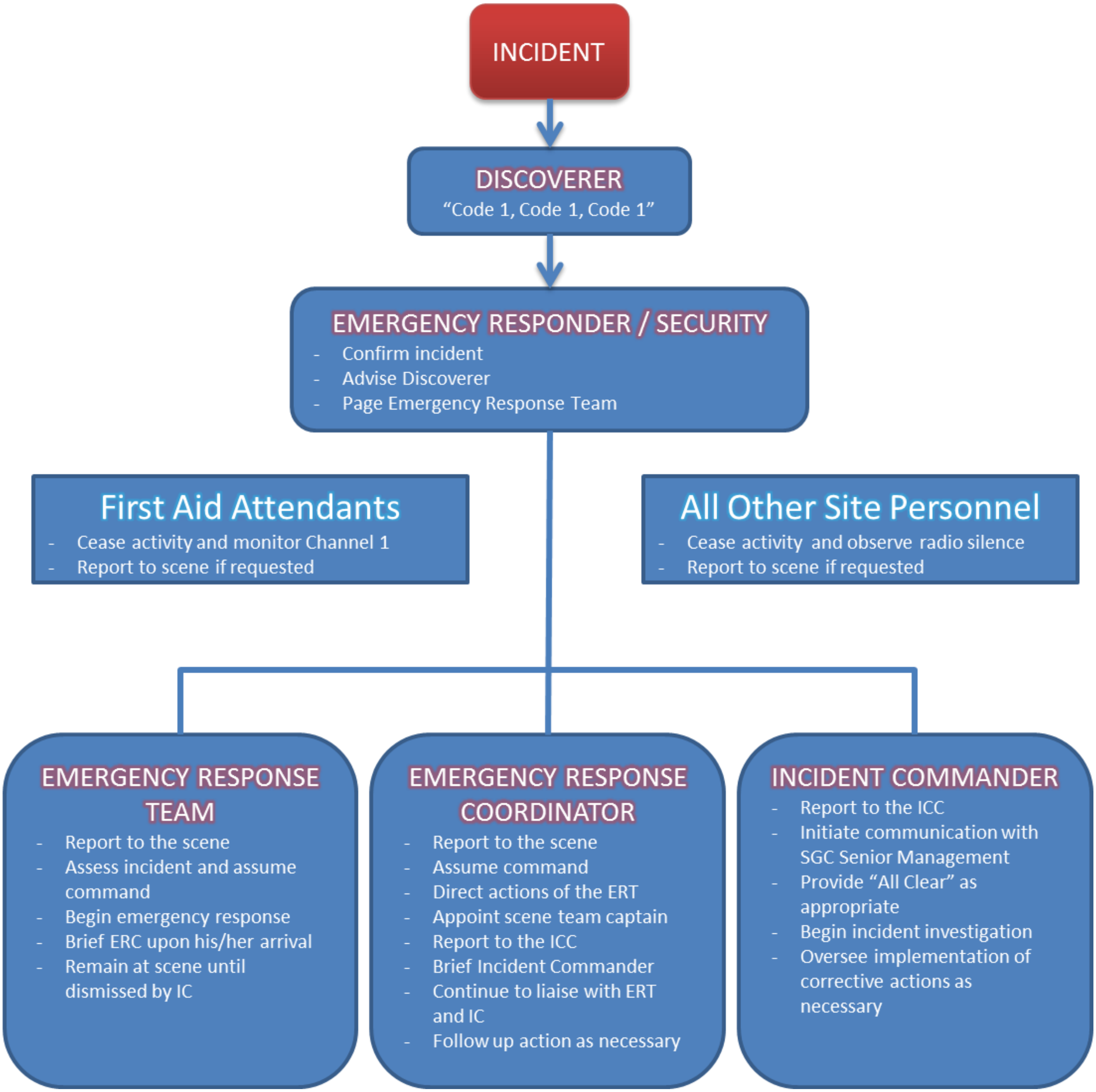


Figure 4.1-1: Emergency Response Organizational Chart

4.2 DELEGATION OF RESPONSIBILITIES

The Project is intended to be a continuous operation with work activities being undertaken 24 hours a day for 365 days a year. Continuous operations require a planned and documented delegation of responsibilities to ensure the integrity of emergency response. The Mine Manager is ultimately responsible for ensuring that all key positions related to emergency response are staffed by competent personnel. The delegates for each of the emergency response positions will be posted in conspicuous locations around the Project site including, but no limited to, the administration building, the dining room, arctic corridors leading to the bunk rooms, the ICC, and at the SGC Vancouver office.

The currently approved delegates for emergency response are provided in Table 4.2-1.

Table 4.2-1: Emergency Response Designates

Emergency Response Position	Project Phase	Primary Personnel	Designate	Minimum Skills/Qualifications
Emergency Responder	Pre-Construction	First Aid Attendant	First Aid Attendant	Occupational First Aid Level 3 WHMIS
	Construction and Operations	ICC & First Aid dedicated First Aid Attendant	ICC & First Aid dedicated First Aid Attendant cross shift	Occupational First Aid Level 3 WHMIS
	Closure	First Aid Attendant	First Aid Attendant	Occupational First Aid Level 3 WHMIS
Security	Pre-Construction	Camp Coordinator	Site Operations	N/A
	Construction and Operations	Health, Safety and Security Manager	Security Officer	N/A
	Closure	Camp Coordinator	Site Operations	N/A
Emergency Response Team	Pre-Construction	Various	Various	Occupational First Aid Level 1 WHMIS
	Construction and Operations	Various	Various	Occupational First Aid Level 1 Surface Mine Rescue WHMIS Industrial Fire Brigade Spill Response Hazardous Materials Handling
	Closure	Various	Various	Occupational First Aid Level 1 WHMIS Spill Response Hazardous Materials Handling
Emergency Response Coordinator	Pre-Construction	Various	Various	Occupational First Aid Level 3 WHMIS Industrial Fire Brigade
	Construction and Operations	Health, Safety and Security Manager	Safety Coordinator	Occupational First Aid Level 3

Emergency Response Position	Project Phase	Primary Personnel	Designate	Minimum Skills/Qualifications
				Surface Mine Rescue WHMIS Industrial Fire Brigade Spill Response Hazardous Materials Handling
	Closure	Various	Various	Occupational First Aid Level 3 WHMIS Industrial Fire Brigade
Incident Commander	Pre-Construction	Site Manager	Camp Coordinator	WHMIS
	Construction and Operations	Mine Manager	Health, Safety and Security Manager	Surface Mine Rescue WHMIS Industrial Fire Brigade Spill Response Hazardous Materials Handling
	Closure	Site Manager	Camp Coordinator	WHMIS Spill Response Hazardous Materials Handling

5 EMERGENCY DETECTION AND CLASSIFICATION

5.1 EMERGENCY DETECTION

As described in operational and environmental management plans developed for the Project, a range of monitoring and inspections will be conducted to ensure that Project features operate as intended. Unusual conditions or emergency events may be detected by the planned monitoring and inspection but may also be detected by:

- Observation by SGC personnel or contractors during the ordinary course of operations
- Observation by government personal (local, territorial, federal), visitors, or the public
- Evaluation of instrumentation data
- Earthquakes felt or reported in the vicinity of the Project
- Advanced warning of conditions that may cause an unusual event or emergency (e.g. severe weather warnings, forest fires, etc.)

Unusual conditions or emergency events are situations that are different from the normal or expected conditions of the heap leach and process facilities. These unusual conditions may indicate problems needing further monitoring, inspection, or corrective measures or may indicate an emergency condition requiring emergency response. Table 5.1-1 provides a description of the emergency levels which may be detected on the Project.

Table 5.1-1: Emergency Levels

Emergency Level		Description
1	Non-failure	Abnormal situation which has not threatened the operation, or structural integrity, of a system.
2	Potential failure developing	Abnormal situation which may eventually lead to a system failure but there is no immediate threat
3	Imminent or actual failure	Extremely urgent situation where a system failure is occurring or its failure is imminent

5.2 EMERGENCY CLASSIFICATION

The design, construction, and operation of the heap leach and process facilities are all intended to mitigate the possibility of an emergency event developing; however, the potential for an emergency event does exist. Table 5.2-1 provides some of the unusual conditions and emergency events that have been planned for and also provides the anticipated emergency level. This information is provided as a general guide only and the professional opinion of qualified personnel should always be strongly considered.

Table 5.2-1: Emergency Level Determination

Project Facility or Event	Unusual Condition	Emergency Level
HLF Spillway	Process solution is spilling to Events Pond	1
	Process solution is spilling to Events Pond which is at 80% of total capacity	2
	Process solution is spilling to Events Pond which is at full capacity	3
Embankment	New cracks in the embankment less than 0.5 cm wide without seepage	1
	New cracks in the embankment greater than 0.5 cm wide without seepage	2
	Cracks in the embankment with seepage	3
	Visual movement/slippage of the embankment slope	2
	Sudden or rapidly proceeding slides of the embankment slopes	3
	Process solution is overtopping embankment crest	3
Events Pond	Events Pond is full to 80% of total capacity	2
	Fluid level has encroached freeboard and rising flow over the Events Pond spillway is imminent or occurring	3
	New cracks in the pond slopes less than 0.5 cm wide without seepage	1
	New cracks in the pond slopes greater than 0.5 cm wide without seepage	2
	Cracks in the pond slopes with seepage	3
	Visual movement/slippage of the pond slopes	2
	Sudden or rapidly proceeding slides of the pond slopes	3
Ore heap	Visual movement/slippage of the ore heap (shallow slope failure)	2
	Sudden or rapidly proceeding slides of the ore heap (deep slope failure)	3
Liner and LDRS	In Heap Pond Alert Level 1 (refer to Table 6.4-1, below)	1
	In Heap Pond Alert Level 2 (refer to Table 6.4-1, below)	2
	Events Pond Alert Level 1 (refer to Table 6.4-2, below)	1
	Events Pond Alert Level 2 (refer to Table 6.4-2, below)	2
Earthquake	Measurable earthquake felt or reported on or within 100 km of the Project	1
	Earthquake resulting in visible damage to the HLF or appurtenances	2
	Earthquake resulting in uncontrolled release of PLS from the HLF	3
Security Threat	Verified threat that, if carried out, could result in damage to the HLF or appurtenances	2
	Detonated bomb or act of sabotage/vandalism that has resulted in damaged to the HLF or appurtenances	3

5.3 COMMUNICATION WITH STAKEHOLDERS

SGC's response and communication procedures for heap leach and process facility scenarios are based on a three-tiered system linked to the emergency levels. Broadly, the three tiers for response and communication are shown in Table 5.1-1.

The tiered communication and emergency level system has been developed so that SGC Senior Management and site personnel are able to notify appropriate communities, government agencies, and other stakeholders of an emergency. Proper communication of an event involving heap leach and process facilities is intended to reduce the likelihood of a panicked response which may exacerbate the emergency.

5.3.1 Tier 1 Communication Protocol

If a scenario is deemed to be a "Non-Failure" situation then the primary communication responsibility is to report the situation to an immediate supervisor and/or the Manager of Health, Safety and Security. The goal of the communication is to ensure that all relevant personnel are aware of the situation so corrective measures can be taken as necessary. Any site personnel made aware of a Tier 1 emergency level event are to limit communication to internal SGC personnel and any decision to communicate the situation to government agencies, the media, or local communities is at the discretion of SGC Senior Management.

5.3.2 Tier 2 Communication Protocol

If a scenario is deemed a "Potential failure developing" situation, the communication level is expanded outside of SGC. The responsibility for this communication is the Mine Manager and/or the Manager of Health, Safety and Security once they have been made aware of the situation. The goal of the communication is to ensure that the relevant government agencies are aware of the situation and are advised that SGC is taking appropriate action to correct the situation and assistance is likely not immediately required.

The organizations to be contacted will vary based on the type of emergency developing, however the Yukon Workers' Compensation Health and Safety Board should be notified (867-667-5450) and at the discretion of the Mine Manager and/or the Manager of Health, Safety and Security the following agencies may also be notified:

- Yukon Emergency Medical Service (EMS) 867-667-3333
- Mayo RCMP 867-996-5555
- Mayo Fire and Ambulance 867-996-2222
- Yukon Spill Report Centre 867-667-7244
- Yukon Water Board 867-456-3980
- Transport Canada CANUTEC 24-hour service 613-996-6666
- Yukon Government - Energy, Mines and Resources CS&I Mayo 867-996-2568
- Yukon Government - Energy, Mines and Resources CS&I Whitehorse 867-456-3882

5.3.3 Tier 3 Communication Protocol

If an “Imminent or actual failure” situation is developing at the Project site, the communication is expanded outside of SGC and includes local stakeholders. This extremely urgent situation may require assistance and has the potential to affect communities.

SGC Senior Management will have responsibility for communicating a Tier 3 emergency; however, if the Mine Manager cannot immediately contact them, the Mine Manager is to assume communication responsibility until SGC Senior Management can assume control.

The organizations to be contacted will vary based on the type of emergency developing, however the Yukon Workers’ Compensation Health and Safety Board must be notified (867-667-5450) and following agencies may also be notified so that they can provide assistance with the response or with the notification of affected communities:

- Yukon Emergency Medical Service (EMS) 867-667-3333
- Mayo RCMP 867-996-5555
- Mayo Fire and Ambulance 867-996-2222
- 24 HOURS Yukon Spill Report Centre 867-667-7244
- Yukon Water Board 867-456-3980
- Transport Canada CANUTEC 24-hour service 613-996-6666
- Yukon Government - Energy, Mines and Resources CS&I Mayo 867-996-2568
- Yukon Government - Energy, Mines and Resources CS&I Whitehorse 867-456-3882

6 EMERGENCY SCENARIO CAUSES, PREVENTATIVE MEASURES AND RESPONSE

To effectively and proactively manage the HLF, there is a need to have a broad understanding of all of the associated uncertainties, risks and consequences. It is important that focusing on one risk component, such as a slope failure, doesn't lead to other components being overlooked. The Failure Modes and Effects Analysis (FMEA) methodology allows a balanced evaluation of the risks associated with various components of a system. A FMEA for the HLF was undertaken to support detailed design and to inform development and operational planning for the Project.

The HLF FMEA identified a range of failure modes over the major HLF components which, during construction and operations, are mitigated by standard engineering and design practices. However, planning for emergency response in the unlikely event that these failure modes are experienced is a key proactive management tool.

In addition to the failure modes identified by the FMEA, consideration is also given to activities associated with the operation of the HLF which would not have implications for the structural and functional integrity of the HLF but could result in an emergency. Specifically, additional considerations to ensure the safe operation of the HLF primarily involve the safe handling and use of cyanide as described in the Cyanide Management Plan and Cyanide Emergency Response Procedures (SGC-CMP-SOP-020).

The following emergency scenarios have been considered for the heap leach and process facilities:

1. HLF embankment failure (hydraulic, structural or seepage)
2. In-Heap Pond solution escape
3. Events Pond failure
4. Liner system failure
5. Solution collection system failure
6. Ore heap slope failure
7. Closure Drain System failure
8. Hydrogen cyanide release from ADR plant
9. Hydrogen cyanide release during transportation

6.1 HEAP LEACH FACILITY EMBANKMENT FAILURE

Incident	HLF Embankment Failure

Potential Causes	• Hydraulic (overtopping of dam crest or erosion of embankment toe):
	  ○ Overtopping of dam crest during runoff event due to spillway plugging
	  ○ Embankment toe erosion due to misdirected spillway outlet discharge
	• Structural (foundation or slope failure):
	  ○ Poor quality control during foundation preparation and embankment fill placement
	  ○ Extraordinary seismic event exceeding projected maximum event
	• Seepage
	  ○ Internal erosion / progressive piping of fines through embankment

Preventative Measures	• Maintain heap water balance operational criteria and follow procedures identified in the HLF Contingency Water Management Plan for solution management • Follow procedures identified in OMS Manual including regular site inspections by mine personnel and dam safety inspections and reviews by engineer • Implement high level of construction quality control and assurance with regular inspections by the engineer • Push snowpack into large piles to decrease rate of snowmelt • Preventative maintenance • Event driven maintenance
Detection Method	• Regular inspection of spillway and outfall by site personnel and engineer • Regular inspection of dam face and toe area by site personnel and engineer • Construction quality control and assurance program • Regular inspection by engineer during construction • Compliance with Canadian Dam Association Technical Bulletin for Seismic Hazard Considerations for Dam Safety • Dam instrumentation • Seepage monitoring

Site Response	• Initiate “Code 1” as per “Initial Response - Code 1 Procedure”
	• Administer first aid as required
	• Evacuate down gradient work areas
	• Immediate notification of SGC Senior Management so communication protocol can be enacted
	• Immediate lowering of PLS volumes to safe levels by any or all of the following methods:
	  ○ Pumping to Events Pond
	  ○ Increasing area under leach (i.e. returning PLS into circulation)
	  ○ Excavation of additional down gradient emergency management pond
	  ○ Pumping to MWTP for treatment and release
	  ○ Pumping to water management ponds (e.g. Lower Dublin South Pond) if appropriate
	  ○ Activating spare vertical turbine pump

Incident	HLF Embankment Failure
	• Buttress embankment with structural fill such as waste rock • Inspect and clear the HLF spillway as necessary • Restore freeboard by placing sandbags if necessary • Contain any spill of PLS to the greatest extent possible
Emergency Level	Tier 3
Potential Effects	• Major damage to multiple pad components • Damage to liner system and loss of product - solution leakage • Damage to collection piping system • Uncontrolled release of ore and solution
Follow Up	• Incident/accident investigation • Inspection by geotechnical engineer • Cease pad loading and new solution application until repair and geotechnical inspection complete • Environmental remediation if PLS is released

6.2 IN HEAP POND SOLUTION ESCAPE

Incident	In Heap Pond Solution Escape
Potential Causes	• Poor quality control during foundation preparation and embankment fill placement • Damage to liner system after construction during ore placement • Failure of electrical or pump system leading to solution buildup in excess of storage capacity • Extraordinary combination of upset events occurring simultaneously resulting in loss of storage in In-Heap Pond

Preventative Measures	• Implement high level of construction quality control and assurance with regular inspections by the engineer
	• Follow procedures identified in OMS Manual including:
	  o stacking plan and ore placement procedures
	  o dam safety inspections and reviews by engineer
	  o monitoring of solution levels
	• Maintain heap water balance operational criteria and follow procedures identified in the HLF Contingency Water Management Plan for solution management
	• Regular inspection of back up electrical and pumping equipment to ensure operability in case of emergency
	• Site electrical system will include switch gear to allow power to be sourced from YEC grid or on site back up diesel generation
	• Design includes operational and backup PLS pumps

Detection Method	• Construction quality control and assurance program
	• Regular inspection by engineer during construction and operation
	• In-Heap Pond Leak Detection and Recovery System (LDRS)
	• In-Heap Pond and flow instrumentation:
	  o Level meter in pond
	  o Flow meters within solution recovery system

Site Response	• Initiate "Code 1" as per "Initial Response - Code 1 Procedure" • Administer first aid as required • Immediate notification of SGC Senior Management so communication protocol can be enacted • Immediate lowering of PLS volumes in Events Pond by pumping of PLS to MWTP for treatment and release • Excavation of additional down gradient emergency management pond • Restore freeboard by placing sandbags if necessary • Inspect and repair any damaged liner and solution collection components • Contain any spill of PLS to the greatest extent possible
Emergency Level	Tier 3
Potential Effects	• Uncontrolled release of solution to environment
Follow Up	• Incident/accident investigation • Inspection by engineer of impacted components

Incident	In Heap Pond Solution Escape
	• Cease pad loading and new solution application until repair and inspection complete • Increased monitoring frequency until effectiveness of response assured • Environmental remediation if PLS is released

6.3 EVENTS POND FAILURE

Incident	Events Pond Failure
Potential Causes	• Poor quality control during foundation preparation and embankment fill placement • Damage to liner system after construction during operations (ice damage, wildlife damage, equipment damage, etc.) • Failure of electrical or pump system leading to solution buildup in excess of storage capacity • Extraordinary combination of upset events occurring simultaneously resulting in loss of storage capacity in Events Pond
Preventative Measures	• Implement high level of construction quality control and assurance with regular inspections by the engineer • Follow procedures identified in OMS Manual including: o stacking plan and ore placement procedures o dam safety inspections and reviews by engineer o monitoring of water levels • Maintain heap water balance operational criteria and follow procedures identified in the HLF Contingency Water Management Plan for solution management • Regular inspection of back up electrical and pumping equipment to ensure operability in case of emergency • Site electrical system will include switch gear to allow power to be sourced from YEC grid or on site back up diesel generation • Design includes both operational and backup PLS pumps
Detection Method	• Construction quality control and assurance program • Regular inspection by engineer during construction and operation • Events Pond Leak Detection and Recovery System (LDRS) • Visual inspections • Water levels in In-Heap Pond and Events Pond • Snowpack levels on heap
Site Response	• Initiate “Code 1” as per “Initial Response - Code 1 Procedure” • Administer first aid as required • Immediate notification of SGC Senior Management so communication protocol can be enacted • Immediate lowering of PLS volumes in Events Pond by any or all of the following methods: • Increasing area under leach (i.e., returning PLS into circulation) • Pump PLS to MWTP for treatment and release • Excavation of additional down gradient emergency management pond • Restore freeboard by placing sandbags if necessary • Buttress embankment with structural fill such as waste rock • Inspect and repair any damaged liner and solution collection components • Remove or repair liner system in Events Pond

Incident	**Events Pond Failure**
	• Contain any spill of PLS to the greatest extent possible
Emergency Level	Tier 3
Potential Effects	• Damage to liner system and loss of product - solution leakage • Uncontrolled release of solution to environment
Follow Up	• Incident/accident investigation • Inspection by geotechnical engineer • Environmental remediation if PLS is released

6.4 LINER SYSTEM FAILURE

Incident	Liner System Failure
Potential Causes	• Poor fabrication quality • Damage to system components during construction • Damage to system components after construction during ore placement • Differential settlement caused by improper foundation preparation
Preventative Measures	• Follow technical specifications including compliance testing of geosynthetics during procurement • Follow technical specifications including construction of a test fill program to establish proper construction procedures to limit damage • Follow procedures identified in OMS Manual including stacking plan and ore placement procedures • Implement high level of construction quality control and assurance with regular inspections by the engineer
Detection Method	• Quality control during manufacturing • Compliance testing during procurement • Construction quality control and assurance program • Visual inspection • In-Heap Pond LDRS system • Monitoring vault flows (quantity and quality) • Regular inspection by engineer during construction
Site Response	Leakage rate at alert level 1 based on In-Heap Pond elevation • Isolate leak if possible • Restrict leaching operations in affected area of liner failure in HLF • Contain any spill of PLS to the greatest extent possible • Increase monitoring frequency of underdrain vault for possible PLS solution leakage through secondary liner and GCL. If PLS solution identified, temporarily cease solution application in affected area, drill and case borehole and pump bentonite or similar material to affected area for failure in HLF Leakage rate between alert level 1 and alert level 2 based on In-Heap Pond elevation • Isolate leak if possible • Restrict leaching operations in affected area of liner failure in HLF • Increase monitoring frequency of underdrain vault for possible PLS solution leakage through secondary liner and GCL. If PLS solution identified, temporarily cease solution application in affected area, drill and case borehole and pump bentonite or similar material to affected area for failure in HLF • Install interlift liner where practical • Contain any spill of PLS to the greatest extent possible Leakage rate above alert level 2 based on In-Heap Pond elevation • Isolate leak if possible • Restrict leaching operations in affected area of liner failure in HLF • Increase monitoring frequency of underdrain vault for possible PLS solution leakage through secondary liner and GCL. If PLS solution identified,

Incident	Liner System Failure
	temporarily cease solution application in affected area, drill and case borehole and pump bentonite or similar material to affected area for failure in HLF • Install interlift liner where practical • Unload ore and repair any damaged liner for failure in HLF • Contain any spill of PLS to the greatest extent possible Event Pond liner leakage <60,000L • Isolate leak if possible • Electrical leak detection and repair of damaged location Event Pond liner leakage >60,000L • Isolate leak if possible • Electrical leak detection and repair of damaged location • Remove and replace liner system in Events Pond
Emergency Level	Pond alert levels are specific to the pond water elevation (see Tables 6.4-1 and 6.4-2): • In-Heap Pond alert level 1 - Tier 1 • In-Heap Pond alert level 2 - Tier 2 • Events Pond alert level 1 - Tier 1 • Events Pond alert level 2 - Tier 2
Potential Effects	• Loss of product - solution leakage • Uncontrolled release of solution to environment
Follow Up	• Incident/accident investigation • Increased monitoring frequency until effectiveness of response assured • Environmental remediation if PLS is released

Table 6.4-1: In-Heap Pond Alert Levels

In-Heap Pond Elevation (masl)	Alert Level 1 (L/day)	Alert Level 2 (L/day)
913	160	3,300
914	810	16,000
915	1,300	26,000
916	1,900	39,000
917	2,600	53,000
918	3,500	69,000
919	4,400	89,000
920	5,600	110,000
921	6,800	140,000
922	8,200	160,000
923	9,700	190,000
924	11,000	230,000

In-Heap Pond Elevation (masl)	Alert Level 1 (L/day)	Alert Level 2 (L/day)
925	13,000	270,000
926	16,000	310,000
927	18,000	370,000
928	21,000	420,000
929	24,000	490,000
930	28,000	550,000
931	32,000	640,000
932	36,000	720,000
933	41,000	820,000
934	47,000	940,000
935	53,000	1,100,000
936	61,000	1,200,000
937	69,000	1,400,000
938	77,000	1,500,000
939 (embankment crest)	83,000	1,700,000

Table 6.4-2: Events Pond Primary Liner Leakage Results and Alert Levels

Event Elevation (masl)	Alert Level 1 (L/day)	Alert Level 2 (L/day)
883	4,700	150,000
884	7,800	250,000
885	11,000	350,000
886	14,000	460,000
887	18,000	580,000
888	22,000	700,000
889	26,000	830,000
890	31,000	970,000
891	35,000	1,100,000
892	40,000	1,300,000
893	45,000	1,400,000
894	51,000	1,600,000
895 (spillway invert 894.5)	57,000	1,800,000
895.5 (crest)	60,000	1,900,000

6.5 SOLUTION COLLECTION SYSTEM FAILURE

Incident	Solution Collection System Failure
Potential Causes	• Poor quality control during installation • Damage to system during ODF placement • Damage to system during ore placement
Preventative Measures	• Follow technical specifications including compliance testing of geosynthetics during procurement • Follow technical specifications including construction of a test fill program to establish proper construction procedures to limit damage • Follow procedures identified in OMS Manual including stacking plan and ore placement procedures
Detection Methods	• Construction quality control and assurance program • In-Heap Pond LDRS system • Monitoring vault flows (quantity and quality) • Visual inspection • HLF pad piezometer installed in overliner
Site Response	• Unload ore and repair or replace where practical • Install interlift liner and collection piping system where practical
Emergency Level	Tier 2
Potential Effects	• Elevated hydraulic head in ore pile • Loss of ability to control water balance
Follow Up	• Incident/accident investigation • Increased monitoring frequency until effectiveness of response assured

6.6 ORE HEAP SLOPE FAILURE

Incident	Ore Heap Slope Failure
Potential Causes	• Improper ore placement methods causing ore pile slope failure • Elevated phreatic level or erosion causing ore pile slope failure
Preventative Measures	• Maintain operational controls for solution management • Follow procedures identified in OMS Manual including: o Visual inspections of ore pile for erosion o stacking plan and ore placement procedures o monitoring of ore pile phreatic levels
Detection Method	• In-Heap Pond LDRS • Monitoring vault flows (quantity and quality) • Visual inspection • HLF pad piezometer installed in overliner
Site Response	• Initiate “Code 1” as per “Initial Response - Code 1 Procedure” • Administer first aid as required • Immediate notification of SGC Senior Management so communication protocol can be enacted • Immediate lowering of PLS volumes to HLF Operating Volume by any or all of the following methods: • Pumping to Events Pond • Increasing area under leach (i.e. returning PLS into circulation) • Pumping to water management ponds (e.g. Lower Dublin South Pond) if appropriate • Restrict PLS application in affected area • Unload affected ore pile area and inspect and repair any damaged HLF liner and solution collection components • Install interlift liner if unloading of ore pile impractical • Buttress ore pile • Contain any spill of PLS to the greatest extent possible
Emergency Level	Deep Slope Failure - Tier 3 Shallow Slope Failure - Tier 2
Potential Effects	• Major damage to multiple pad components • Damage to liner system and loss of product - solution leakage • Damage to collection piping system • Uncontrolled release of ore and solution
Follow Up	• Incident/accident investigation • Inspection by geotechnical engineer • Environmental remediation if PLS is released • Cease pad loading until repair complete

6.7 CLOSURE DRAIN SYSTEM FAILURE

Incident	Closure Drain System Failure
Potential Causes	• Clogging of sump materials • Damage during or after construction
Preventative Measures	• Develop contingency plan for alternative method of draining heap, such as drilling through ore pile into underdrains • Implement high level of construction quality control and assurance with regular inspections by the engineer
Detection Method	• Flows at monitoring vault • Visual inspection
Site Response	• Drill through ore pile into underdrains • Pump PLS to MWTP for treatment • Drill and case horizontal wells at base of embankment for passive drainage at closure
Emergency Level	Tier 2
Potential Effects	• Failure to drain heap
Follow Up	• Incident/accident investigation • Increased monitoring frequency until effectiveness of response assured

6.8 RELEASE OF HCN GAS WITHIN THE ADR PLANT

Incident	Release of HCN Gas within the ADR Plant
Potential Causes	• Accidental release of dry sodium cyanide which is then exposed to acids, acid salts, water, moisture or carbon dioxide • Rupture or failure of tanks, pipelines, fittings or valves containing sodium cyanide solution • Temporary loss of process pH control systems
Preventative Measures	• Preventative maintenance • Event driven maintenance • Hazard identification and response training for relevant ADR Plant Personnel • Installation and regular testing of fixed HCN detectors and portable HCN monitors • High level of construction quality assurance
Detection Method	• Routine facility inspection • Event driven inspection • Activation of fixed HCN detectors or portable HCN monitors

Site Response	• Initiate “Code 1” as per “Initial Response - Code 1 Procedure”
	• Evacuate area
	  • Small spills in reactive conditions - 60 m in all directions, 200 m downwind
	  • Large spills in reactive conditions - 390 m in all directions, 1.3 km downwind
	• Administer first aid as required
	• ERT or other trained and equipped personnel stop release, contain spill, and neutralize if possible
	• Immediate notification of SGC Senior Management so communication protocol can be enacted
	• Construct emergency catchment areas if secondary containment breached

Emergency Level	Tier 1 - 3
Potential Effects	• Fatality
Follow Up	• Incident/accident investigation • Pump spilled solutions back in the cyanidation process • Environmental remediation if PLS is released

6.9 RELEASE OF HCN GAS DURING TRANSPORTATION

Incident	Release of HCN Gas during Transportation
Potential Causes	• Vehicle accident resulting in the release of dry sodium cyanide which is then exposed to acids, acid salts, water, moisture or carbon dioxide
Preventative Measures	• Strictly enforced speed limits for cyanide transport vehicles • Pilot vehicles for cyanide transport vehicles on access road during inclement weather • Appropriate spill response equipment mandatory for all cyanide transport vehicles • Use of International Cyanide Management Code certified transporters • Establish cooperative arrangements with emergency responders in communities along the transportation route • Periodic emergency response drills
Detection Method	• Observation of event

Site Response	• Initiate “Code 1” as per “Initial Response - Code 1 Procedure”
	• Evacuate area
	  • Small spills in reactive conditions - 60 m in all directions, 200 m downwind
	  • Large spills in reactive conditions - 390 m in all directions, 1.3 km downwind
	• Administer first aid as required
	• ERT or other trained and equipped personnel stop release, contain spill, and neutralize if possible
	• Immediate notification of SGC Senior Management so communication protocol can be enacted

Emergency Level	Tier 3
Potential Effects	• Fatality
Follow Up	• Incident/accident investigation • Environmental remediation

7 HYDROGEN CYANIDE INFORMATION

Hydrogen cyanide gas is an extremely toxic, flammable compound which can be produced by the decomposition of sodium cyanide when exposed to acids, acid salts, water, moisture and carbon dioxide. HCN gas is colorless with a faint odor of bitter almonds and can be smelled in the concentration range of 1 - 5 parts per million (ppm). Exposure to HCN gas concentrations greater than 50 ppm for 30 minutes can result in cyanide poisoning and any exposed individual must obtain immediate medical treatment.

In a release situation, the immediate release area and a downwind isolation zone must be established. Vapor generation will be very rapid and vapors can travel a considerable distance. All ignition sources must be removed as vapors are easily ignitable at ambient temperature conditions. For additional information on responding to an emergency involving hydrogen cyanide refer to the Cyanide Emergency Response Procedures (SGC-CMP-SOP-020).

7.1.1 First Aid for Inhalation of Hydrogen Cyanide Gas

The application of prompt and effective first aid is crucial to maximize the chances of survival following cyanide poisoning. In all cases of exposures to cyanides, emergency transport to the nearest medical facility should be arranged.

The following first aid steps may prove useful.

Step 1 - Remove the patient from cyanide exposure.

The first priority is to try and remove the patient, if possible, from further exposures to cyanides and into a source of fresh air. Rescuers must be properly trained in emergency procedures and wear appropriate PPE.

Even if the patient recovers quickly after being removed from exposure to cyanide, administer 100 percent oxygen and arrange transfer to a medical facility.

Step 2 - Support airway, breathing and circulation

Speed is critical in treating a patient with cyanide poisoning.

- Check the patient’s airway. Remove blockages or restrictions as necessary.
- Check the patient’s breathing.

If the patient is breathing, place in the recovery position and administer 100 percent oxygen. If the patient is unconscious, insert an oral airway if available and if trained in its use. If the patient is not breathing, begin resuscitation using a resuscitation bag or mask connected to an oxygen source or 100 percent oxygen via a non-rebreathing facemask.

Mouth-to-mouth resuscitation should be avoided due to the risk of contamination of the rescuer.

Check for a pulse. If no pulse is present, start external cardiac massage (also known as hands-only CPR)

Step 3 - Decontamination

Contaminated clothing should be carefully removed and placed in a sealed bag for decontamination or disposal. The patient should then be washed down with copious fresh water; however, decontamination should not delay first aide.

Step 4 - Transfer of patient to medical care

If not already arranged, immediately organize urgent ambulance treatment to the nearest medical facility. During transfer, the patient should be accompanied by someone trained in CPR and a cyanide antidote kit should also be taken.

7.1.2 Signs and Symptoms of Hydrogen Cyanide Gas Exposure

Effects occur extremely rapidly following exposure to hydrogen cyanide. After inhalation exposure, symptoms begin within seconds to minutes; death may occur within minutes. The time of onset of effects depends on the concentration and duration of exposure.

Early symptoms of cyanide poisoning include light headedness, giddiness, rapid breathing, nausea, vomiting (emesis), feeling of neck constriction and suffocation, confusion, restlessness, and anxiety. Accumulation of fluid in the lungs (pulmonary edema) may complicate severe intoxications. Rapid breathing is soon followed by respiratory depression/respiratory arrest (cessation of breathing).

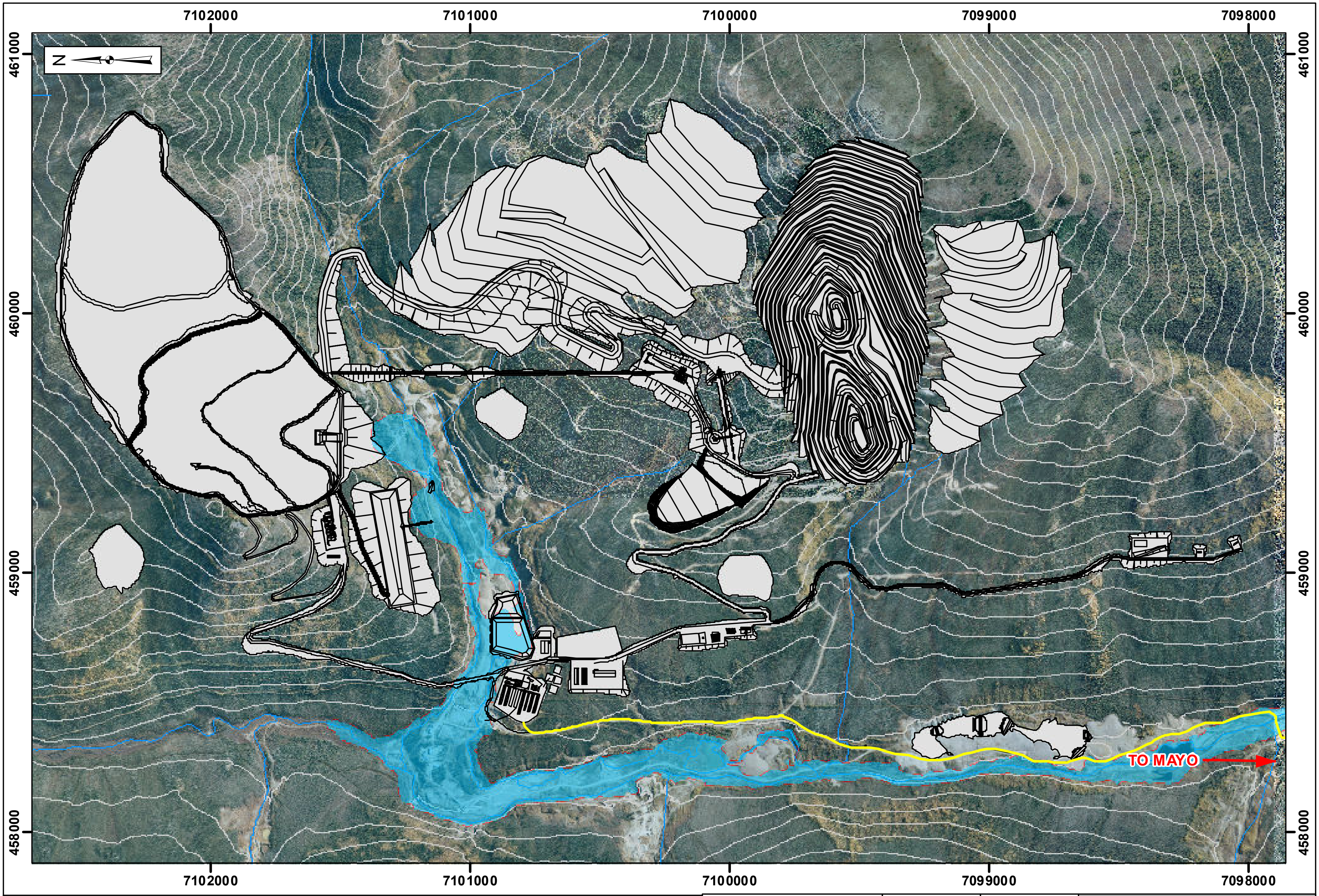
Severe cyanide poisonings progress to stupor, coma, muscle spasms (in which head, neck, and spine are arched backwards), convulsions (seizures), fixed and dilated pupils, and death. The central nervous system (CNS) is the most sensitive target organ of cyanide poisoning. Cardiovascular effects require higher cyanide doses than those necessary for CNS effects. In serious poisonings, the skin is cold, clammy, and diaphoretic. Blue discoloration of the skin may be a late finding. Severe signs of oxygen deprivation in the absence of blue discoloration of the skin suggest cyanide poisoning.

8 EVACUATION

The emergency scenarios considered for the heap leach and process facilities will under most circumstances require only temporary evacuation from an affected work area. Only in an extreme circumstance should a full site evacuation be undertaken. A full evacuation can only be authorized by the Mine Manager. The muster location and evacuation route for the Project is provided in Figure 8.1-1.

Based on the anticipated emergency scenarios for the heap leach and process facilities only a major failure of the embankment due to an extraordinary seismic event during periods of extreme cold weather present a situation in which a full evacuation should be considered.

As part of the FMEA and design of the Project an inundation map was developed which predicts the locations which would be flooded by PLS during a catastrophic failure of the embankment. Figure 8.1-1 illustrates the anticipated inundation areas for a catastrophic failure of the HLF embankment.



Legend:

- Evacuation Route
- Inundation Area
- Contour (25m)
- Facility
- Watercourse

StrataGold Corporation

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD 83 UTM Zone 8N	HC	
Date: 2017/11/09	Figure: 8.1-1	Inundation Map and Evacuation Route

0 125 250 500
Metres