ENVIRONMENTAL EMERGENCY PREPAREDNESS AND RESPONSE PLAN PROTOCOL FOR THE CURRAGHINALT PROJECT, COUNTY TYRONE, NORTHERN IRELAND

Prepared For

Dalradian Gold Limited

Report Prepared by

SRK Consulting (UK) Limited

UK U7511

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ENVIRONMENTAL EMERGENCY PREPAREDNESS AND RESPONSE PLAN PROTOCOL FOR THE CURRAGHINALT PROJECT, COUNTY TYRONE, NORTHERN IRELAND

1 INTRODUCTION

This document presents an Environmental Emergency Preparedness and Response Plan (EEPRP) protocol for the Curraghinalt mine in County Tyrone, Northern Ireland. This protocol is written in support of the application for planning permission made by Dalradian Gold Ltd (DGL) for the Curraghinalt Project, specifically to support the environmental statement. This protocol is not an emergency plan itself but provides a framework for effective EEPRPs.

A series of EEPRPs will be produced over the life of the mine. The mine management teams will change during the construction, operational and closure phases. The appointed teams (including contractors) need to develop and maintain the EEPRPs.

The EEPRPs will be based on credible emergency situations identified by means of risk assessments. The EEPRPs will be produced in the context of:

- Relevant legislation;
- The mine's management systems, which will include an Environmental Management System (EMS) aligned with the ISO 14001:2015 standard and a Health and Safety Management System (HSMS) that will be aligned with the ISO 45001:2018.

The EEPRPs will be reviewed regularly. Reviews will be initiated when there are changes to management personnel, roles and responsibilities of management personnel, designs and plans, and relevant regulatory requirements. Reviews of the EEPRPs will also be undertaken when the mines risk assessments are updated. Risk assessment processes will be integral to the mine's management systems (including the EMS and HSMS).

Based on the environmental impact assessment work undertaken for the project, specific EEPRPs will be developed for emergency situations related to:

- Releases of dirty water from the mine site;
- Instability of external slopes at the dry stack facility (DSF, also referred to as the "mine waste facility" in the mine waste management plan);
- Transport accidents and spills;
- Chemical, oil or fuel spills on on-site.

Questions on the first three topics in the above list have been raised regulatory authorities. A brief review of credible emergency situations related to these is presented in Section 5 and actions to address these are identified.

2 DEFINITIONS AND GOALS

2.1 Emergency Response Definition

An emergency response is a system that aims to eliminate, mitigate or prevent escalation of adverse consequences in the event that the existing risk management controls fail and emergency situations occur.

2.2 Impact/ Risk Management Controls and Critical Controls

Impact/ risk management controls are not part of an emergency response and are usually not detailed in EEPRPs. However, critical controls may need to be identified to guide emergency response actions.

Impact/ risk management controls are identified by means of impact and risk assessments and are included in management plans and procedures as management measures. DGL has a suite of environmental management plans, linked to its environmental statement, that present environmental risk management controls.

Critical controls are controls that reduce the likelihood of an unwanted event or condition that poses an unacceptable risk occurring. An emergency situation arises when there is a loss of control or critical controls fail.

2.3 Emergency Response Goals

The goals of each EEPRP will be to:

- Protect the health, safety, and well-being of those involved (first responders, emergency response teams, impacted employees, and contractors and affected communities) and to minimize and recover from any negative impacts resulting from an emergency;
- Protect, preserve, and restore the environment;
- Return to safe operating conditions as quickly as possible.

2.4 Emergency Response Actions

Emergency response actions include:

- Actions to control and contain accidents/ incidents;
- Measures to address the effects of the accidents/ incidents;
- Communication of information to regulatory authorities, employees and the public, as required (depending on the type of emergency);
- Measures to repair, clean-up, restore and rehabilitate.

3 LEGAL, MANAGEMENT SYSTEM AND POLICY REQUIREMENTS

3.1 Relevant Legislation

The EEPRPs will take into consideration any regulatory updates and appropriate thresholds. Legislation and guidance currently relevant to the EEPRP is outlined below.

3.1.1 Legislation relevant to mining

Regulation 53 (2) of the Mines Regulations (Northern Ireland) 2016 state that a mine may not be worked unless the operator has made suitable arrangements for the rescue of persons from the mine, and for the carrying out of work necessary to secure the health and safety of persons below ground at the mine in the event of an emergency.

UK Health and Safety Executive (HSE) guidance for the Mines Regulations 2014, which apply in Great Britain, can be used to interpret the regulation which is the same in both the Northern Ireland and the Great Britain Mines Regulations. This guidance[1] places a duty on the mine operator to ensure emergency arrangements include means of raising an alarm, clear but simple instructions on the action to be taken in the event of an alarm, the muster point on the surface and access to emergency medical and scientific services if needed.

There is no legal requirement for local authority fire and rescue services to rescue people trapped below ground in mines so the operator must make suitable arrangements for their rescue either:

- Themselves; or
- With other mine operators; or
- With a specialist rescue services provider; or
- Any combination of the above.

Arrangements should include details of how the rescue operation will be commanded and controlled and include the role and functions of the person;

- Designated to be in overall command of the rescue operations (the “Incident Controller”) – normally the person appointed by the mine operator to be the mine manager;
- Who is responsible for the organisation and deployment of rescue personnel – this will normally be either a manager from the mines rescue provider or someone employed by the mine Operator who has the competence to undertake the role;
- Controlling rescue operations at the fresh air base – this will normally be a competent person from the mines rescue provider.

Regulation 54 of the Mines Regulations (Northern Ireland) 2016 requires a written escape and rescue plan which considers every relevant risk assessment and is reviewed regularly at suitable intervals. This plan must contain sufficient information to guide decision-making and help those managing the emergency and should include evacuation schemes for the various emergency situations that might occur, accounting for people below ground and alerting (where necessary) a mine’s rescue service provider and other personnel. It should include:

[1] http://www.hse.gov.uk/pubns/books/l149.htm

- The emergency management organisation;
- Designated locations for incident control rooms;
- Up-to date mine plans for use by rescuers;
- Provision for rescue accommodation; and
- Maintenance of an emergency logbook.

Regulation 55 the of Mines Regulations (Northern Ireland) 2016 provides for equipment used for communications in an emergency and states that the operator must ensure the equipment is maintained in good condition and stored in easily accessible places.

3.1.2 Legislation relevant to processing

The Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003 (the COSHH regulations) are applicable to substances which may cause harm to human beings, including chemicals, fumes, dusts, vapours, mists, nanotechnology, gases and asphyxiating gases and biological agents. These regulations[2] require that assessments are conducted on harmful substances, exposure reduced as far as practicable, and control measures put in place where exposure cannot be removed.

The COSHH regulations also require preparation for emergencies, including:

- Having the correct equipment to deal with substances emergencies including protective equipment;
- Procedures to deal with a casualty;
- Persons appropriately trained to take action; and
- Arrangements for clean-up.

3.1.3 Legislation relevant to mine waste

The Planning (Management of Waste from Extractive Industries) Regulations (Northern Ireland) 2015 require that the following are in place, before commencement of operations involving the management of extractive waste, when a mine waste facility is classed as a Category A waste facility: a major accident prevention policy; a safety management system; and an internal emergency plan. These have to be provided to the local council, who will be required under these regulations to develop a corresponding external emergency plan.

The Curraghinalt DSF is not classed as a Category A facility. DGL has nevertheless made a commitment in its mine waste management plan to establish a safety management system and an internal emergency plan.

Regulation 13 of the Planning (Management of Waste from Extractive Industries) Regulations (Northern Ireland) 2015 state that the internal emergency plan must include:

- Names or positions of persons authorised to set emergency procedures in motion and the person in charge of and co–ordinating the on-site mitigatory action;
- A description of the actions that should be taken to control the conditions or events that could be significant in bringing about an accident and to limit their consequences, including

[2] https://www.health-ni.gov.uk/articles/control-substances-hazardous-health-regulations-northern-ireland-coshh-2003

a description of the safety equipment and the resources available;

- Arrangements for limiting the risks to persons on-site including how warnings are to be given and the actions persons are expected to take on receipt of a warning;
- Arrangements for providing early warning of the incident to the council, the type of information which should be contained in an initial warning and the arrangements for the provision of more detailed information as it becomes available;
- Arrangements for training staff in the duties they will be expected to perform, and where necessary, co-ordination with the emergency services;
- Arrangements for providing assistance with off-site mitigatory action;
- Arrangements, where appropriate, to communicate the necessary information to the public concerned and to the relevant services or authorities in the area.

3.2 Management Systems

DGL has committed to establish an Environmental Management System (EMS) aligned with the ISO 14001:2015 standard and a Health and Safety Management System (HSMS) that will be aligned with the ISO 45001:2018. Commitments to these management systems are, respectively, given in the environmental management plan in the environmental statement and in the mine waste management plan appended to the environmental statement.

The commitments to the management systems include implicit commitments to establish, implement and maintain the processes needed to prepare for and respond to potential emergency situations. As part of this there is a need to:

- Plan to prevent or mitigate adverse impacts from emergency situations;
- Respond to actual emergency situations;
- Plan and implement internal and external communication;
- Take action to prevent or mitigate the consequences of emergency situations, appropriate to the magnitude of the emergency and the potential impact;
- Periodically test the planned response actions, where practicable;
- Periodically review and revise the process(es) and planned response actions, in particular after the occurrence of emergency situations or tests;
- Provide relevant information and training related to emergency preparedness and response, as appropriate, to staff, contractors and relevant interested parties.

3.3 Accident Prevention Policy

DGL has a Safety, Health and Environment ("SHE") team that undertake quarterly meetings to constantly review and progress these areas of responsibility. The minutes are reported back to the parent company, Dalradian Resources Inc. This will continue for the operational mine. These minutes help DGL in formulating accident prevention procedures. They will also be used to formulate a policy that includes:

- Commitments to achieve a high standard of protection for people and the environment are ongoing and reflect best practice and evolving regulations across the difference topic areas.
- A statement of DGL's aims and principles of action and its commitment towards continuously improving its control of systems at the mine.
- Commitments to provide and maintain a management system including the following elements:
    - a) organisation and personnel;
    - b) identification and evaluation of hazards;
    - c) operational control;
    - d) management of change;
    - e) planning for emergencies;
    - f) monitoring performance; and
    - g) audit and review.
- Commitment to continuously improving the control of accident hazards.

4 EMERGENCY RESPONSE PLAN CONTENTS

The mine will have a number of EEPRPs, each covering one or more emergency situations. The grouping of identified emergency situations in specific plans will depend on similarities in the emergency situations and required responses. Several emergency situations may fall under one EEPRP.

Each EEPRP will cover the topics described in this section.

4.1 Context and Administrative Details

Each EEPRP will have an introductory section covering:

- The scope and purpose of the EEPRP;
- The emergency situations covered by the EEPRP;
- Date, distribution and frequency of updates;
- Review and approval status.

4.2 Emergency Situations

A brief outline of the identified emergency situations will be included, with reference to the supporting risk assessment/s[3] that identified the potential for the emergency. This should cover people and environments at risk. Maps of risk areas will be included or appended in supporting data sheets where relevant. Other supporting information, as identified in Section 4.11, will be included as appropriate.

4.3 Emergency Response Actions

For each of the identified emergency situations, specific response actions will be identified. These response actions will be implemented systematically. The system elements of the response are identified in Sections 4.4 and 4.11.

4.4 Emergency Control Centre

A designated location will be used as an Emergency Control Centre (ECC). The ECC will be positioned outside of the potential hazard zone but close enough to maintain command.

The ECC will be equipped with an emergency chest containing:

- A copy of the site EEPRPs (up-to-date paper copy of each EEPRP);
- Current plans of the mine site, surface services, maps of the local region;
- A full set of duty cards (defining responsibilities of the Emergency Management Team)
- Emergency lighting and power;
- Two telephone lines (in-coming & out-going);
- Two-way radios & chargers.

4.5 Emergency Response Team: Roles and Responsibilities

A general outline of the constitution of an emergency response team is given in Table 4-1 . Each EEPRP will define a specific emergency response team and will identify the people who will fulfil specific roles.

The responsible people will change from the construction phase, through the operational phase to closure. EEPRPs will updated accordingly.

Back up arrangements will be in place for absent and off-duty workers.

The roles of the emergency response team members will be defined on duty cards.

[3] The term “risk assessment” is typically used for mining and mine waste management. In the process plant, the risk assessment may take the form of hazard and operability studies (HAZOPs).

Table 4-1: General outline of the constitution of an emergency response team

Roles		Responsibilities
Incident commander (Likely to be the mine manager or deputy)		• Commands the incident response and is the decision-making final authority. • Direction of all staff associated with the incident response. • Decides on the activation of the on-the-scene response team. • Implement a range of measures to avert failure. • Maintain liaison with incident site, advising and instructing as necessary. • Providing ongoing surveillance and situation assessments. • Overall health and safety of all personnel addressing incident.
Command staff	Marshalling officer (safety manager)	• Monitors safety conditions and develops measures for assuring the safety of all assigned personnel. • Establishes the ECC. • Enforcing staff check-in and check-out. • Checking on continuity of response i.e. that if someone is leaving site their responsibilities are either fully executed or properly handed over. • Providing of safe approach routes and details of rendezvous points to the emergency services. • Assists in information flows to incident team via the information officer.
	Information officer (likely to be community relations manager)	• Serves as a conduit for information to and from internal and external stakeholders. • Informs and updates regulatory about the incident. • Keeping the command staff apprised as to what is being said or reported about the incident. (Allows public questions to be addressed, rumours to be managed and ensures public relations issues are not overlooked.)
	Liaison officer (likely to safety officer)	• Primary contact for supporting agencies assisting with the incident • Facilitates information flows incident task teams • Maintains a log • Record keeping.
	Administration officer	• Staff welfare, accommodation & meals. • Rotas for local incident control personnel. • Accommodation for incident control personnel.
	Finance officer	• Provide cash and currency. • Ensure appropriate controls, systems and audit procedures are implemented in respect of incident expenditure. • Assess liabilities and losses and increased cost of normal operations caused by the incident.
Problem assessment team (Senior management team, safety manager, environment manager, and engineering manager)		• Assesses the problem. • Source technical documents/personnel and equipment to assist with the response. • Engage with the competent specialists as required • Monitor & assess response. • Supports the Incident Commander with advice as required. • Report outputs to information and liaison officers.
On-the-scene response team (Team deployed at the incident site)		• The team puts on personal protective clothing, as required. • Investigates the emergency scene and to assess levels of urgency and/or the damage or spillage. • Provision of resources, services and support required by the incident. • Testing of water and/or soil if required. • Collection and display of incident information.

4.6 Emergency Response Communication Systems

Emergencies with significant impacts on the people and the environment around the mine site are not expected to arise at the Curraghinalt site, but DGL recognises that internal and external communication systems need to be established for emergency responses. These will cover both alarms and response procedures.

Depending on the nature of the emergency, the following agencies may need to be involved:

- Health and Safety Executive Northern Ireland (HSENI);
- Police Service of Northern Ireland (PSNI);
- Northern Ireland Fire and Rescue Commander;
- Emergency health services such as ambulances and paramedic teams;
- Hospitals, both local and for evacuation for specialist care;
- Northern Ireland Environmental Agency (NIEA);
- The Loughs Agency;
- Fermanagh and Omagh District Council;
- Public information authorities and media organisations.

A database with contact details for the above-mentioned stakeholders (external agencies and people in the public information zone) will be established.

4.7 Emergency Response Training and Drills

Training workshops will be held. The level and nature of training provided will be proportional to roles and responsibilities of emergency responders. This training will be coupled with field exercises for hands-on training in monitoring, use of communications, traffic control, evacuation and other procedures.

The EEPRPs will be well tested by means of full-scale emergency drills. The purpose of drills is to identify weaknesses, fill reasonably foreseeable gaps in the plans and to take corrective actions to ensure any issues in the response plans are rectified. Corrective actions will be logged and EEPRPs will be amended as required.

4.8 Emergency Response Log

During the incident a designated person (probably the information officer) will ensure an accurate log is made of the emergency and actions in response. This log will include: the emergency was declared; actions taken before the alarm was raised; actions taken following the declaration of an emergency; environmental factors such as wind direction and rainfall conditions; actions taken to reduce the impact on people, environment and assets and the approximate times at which they were taken; and the time the emergency is declared over.

4.9 Clean-Up and Remediation

Post-emergency remediation will be the responsibility of DGL, who will work with government agencies and other stakeholders where necessary.

4.10 Review of an Emergency Situation

Within three months of the end of an emergency, the mine will complete an investigation of the emergency situation, including the event(s) or failures which led to the outbreak of the emergency situation. The findings and recommendations of the review will be used to action improvements to management plans, critical controls and EEPRPs.

4.11 Supporting Data

Data sheets supporting the EEPRPs will include the following, as required:

- Map showing the location of the facility and nearby roads;
- 24/7 emergency responders' names and contact numbers;
- Neighbourhood map delineating the public information zone and list of members of the public who need to know more about the EEPRP;
- Scheme for warning and communication;
- Location of muster points and evacuation routes;
- Material Safety Data Sheets (MSDS);
- A list of available emergency response equipment, with information on location – including isolation valves, pumps, water supplies, water tankers and equipment for firefighting, toxicity testing, personal protection and pollution prevention;
- Processes for safe isolation and shut down;
- Plans for drawdown of water ponds;
- Reports documenting any emergency scenario analyses, if these were required.

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5 REVIEW EMERGENCY SITUATIONS OF INTEREST

5.1 Introduction

This section is a supplement to the environmental EEPRP protocol and it addresses emergency situations that statutory consultees have requested more information on.

Major accidents affecting people and the environment around the mine site are not expected.

A loss of a critical control at the Curraghinalt site will be treated as an emergency. Situations where this could arise are identified below and the response actions are identified. None of the identified situations will constitute a major accident. Significant impacts on people and the environment can be prevented.

5.2 Releases of Dirty Water from the Mine Site

5.2.1 Credible emergency situations

The Owenreagh and Owenkillew River ecosystems are of high conservation importance and therefore releases of polluted water to these rivers must be prevented. Critical controls that will be implemented are outlined in the following section (Section 5.2.2).

In the construction phase, a sudden release of a large volume of polluted water from the mine site is unlikely to occur considering the controls that will be in place.

In the operational phase, during an extreme storm event exceeding design criteria, water could be released from the mine site via the water storage ponds. This would be classed as an emergency situation. The water storage ponds have emergency spillways that would enable water from a storm event exceeding the 1 in 1,000 year 24-hr storm event to be discharged without damage to the integrity of the ponds. The water released under these flood conditions is unlikely to have a significant impact on water quality in the Owenreagh River.

In the operational phase, a leak could develop in the liner below the DSF or in the liners in the water storage ponds. This situation can be managed to prevent impacts beyond the mine site but it will be classed as an emergency situation.

5.2.2 Critical controls to prevent emergencies

The water management infrastructure on the mine site will be established as given in the project description, corresponding design drawings, and will implement measures to prevent significant impacts on water as given in the Environmental and Social Management Plan (ESMP) within the Environmental Statement and key management plans appended to the Environmental Statement and the Environmental Statement Addendum. These plans include the Mine Waste Management Plan (MWMP), the Construction Environmental Management Plan (CEMP) and the Surface Water and Groundwater Environmental Monitoring and Action Plan (SGEMAP).

Critical controls are as follows:

- Water management infrastructure is designed to hold the 1 in 1,000 year 24-hour storm event during the operational phase. The water storage ponds will be excavated structures, they will not have dam walls. It is critical that the ponds are operated so that they have freeboard to hold the design storm event.
- The water storage ponds have emergency spillways designed for storm events which exceed the 1 in 1000 year 24-hr storm event to ensure their integrity is maintained in an

extreme storm event.

- A liner will be placed below the DSF and the water storage ponds will be lined.
- Water discharged from the mine site will be treated in a reverse osmosis Water Treatment Plant (WTP), prior to discharge to the Pollanroe Burn about 1 km upstream of its confluence with the Owenreagh River. The WTP plant will meet discharge criteria for the Pollanroe Burn and the Owenreagh River.
- Key components of the water management infrastructure will be established in the first three months of the construction phase, including the West Pond and drainage ditches directing water to the West Pond, and the reverse osmosis WTP.
- The West Pond and WTP will be secondary controls during the construction phase, all construction sites will be kept as small as possible to minimise the area of bare ground vulnerable to erosion and will be equipped with clean runoff diversions and dirty water collection structures (appropriately sized temporary detention ponds will retain the runoff). Collected water will be treated by an appropriately sized Siltbuster (or similar product) before discharge.
- Only four small construction sites will be developed prior to the establishment of the West Pond and WTP and all of these will involve establishment of water management infrastructure and/or the access road enabling this.
- No major earthworks will be undertaken until the West Pond and WTP are in place and will be phased to keep construction sites as small as possible.
- During the operational phase, the WTP will comprise two units – each will capacity to treat the flow from a normal operation (125 m^3/ hour). This means that there is much extra capacity to treat larger volumes of water if necessary (a total capacity of 300 m^3/ hour). If one unit breaks down or needs to be serviced, the other will be operational. If neither of the WTP units are able to function, mining and processing operations will stop until functionality of the WTP is restored. There is capacity in the water management ponds to store water during the time when the WTP is not operational.
- If the sewage treatment plant breaks down, portable toilets will be brought to site until the plant is repaired. If a major repair is required, another sewage treatment plant will be brought to site. There is capacity in the water management ponds to store water during the time when the sewage treatment plant is not operational.
- If there is a power failure at the mine site, the emergency generator will be used to keep the WTP functional.

5.2.3 Emergency response actions

Water levels in the water storage ponds exceeding the freeboard for a 1 in 1000 year 24-hour storm event will trigger an emergency response as follows:

- Actions will be taken to drawdown water in the ponds to ensure that the freeboard is maintained.
- This process will be undertaken using dedicated pumps with standalone generators, such that water can be evacuated from the ponds even in the event of power failure at the site.
- If this drawdown cannot be achieved in an extreme storm event, external agencies will be put on standby.
- If overtopping occurs, external agencies will be notified.

An emergency response will be triggered if there is a change in water quality detected in the boreholes downgradient of the DSF and water storage ponds. The trends that will trigger an emergency response are defined in the SGEMAP. Emergency response actions will include:

- Increased monitoring as defined in the SGEMAP;
- Notification of relevant external agencies;
- Installation of pumps in the affected drains to intercept water flow, if it is evident a leak has formed;
- Pumping of water out of the drains and discharge of this to a water storage pond with an intact liner;
- Repair of the liner, by transferring water into other ponds during work;
- Continued pumping of water from the affected drains, if liner repair under the DSF is not possible, and until evidence of abatement of the flow from the leak (abatement is expected when the DSF cell is capped);
- Discontinuation of the pumping when it is evident flow from the leak has abated.

These response actions will be implemented systematically. The system elements of the response will be defined in accordance with the guidance in Sections 4.4 and 4.11.

5.3 Instability of the External Slopes of the DSF Resulting in a Localised Slope Failure

5.3.1 Credible emergency situations

A failure at the DSF will not result in a major accident. Critical controls that will be implemented at the DSF are outlined in the Section 5.3.2.

A flow failure (a failure resulting in mine waste flowing off site or sliding off site) is not a likely emergency situation that could occur at the DSF. The DSF will be a dry stack mine waste storage facility constructed of mine waste placed in thin compacted lifts. The DSF will not impound water and approximately half of the mine waste consists of waste rock and ore rejects which are similar to waste rock, but lack material finer than 8 mm in diameter. Dry stack mine waste storage facilities are inherently stable. Unlike conventional tailings dams, which store large quantities of loose tailings and, in most cases, a surface water pond, dry stack tailings facilities are not susceptible to flow failures.

Instability of the external slopes of the DSF is a credible emergency situation. This could occur in conjunction with an earthquake event or an extreme precipitation event. This would not result in a major accident. The instability could manifest in the form of cracks, bulges and slumps. In the worst case, an external slope failure at the DSF could result in a localised slump of material into the water storage ponds downstream of the DSF. This could result in a reduction in the capacity of the ponds and could damage the liner underlying the section of the DSF affected by the slump.

5.3.2 Critical controls to prevent emergencies

The DSF has the following design features that minimise the risk of tailings flow failures:

- Water will not be impounded on the DSF;
- Unsaturated conditions are promoted with drainage provisions;
- Dilatant conditions achieved through compaction of the tailings.

In addition to the above, the DSF has a large toe drain constructed of waste rock which enhances stability and reduces phreatic levels in the DSF.

The DSF has been designed using best available techniques and will be operated using best available practices as described in the Mine Waste Management Plan (MWMP). An Operation, Maintenance, and Surveillance (OMS) Manual will be prepared for day-to-day management of tailings facilities. The OMS will support implementation of critical controls. The DSF will be monitored as defined in the OMS. Monitoring infrastructure will include piezometers, surface monitoring hubs and/or prisms, and possibly extensometers. These would coupled with routine visual monitoring. The OMS will include a monitoring trigger-action-response plan.

The DSF has been designed with a seismic coefficient of 0.02g, being the seismic coefficient representative of an earthquake with a 2500-year return period. This earthquake is larger than would be required by consequence-based design criteria in other jurisdictions; a more typical design earthquake for the dry stack in these jurisdictions would have a return period in the range of the 100-year to 1,000-year events. The external slopes have been proven to have a factor of safety against failure above the acceptance criterion under this scenario (the supporting stability analysis is presented in the design report appended to the MWMP).

The DSF does not have a design flood directly associated with its design because it does not store water. During extreme storm events, erosion potential will be increased. The OMS manual will include measures that can be taken to reduce the erosion potential. These include:

- Short-term ditches that divert water away/around from active/existing portions of the dry stack footprint;
- Grading of the dry stack to keep water off the face of the stack;
- Placement of waste rock on the face of the dry stack to reduce the erosion potential (this will not adversely affect vegetation establishment on the external slopes).

Seepage water on the downstream face of the DSF (other than seepage which may be observed at the base of the toe drain) is a potential indication of an elevated phreatic surface that could lead to potential stability issues. This does not require an emergency response but does require remedial action to prevent further development of the problem. The geotechnical consultant responsible for the embankment design should be contacted to assess whether specific remediation measures are required.

5.3.3 Emergency response actions

Should a seismic event occur or be suspected, irrespective of the magnitude, all external DSF slopes will be inspected for signs of instability.

Similarly, all external DSF slopes will be inspected for signs of instability following an extreme precipitation event or a significant change in operating practices.

Materials entering a water storage pond will be removed and the pond liner will be inspected and repaired if necessary.

These response actions will be implemented systematically. The system elements of the response will be defined in accordance with the guidance in Sections 4.4 and 4.11.

5.4 Transport Accidents Resulting in Spills

5.4.1 Credible emergency situations

No cyanide will be used at the mine site; the mine design has been amended so cyanide will not be used on the site. Hence there is no potential for emergency situations involving cyanide.

Materials that will transported to and/or from the Curraghinalt mine site include: explosives; fuel and oil; rock; building materials; concrete; process reagents; and concentrate. It is credible that there could be a road accident during this transportation and materials could be spilled.

5.4.2 Critical controls to prevent emergencies

The following controls will be implemented to prevent transport spillage emergencies:

- Licensed and accredited transport contractors will be appointed.
- Materials will only be transported in vehicles and containers that are fit for purpose.
- In the case of hazardous substances, the vehicles and containers will be approved to carry these substances.
- Any contractor carrying hazardous substances (such as fuel) will be required to observe the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2010, as amended.
- Transport contractors will be required to provide information on the routes to be used, a survey of hazards along the route.

Transport contractors will be required to provide evidence of:

- EEPRPs for accidents, particularly accidents involving a spill, with information on the contractor's nearest emergency response centre and response team;
- Driver training to show that they are training in the handling of the materials that they are transporting and know what to do and who to notify in the event of a spill;
- Emergency response equipment on vehicles, including PPE, spill kits and fire extinguishers.

5.4.3 Emergency response actions

EEPRPs for accidents involving spills will include actions to:

- Control – the source of the spill, if possible;
- Contain – the spill;
- Clean-up – the contamination.

These response actions will be implemented systematically. The EEPRPs will be developed and reviewed as described in above (Section 5.4.2).

The system elements of the response will be defined in accordance with the guidance in Sections 4.4 and 4.11.

For and on behalf of SRK Consulting (UK) Limited

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