REPORT

Nalunaq Gold Mine, Greenland

Preliminary Closure Plan

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Distribution List

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WSP UK Ltd

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1.0 INTRODUCTION

Nalunaq A/S (“Nalunaq”) has engaged Golder (a member of WSP UK Limited) (“Golder”) to prepare a Preliminary Closure Plan (PCP) for at its Nalunaq Gold Mine (“the Project”) in southern Greenland. In this PCP is presented a proposed approach for rehabilitation and closure planning of the Project to ensure a sustainable legacy, recognising the need to mitigate any identified potential impacts on the environment following the cessation of operations. It should be noted that it is anticipated that the closure plan will be updated as operations progress and more information becomes available with a final detailed closure plan being prepared immediately prior to closure. This approach is consistent with international norms as set out in guidance prepared by ICMM (2019) and in ISO 21795 (ISO, 2021).

1.1 Project Background

Following discovery in the early 1990s and development and operation by Crew Gold Corporation (“Crew Gold”), development was continued by Angus & Ross plc and Angel Mining (Gold) A/S, between 2004 and 2013. Subsequently additional exploration work has been undertaken in the Project area. AEX Gold Inc. is currently evaluating the project timeline to restart mining operations.

1.2 Project Setting

The Project is situated in a mountainous periglacial area in southern Greenland on the northern side of the Kirkespirdalen (Kirkespir Valley) approximately 35 kilometres (km) to the northeast of the town of Nanortalik in the Municipality of Kujalleq (60º21’N 44º50’W) (Figure 1).

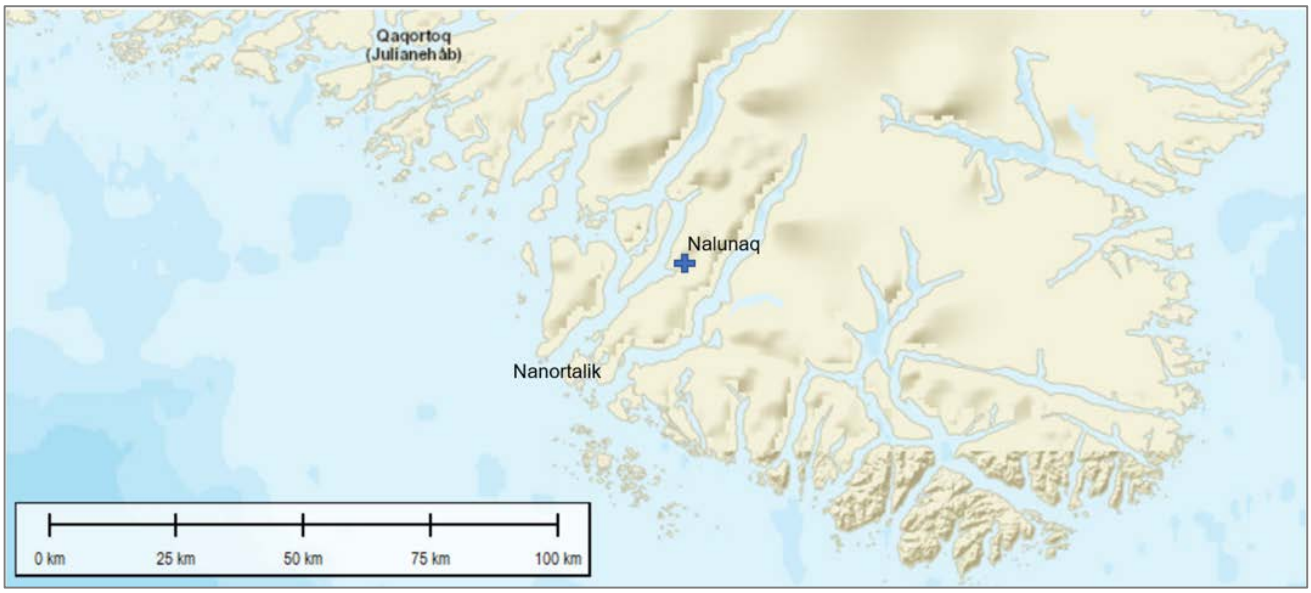

Figure 1: Approximate location of Nalunaq Mine, Greenland

2.0 CLOSURE VISION AND CLOSURE PLAN OBJECTIVES

The vision for closure of the site is to create a productive and sustainable after-use for the site that is acceptable to Nalunaq, the Greenland authorities, the local communities and future users of the site. Consistent with industry standards the Project site will be rehabilitated to a suitable condition to allow re-establishment of the original land use to the extent practicable.

The primary objective of this Preliminary Closure Plan (PCP) is to present the proposed elements of the mine in closure, outline details of the actions to move the mine into closure (e.g. demolition of buildings, removal or disposal of waste) and an outline post closure monitoring program.

The PCP will inform the Environmental Impact Assessment ("EIA") and provide the basis for development of more detailed closure plans as the mine development proceeds. Details of the financial implementation of the closure plan will be detailed at this stage following consultation with the Greenland authorities.

3.0 REGULATORY FRAMEWORK

Greenland's Environmental Agency for Mineral Resource Activities ("EAMRA") is the administrative authority for environmental matters relating to mineral resources activities, including protection of the environment and nature, environmental liability and environmental impact assessments. The Mineral License and Safety Authority ("MLSA") is the administrative authority for license issues and is the authority for safety matters, including supervision and inspections. Together EAMRA and MLSA form the Mineral Resource Authority in Greenland.

3.1 Mineral Resource Act

The Mineral Resource Act ("the Act") details the legislative regulation of the minerals sector in Greenland, regulating all matters concerning mineral resource activities, including environmental issues and nature protection. The Act came into force on 1 January 2010 (Greenland Parliament Act no. 7 - 7 December 2009). The Act specifies the requirement for a Closure Plan, a plan for steps to be taken on cessation of activities, which must be prepared and approved by the Government of Greenland before exploitation begins.

The requirements of the Act with respect to the Closure Plan can be briefly summarised as follows:

- The Closure Plan shall contain details of how the affected areas will be left (closure plan).
- Where facilities are to be left that for environmental, health or safety reasons will require maintenance or other measures following closure, the closure plan must include plans for the relevant maintenance and monitoring
- The Closure Plan must state how the plan can be financially implemented
- The Greenland Government may specify requirements under environmental protection and health and safety, which may include monitoring requirements
- The plan must be updated as appropriate.

4.0 CLOSURE IMPLEMENTATION

This Preliminary Closure Plan is based on the current mine configuration and production rates and that the mining operations will cease after 5 years of operation, at which stage mine closure activities will commence. The current mine configuration is presented in Appendix 1.

The PCP covers the Closure Phase, which is estimated to take approximately one year. During this phase the decommissioning and removal of all buildings, major structures and equipment will take place, including the foundations wherever possible. If agreed with the authorities the jetty and gravel road may be left as constructed.

The overall closure goal is to restore the Project Area to a viable and, wherever practicable, self-sustained ecosystem compatible with a healthy environment and human activity.

Closure will rely upon the following core principles:

- **Physical Stability**: project components remaining after closure will be physically stable for humans and wildlife;
- **Chemical Stability** (the DTSF being the major focal point);
- **No Long-Term Active Care** is anticipated; any project component that remains after closure will not require long-term active care and maintenance; and,
- **Post-closure monitoring**: managed via a monitoring plan agreed with the authorities. Towards the end of the life of the Project, post closure objectives will be refined to accommodate the site conditions prevailing at the time.

4.1 Surface and Mine Facilities

Mine infrastructure includes service buildings, accommodation complex, process plant, water treatment facility, power generation plant, mine entries and associated infrastructure, roadways, fuel tanks, mobile equipment and pipelines. Main details are as follows:

- All buildings and major structures will be dismantled and removed. Foundations will be removed where possible or covered by natural materials to blend into the natural surroundings.
- All mining related artifacts will be removed, and inert material will be disposed of.
- Mine entries will be suitably secured to prevent accidental trespass.
- Roads no longer required will be reclaimed via progressive ripping, scarifying and landscaping to encourage revegetation.
- Any culverts that could act as hydraulic conduits at closure will be removed.
- All infrastructure relating to the electrical power supply system will be dismantled and removed.
- All fuel transit areas remaining will be equipped with spill kits until full decommissioning of the fuel storage areas is undertaken in accordance with a suitable method statement to be protective of the environment.
- The jetty, the beach landing area and the road connecting the port and the DTSF may be left intact to facilitate future inspections and monitoring activities (if agreed with the Greenland authorities).

4.2 Mine Waste Facilities

The highest potential for environmental impact arises from mine drainage and the decommissioning or removal of hydrocarbon storage tanks and related equipment (Golder, 2022b).

To mitigate the risk of contamination from the DTSF and from the discharge from the mine portal a programme of groundwater and surface water monitoring will be developed as part of an Environmental Management Plan for the mine. It is noted that monitoring undertaken by DCE following the previous closure of the mine in 2013 demonstrated that there was no significant detrimental impact to the environment following closure (Bach, 2020).

Toxicity tests on both process water and leachate from waste rock has verified that these have non-lethal characteristics and therefore are unlikely to adversely impact surface water receptors (Golder 2021b). Geochemical characterisation of tailings and waste rock has demonstrated that materials show a net buffering capacity and low sulphide content (Golder 2021b) and can be classed as inert with respect to Acid Rock

Drainage (ARD) potential (based upon European Commission, 2009[1]). The only identified Potential Contaminant of Concern (PCOC) is arsenic, present at a low concentration.

4.2.1 Dry Stack Tailings Storage Facility

Golder conducted a disposal method option study for the tailings disposal at Nalunaq (Golder, 2020a), which concluded that a dry stack method was the preferred option for the safe disposal and storage of tailings. The study assessed the performance of the different disposal options throughout the entire mine life, including closure. A location risk assessment is presented in Golder 2022a in which it is concluded that of the site locations identified the proposed location in the upper part of the Kirkespirdalen as the preferred location based on various criteria including, proximity to the process plant, site access, suitable subsurface conditions, ability to control surface water and low environmental impact.

The design of the proposed Dry Stack Tailings Storage Facility ("DTSF") is presented in Golder, 2021a. Some key aspects of the design intended to mitigate risks to the environment during decommissioning and closure of the facility include:

- The facility will be constructed above the 1:1000 flood level to mitigate the risk of inundation by surface water flooding (Figure 2).
- The construction of berms to divert upslope runoff into collection channels and away from the DTSF.
- Riprap will be placed upon a geofabric filter material, between toe and crest of embankment to a minimum height of 300 mm above the design flood level.
- Compaction of material to reduce risk of slope failure and dust emissions.

The stability of the DTSF slopes has been considered in the design, together with the need for erosion protection during operations and throughout closure. This includes a cover and transition/filter layers being placed along the outside slopes so that it quickly establishes a stable surface to minimise the potential for wind and water erosion, promote long-term stability and allow an appropriate after use that requires minimal maintenance. Final heights of the DTSF will be confirmed during detailed design and as the construction and operations plans are updated during the mine life, in consultation with the Greenland authorities.

Concurrent reclamation of the outer slopes of the DTSF will begin during operations and as much as practicable the outer slopes will be reclaimed with rock fill to complement the natural stable landform terrain. The top of the tailings surface will be graded to direct all runoff from the surface of the facility and into perimeter water management structures.

During the post operational period intensive input will be required to achieve the final surface topography commensurate with the agreed after use and to ensure its long-term integrity. This could include the following:

- Progressive ripping, scarifying and landscaping of any stockpile areas to be reinstated to conditions prior to construction;
- Placement of any cover layer as considered appropriate. The depth and grading of the material comprising such a cover will depend on the geotechnical characteristics of the final tailings layers; and,
- Independent post closure auditing.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009D0359

In accordance with industry practice, data on tailings deposition, geotechnical and geochemical properties, hydrology and meteorology will be collected throughout the deposition period to ensure that an appropriate closure strategy is adopted. This information will be used to update and finalise the closure plan.

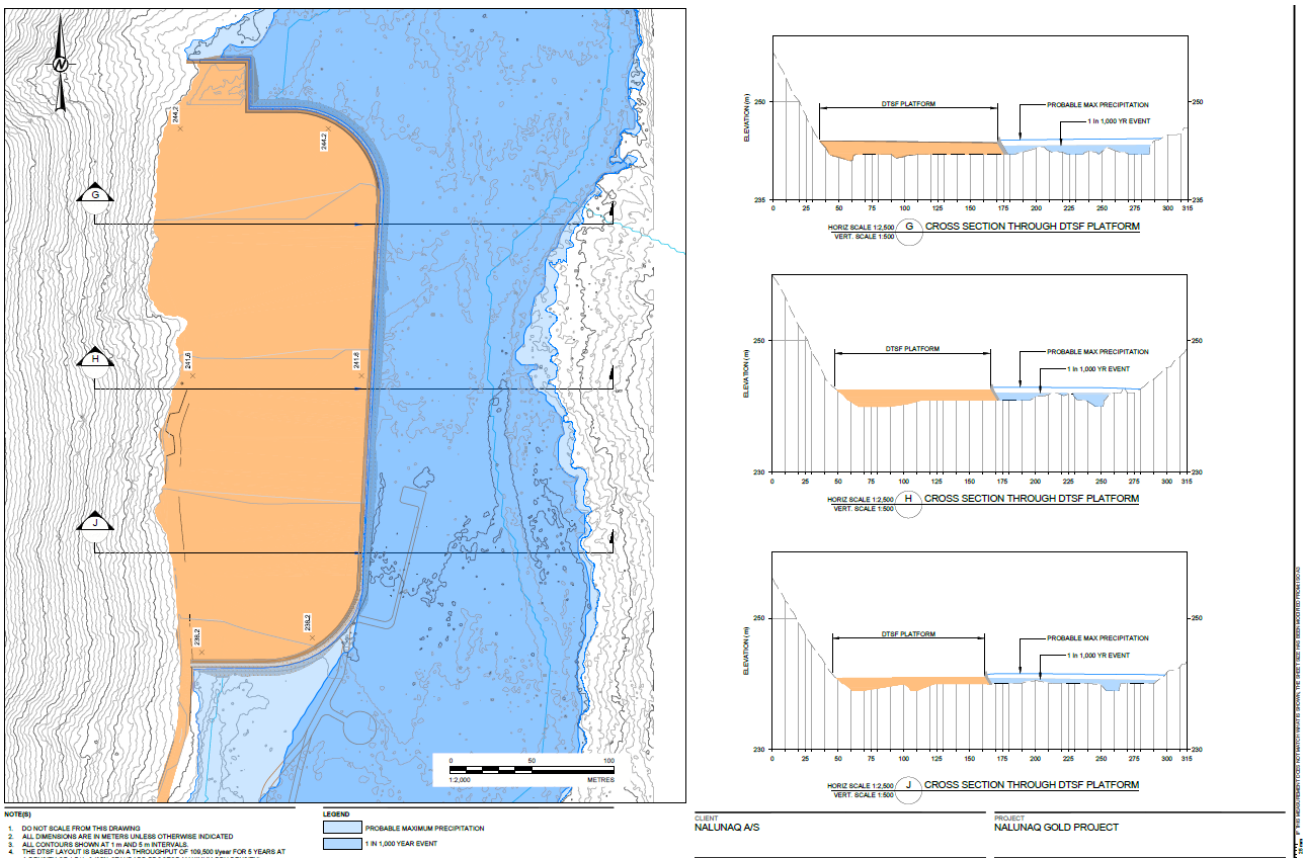

Figure 2: TSF, to illustrate protection from 1:1000 year event (Golder 2021a)

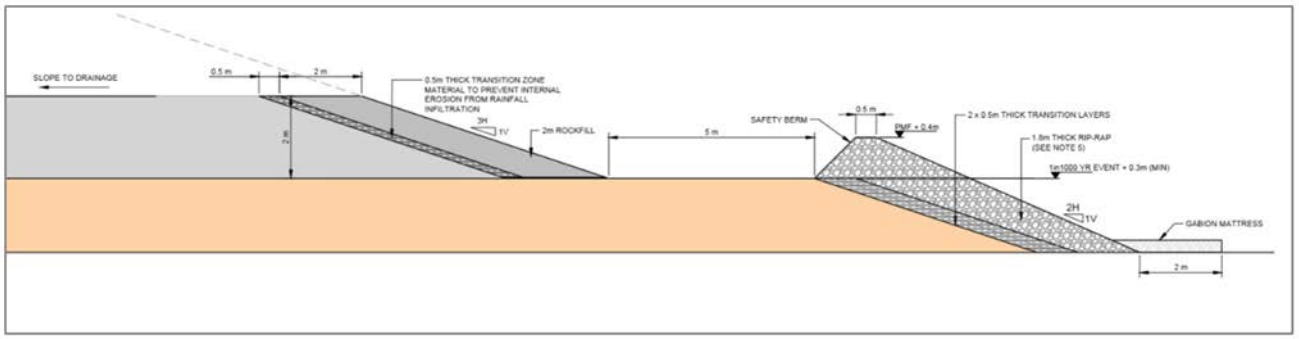

Figure 3: Typical section through the DTSF (Golder, 2021a)

4.2.2 Waste Rock Dumps

Any stockpiles stored for processing during the exploration phase will be drawn down when capacity is available at the processing plant and final drawdown of any stockpiles will be undertaken prior to closure.

During operation of the mine, waste rock, being non-acid generating, will be left in the mine or used to build and maintain infrastructure such as roads and foundations. Waste rock may also be deposited on a flat area to the south of the mine-workings (area indicated by red line in Figure 4). Following closure, waste rock dumps,

foundations and roads will be reinstated to replicate conditions prior to construction as far as possible by landscaping and revegetation.

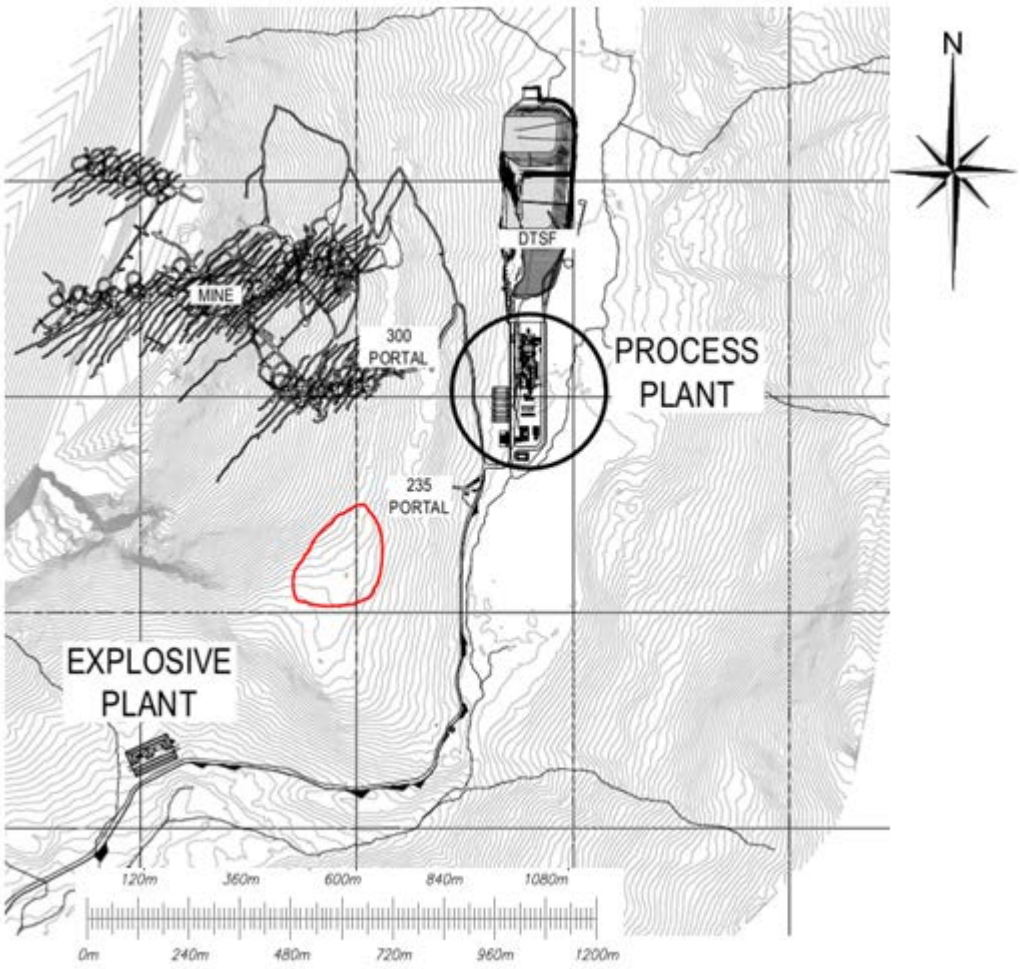

Figure 4: Plan view of indicative area of potential waste rock stockpiling (area encircled by red line)

4.3 Water Management

The results of water quality monitoring undertaken by DCE following closure of the previous operations in 2013 indicates that the level of pollutants returned to background concentrations after approximately 4 years (Bach and Olsen, 2020). Toxicity tests on both process water and leachate has verified that these have non-lethal characteristics and are unlikely to adversely impact surface water receptors (Golder 2021b). Furthermore, the flow in the Kirkespir river is likely to provide a dilution factor of 75 (Golder, 2021c). However, settlement, through the use of settlement ponds or lamella settlement tanks, is required prior to discharge. To ensure the long-term integrity of the system throughout the life of mine (and beyond), a comprehensive water management and maintenance regime will be implemented at the site, as explained in detail in the Water Management Plan (Golder, 2020b). As a minimum however:

- Water distribution systems will need to be monitored and maintained to prevent freezing or ice-build up in the systems.
- The sediment ponds need to be inspected and cleaned regularly to prevent build-up of sediment within the ponds.

- During closure, any channels that collect seepage and runoff from the DTSF would need to be inspected and cleaned regularly to prevent build-up of sediment in the channels.

The design of the water management systems on closure will be updated as the closure plan is updated prior to closure.

4.4 Soil and Vegetation Management

The proposed mining activities are designed such as to minimise permanent soil and vegetation disturbance. Based on the results of the environmental monitoring in accordance with the scheme which will be developed as part of an Environmental Management Plan the need for active revegetation will be considered as further data becomes available. The short-term aim would be to reduce erosion and dust dispersal while improving the aesthetics of the site, however careful consideration will be given to the vegetation species selected to ensure it promotes long term habitat restoration and reflect the site's ecological characteristics.

The DTSF design incorporates measures to minimise the risk of erosion of the facility (Golder 2021a). On mine closure it is proposed these elements will be further protected through the use of additional reinforcement with large rocks placed on the flanks and in a erosion mitigation ditch upstream of the facility. Further details will be developed during the detailed design of the DTSF and during updates to the closure plan during operations.

4.5 Socio-economic Considerations

Following closure of the mine, hiking and hunting may attract people to the valley. To reduce the risk to the public mine entries will be closed with a suitable barricade to deter entry and surface structures will be removed.

4.6 Wildlife, Habitats and Biodiversity

Careful consideration will be given to the vegetation species selected to ensure it promotes long term habitat restoration and reflect the site's ecological characteristics.

Results of the monitoring of dust borne contamination after closure of the previous mining activities shows that the level of pollutants returns to normal background levels after approximately four years (Bach and Olsen, 2020). No need for additional dust mitigation is foreseen.

A scheme of post closure monitoring will be developed prior to closure, together with appropriate triggers for further investigation and mitigation actions should an increase in levels of contaminants be identified.

5.0 POST-CLOSURE MONITORING

Nalunaq will develop and implement an Environmental Monitoring Program (EMP) as part of an Environmental Management Plan in accordance with the Greenlandic guidelines to monitor the potential impact of the mining operation following closure and the effectiveness of implemented mitigation measures. The EMP will include the construction, operation, closure and post-closure phases of the project to identify any variances from predictions that occur and whether such variances require action, including any additional mitigation measures.

The monitoring program will focus on physical monitoring of meteorology, groundwater, surface water and air (dust) and will be consistent with those elements undertaken as part of the historical program summarised in Bach 2020. The results of the monitoring programme will be submitted in an annual monitoring report to regulatory authorities for review. It is not envisaged that monitoring of biota will be undertaken as part of this programme.

An annual inspection of the site will also be undertaken to assess the condition of the DSTF cover, stability and potential risk of erosion.

It is envisaged that the monitoring programme would be undertaken by Nalunaq for a period of 5 years post closure.

5.1 Water Quality and Flow Monitoring

As identified above an EMP will be developed that will include a scheme of groundwater level and quality and surface water flow and quality monitoring to monitor the impact of the mine on the environment from operations through into closure. The EMP will be agreed in advance with EAMRA, however it is envisaged it will include monitoring of groundwater wells around the DTSF and locations on the Kirkespir river upstream and downstream of the DTSF. Water quality analyses will be undertaken for major and minor ions, a suite of indicator metals, cyanide and hydrocarbons.

5.2 Dust monitoring

As part of the EMP locations for monitoring dust deposition will be identified together with a methodology for sample collection for analysis. The EMP will set out the monitoring frequencies, which will be agreed in advance with EMRA.

If a problem is identified remediation measures (such as spraying water on the roads during summer) will be considered in cooperation with the Greenlandic authorities.

5.3 Meteorological Monitoring

Collection of meteorological data will continue at the established weather station. The Meteorological Monitoring reporting will include a summary of the measured parameters, including temperature, precipitation and wind speed.

5.4 Monitoring parameters and sampling locations

The table below shows an indicative framework for post closure monitoring. Monitoring parameters and locations will be agreed, in writing, with the authorities at a later date following the development of an EMP.

Table 1: Post Closure Preliminary Monitoring Plan

Monitoring Aspect	Sample Locations /Subjects	Parameter	Frequency	Duration	Reporting Frequency
Surface water quality	Above and below the TSF, Kirkespir River	Metals and hydrocarbons	To be agreed with EAMRA	5 years	Annually
Surface water quantity	Kirkespir River	Depth/velocity	Hourly (data logger)	5 years	Annually
Groundwater quality	Monitoring locations upgradient and downgradient of the DTSF and process plant, fuel storage areas	Metals and hydrocarbons	To be agreed with EAMRA	5 years	Annually
Groundwater levels	Monitoring locations upgradient and downgradient of the DTSF and process plant, fuel storage areas	Elevation	Daily (data logger)	5 years	Annually
Dust deposition	Passive dust deposition pad down valley of DTSF and process plant	Dust deposition rate	To be agreed with EAMRA	5 years	Annually
Local climate	Weather station at main camp	Temperature, precipitation, wind speed and direction	Daily (data logger)	5 years	Annually

6.0 EARY CLOSURE

This draft closure plan is based on the current mine configuration and production rates and that the mining operations will cease after 5 years of operation, at which stage mine closure activities will commence. Temporary suspension and possibly premature closure may be required if the operations are no longer viable due to a change in Project economics or other difficulties.

If the closure is temporary, various actions are required to ensure that the water management system is kept maintained. These actions will include:

- The monitoring and maintenance of water distribution systems to prevent freezing or ice-build up within the system;
- The regular inspection and cleaning of the sediment ponds to prevent build-up of sediment within the ponds;
- The regular cleaning and inspection of any channels that collect seepage and runoff from the DTSF to prevent build-up of sediment in the channels.

Regular inspection of the site and hill slopes above will also be required to ensure that rockfall, debris flow or avalanche does not create a hazard that may damage the site during temporary closure or upon re-start of operations. Should operations recommence, then the site should be inspected for fallen rock that may be dislodged during storms. Regular inspections of the DTSF should also be undertaken during temporary closure and prior to re-commencement of operations to ensure that the DTSF has remained stable and that no flood damage has occurred.

If operations do not recommence at the site then the procedure detailed in section 4.0 will be implemented for the site, with the DTSF being decommissioned in line with the procedure detailed in section 4.2.1.

7.0 FINANCIAL IMPLEMENTATION

It is noted that it is stated in guidance from the Greenland Government (Explanatory notes to the Mineral Resources Act[2]) that the closure plan must contain details of how the closure will be financed. An estimate of the cost of closure will be developed as part of work to be undertaken as part of the development of a Canadian National Instrument 43-101 Feasibility Study as further design details become available, and the closure plan is updated. It is not possible to develop costs at this stage due to the preliminary nature of this closure plan consistent with the requirements of the EIA.

8.0 RISK ASSESSMENT

A screening risk assessment for the mine closure aspects is presented in Appendix B. The risk assessment indicates the presence of residual risks for the following:

- Spillage of organic and inorganic chemicals during decommissioning, particularly in relation to fuel storage;
- Contamination of ground and surface waters by drainage waters that are of lower quality than anticipated and the potential production of acid rock drainage;
- Lack of accessibility of site for environmental monitoring; and,
- Potential damage to DTSF as a result of erosion exacerbated by climate change.

To mitigate the residual risks it is necessary for post-closure monitoring is carried out and that the DTSF is inspected for evidence of potential damage due to erosion. Potential lack of site accessibility due to adverse weather is a further risk which may be mitigated by flexibility in monitoring dates.

9.0 REFERENCES

- Bach, L. 2020. Environmental monitoring at the Nalunaq Gold Mine, South Greenland, 2004-2020. Aarhus University, DCE – Danish Centre for Environment and Energy, 76 pp. Scientific Report No. 386. http://dce2.au.dk/pub/SR386.pdf
- Bach, L. and Olsen, L. 2020. Environmental monitoring at the Nalunaq Gold Mine, South Greenland, 2019. Technical note from Aarhus University, DCE – Danish Centre for Environment and Energy, 19 pp.
- Golder, 2020a. Nalunaq Gold Mine: Task 1 – Tailings Disposal Options Study. Report reference 20136781.602.A0, dated January 2021.
- Golder, 2020b. Nalunaq Gold Mine, Water Management Plan. Report 20136781.611.A0 December 2020
- Golder, 2021a. Nalunaq Gold Mine, Greenland – Tailings Storage Facility Design Report. 20136781.619.A1, dated January 2021.
- Golder 2021b. Tailings and Waste Characterisation Review – Nalunaq, Greenland. Technical Memorandum 21467213.500.A0
- Golder 2021c. Nalunaq Gold Project, Water Quality Review Technical Memorandum 21467213_501
- Golder 2022a. Tailings Storage Facility Options Analysis. Technical Memorandum 1467213.C04.1.B.0

[2] https://govmin.gl/exploitation/get-an-exploitation-licence/mineral-resources-act/

- Golder, 2022b. Failure Mode and Effects Analysis for Nalunaq Mine. Technical Memorandum 21467213.C04.2.A.0, dated 11 March 2022.
- International Council on Mining & Metals (ICMM), 2019. Integrated Mine Closure: Good Practice Guide. 2nd Edition.
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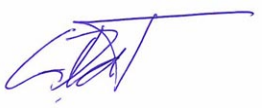
Signature Page

WSP Golder (WSP UK Ltd)



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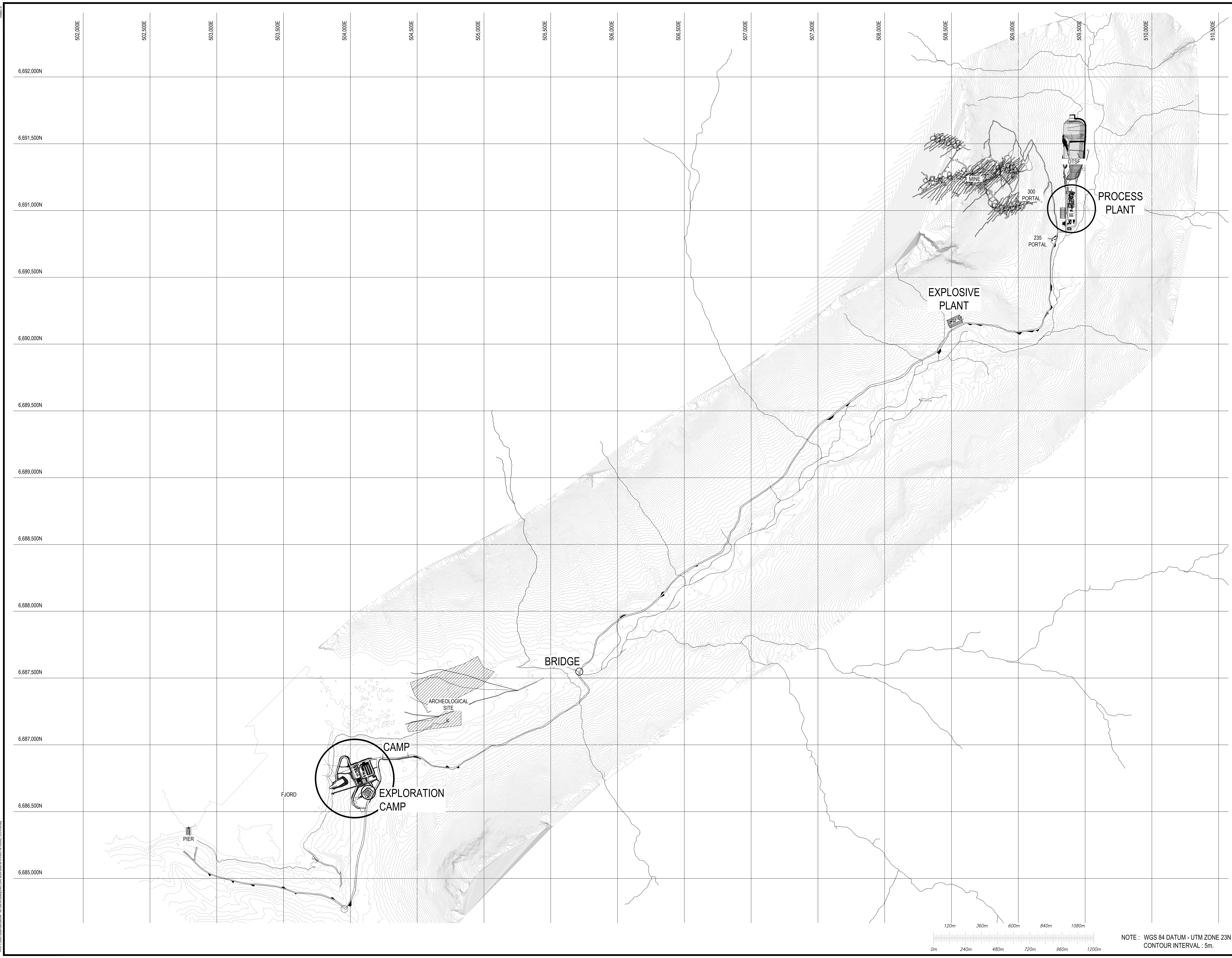
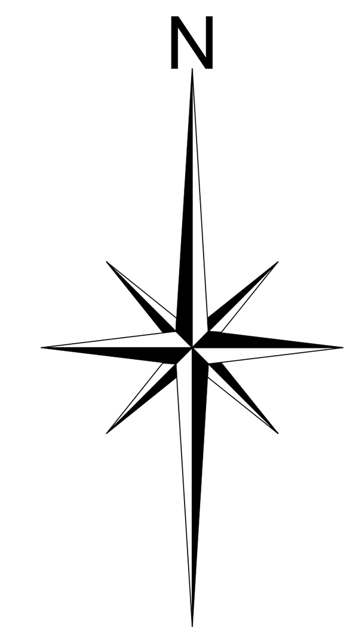
APPENDIX A

Site Layout



NOTE : WGS 84 DATUM - UTM ZONE 23N
CONTOUR INTERVAL : 5m.



ENGINEER'S REFERENCE	
ENGINEER'S NAME	MEMBER'S #
SAMEUL MARTEL	146311

NOT FOR CONSTRUCTION

REFERENCE DRAWINGS	
TITLE	DRAWING No.

REV.	DESCRIPTION	BY	APP.	DATE
0K	ADDED BRIDGE	TP	SM	21-04-14
0J	ADDED EXPLORATION CAMP	TP	SM	21-04-08
0H	OVERALL UPDATED	TP	MM	21-03-09
0G	OVERALL CAMP	FR	MM	20-08-12
0F	PERMITTING DRAWING	FR	SM	20-08-05
0E	ADD LABELS	FR	SM	20-07-31
0D	GENERAL UPDATE	FR	SM	20-07-02
0C	TEMP CAMP LAYOUT UPDATED	FR	MM	20-04-23
0B	REQUEST FOR PROPOSAL	FR	SM	20-01-28
0A	PRELIMINARY	FR	MM	19-12-06

REVISIONS

DESIGN :		
DRAWN :	TANYA PROULX	21-04-14
CHECKED :	SAMUEL MARTEL	21-02-26
APPROVED :	SAMUEL MARTEL	21-04-14
SCALE :	1:12 000	DATE

Nalunaq A/S

PROJECT :
NALUNAQ

SUB-PROJECT :
ENGINEERING & CONSTRUCTION

TITLE :
PROCESS PLANT GENERAL
GENERAL
OVERALL SITE
PLAN VIEW

DRAWING No. :	REVISION :
GRNA-6010-G-6001	0K

APPENDIX B

Risk Assessment

NALUNAQ A/S CLOSURE RISKS AND ASSOCIATED CONSEQUENCES/IMPACTS	CONSEQUENCE				
	1	2	3	4	5
	INSIGNIFICANT	MINOR	MODERATE	HIGH	MAJOR
Safety / Health	First aid case / Exposure to health hazard resulting in temporary discomfort	Medical treatment case / Exposure to health hazard resulting in temporary alterations/limitations (no lost time)	Lost time/ Exposure to health hazards/ agents (over the OEL) resulting in reversible impact on health (with lost time)	Permanent disability or single fatality/ Exposure to health hazards/ agents (significantly over the OEL) resulting in irreversible impact on health with loss of quality of life or single fatality	Numerous permanent disabilities or multiple fatalities/ Exposure to health hazards/ agents (significantly over the OEL) resulting in irreversible impact on health with loss of quality of life of a numerous group/ population or multiple fatalities
Environment	Lasting days or less; limited to small area (metres); receptor of low significance/ sensitivity (industrial area)	Lasting weeks; reduced area (hundreds of metres); no environmentally sensitive species/ habitat)	Lasting months; impact on an extended area (kilometres); area with some environmental sensitivity (scarce/ valuable environment).	Lasting years; impact on sub-basin; environmentally sensitive environment/ receptor (endangered species/ habitats)	Permanent impact; affects a whole basin or region; highly sensitive environment (endangered species, wetlands, protected habitats)
Financial	No disruption to operation/ 5% of current liability estimate	Brief disruption to operation/10% of current liability estimate	Partial shutdown /15% of current liability estimate	Partial loss of operation/20% of current liability estimate	Substantial or total loss of operation / 25% of current liability estimate
Legal & Regulatory	Technical non-compliance. No warning received; no regulatory reporting required	Breach of regulatory requirements; report/involvement of authority. Attracts administrative fine	Minor breach of law; report/investigation by authority. Attracts compensation/ penalties/ enforcement action	Breach of the law; may attract criminal prosecution, penalties/ enforcement action. Individual licence temporarily revoked	Significant breach of the law. Individual or company law suits; permit to operate substantially modified or withdrawn
Reputation / Social / Community	Minor impact; awareness/ concern from specific individuals/ Minor disturbance of culture/ social structures	Limited impact; concern/ complaints from certain groups/ organizations (e.g. NGOs) / Some impacts on local population, mostly repairable. Single stakeholder complaint in reporting period	Local impact; public concern/ adverse publicity localised within neighbouring communities / On going social issues. Isolated complaints from community members/ stakeholders	Suspected reputational damage; local/ regional public concern and reactions / Significant social impacts. Organized community protests threatening continuity of operations	Noticeable reputational damage; national/ international public attention and repercussions/ Major widespread social impacts. Community reaction affecting business continuity. “License to operate” under jeopardy

PROBABILITY			RISK RATING				
ALMOST CERTAIN	**5**	The unwanted event has occurred frequently: occurs in order of one or more times per year & is likely to reoccur within 1 year	11 (M)	16 (S)	20 (S)	23 (H)	25 (H)
LIKELY	**4**	The unwanted event has occurred infrequently: occurs in order of less than once per year & is likely to reoccur within 5 years	3 (M)	12 (M)	17 (S)	21 (H)	24 (H)
POSSIBLE	**3**	The unwanted event has happened in the business at some time: or could happen within 10 years	4 (L)	8 (M)	13 (S)	18 (S)	22 (H)
UNLIKELY	**2**	The unwanted event has happened in the business at some time: or could happen within 20 years	2 (L)	5 (L)	9 (M)	14 (S)	19 (S)
RARE	**1**	The unwanted event has never been known to occur in the business: or it is highly unlikely that it will occur within 20 years	1 (L)	3 (L)	6 (M)	10 (M)	15 (S)

Risk Rating	Risk Level	GUIDELINES FOR RISK MATRIX
21 to 25	H - High	A high risk exists that management’s objectives may not be achieved. Appropriate mitigation strategy to be devised immediately.
13 to 20	S - Significant	A significant risk exists that management’s objectives may not be achieved. Appropriate mitigation strategy to be devised as soon as possible.
6 to 12	M - Medium	A moderate risk exists that management’s objectives may not be achieved. Appropriate mitigation strategy to be devised as part of the normal management process.
1 to 5	L - Low	A low risk exists that management’s objectives may not be achieved. Monitor risk, no further mitigation required.

AEX Nalunaq
SCREENING LEVEL RISK ASSESSMENT
TO INFORM CLOSURE PLANNING

NO.	ASPECT	HAZARD/RISK	CONSEQUENCE/IMPACT	MAXIMUM FORESEEABLE LOSS (MFL)																								MITIGATION	RESIDUAL RISK																	
				SAFETY / HEALTH			ENVIRON-MENTAL			FINANCIAL			LEGAL & REGULATORY			REPUTATION / SOCIAL / COMMUNITY				SAFETY / HEALTH			ENVIRON-MENTAL			FINANCIAL			LEGAL & REGULATORY			REPUTATION / SOCIAL / COMMUNITY													
				Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking		Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking		Probability	Consequence	Ranking	Probability	Consequence	Ranking	Probability	Consequence	Ranking		
1.0	**Site Wide**																																											
1.1	Waste tips	Acid Rock Drainage (ARD) or run-off from the waste tips	Acidic/toxic run-off from the historical waste dumps	4	2	12 (M)	4	4	21 (H)	4	4	21 (H)	4	4	21 (H)	4	4	21 (H)	Water quality will continue to be monitored upon closure; kinetic testing currently being undertaken; AMD study suggests that AMD is	1	2	3 (L)	1	4	10 (M)	1	4	10 (M)	1	3	6 (M)	1	4	10 (M)													
1.2	Reclamation materials	Inadequate availability of reclamation materials	Soil erosion, lack of vegetation establishment	2	1	2 (L)	2	5	19 (S)	2	2	5 (L)	2	3	9 (M)	2	2	5 (L)		2	1	2 (L)	2	2	5 (L)	2	2	5 (L)	2	3	9 (M)	2	2	5 (L)													
1.3	Financial resources to pay for closure	Availablity of resources to complete assessment work	Sampling, testing and other environmental assessment work is not completed in a timely manner, or not at all.	2	3	9 (M)	2	3	9 (M)	2	4	14 (S)	2	5	19 (S)	2	4	14 (S)	Financial provisions; ensure that road and jetty are kept open and safe access provided to site; provision of a financial bond to pay fror closure works.	2	3	9 (M)	2	2	5 (L)	2	2	5 (L)	2	2	5 (L)	2	2	5 (L)													
1.4	Buildings	Contamination of building fabric with asbestos containing materials (ACMs)	Long term medical liability	1	4	10 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	4	10 (M)	No known ACMs on site	1	4	10 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	4	10 (M)													
1.5	Buildings including chemical / fuel storage	Contamination of building fabric and soils with hazardous chemicals (e.g. metals, solvents, reagents, fuels and solvents)	Soil and water contamination, potential health risks	5	3	20 (S)	5	4	23 (H)	5	3	20 (S)	5	3	20 (S)	5	4	23 (H)	Water quality will continue to be monitored upon closure; careful management during decommissioning of storage facilities	1	2	3 (L)	1	4	10 (M)	1	4	10 (M)	1	3	6 (M)	1	4	10 (M)													
1.6	Buildings	Electrical risk	Fire, electric shock	4	4	21 (H)	4	1	3 (M)	4	3	17 (S)	4	3	17 (S)	4	3	17 (S)	Careful management of decommissioning activities by experienced and qualified contractor	1	3	6 (M)	1	1	1 (L)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)													
1.7	Demolition of buildings	Dust creation with demolition activities (operations and decommissioning)	Potential impact to flora and fauna, possible impact to surface waters	4	2	12 (M)	4	4	21 (H)	4	2	12 (M)	4	2	12 (M)	4	1	3 (M)	Careful management of decommissioning activities by experienced and qualified contractor	1	2	3 (L)	1	4	10 (M)	1	2	3 (L)	1	2	3 (L)	1	1	1 (L)													
1.8	Site access	Haul road and bridges damaged or blocked	Access removed or restricted, potential injury to workers during decommissioning phase. Could disrupt monitoring activities.	4	4	21 (H)	4	4	21 (H)	4	3	17 (S)	4	2	12 (M)	4	2	12 (M)	Site is in a suitable location to avoid risk as far as possible	4	2	12 (M)	4	3	17 (S)	4	2	12 (M)	4	3	17 (S)	4	1	3 (M)													
1.9	Water resources	Potential contamination of surface water bodies (Kirkespir River) from ARD and inorganic and organic contamination from site activities	Breach of discharge standards and prosecution	4	3	17 (S)	4	4	21 (H)	4	4	21 (H)	4	4	21 (H)	4	4	21 (H)	Water quality will continue to be monitored upon closure; kinetic testing currently being undertaken; AMD study suggests that AMD is	1	3	6 (M)	1	4	10 (M)	1	4	10 (M)	1	4	10 (M)	1	4	10 (M)													
2.0	**Mine**																																											
2.1	Waste tips	Waste rock slope failure	Failure of the waste tips onto the access road.	3	3	13 (S)	3	4	18 (S)	3	3	13 (S)	3	3	13 (S)	3	3	13 (S)	Waste rock to be deposited within stopes as far as possible; existing waste tip areas to be lanscaped and revegetated.	2	2	5 (L)	1	2	3 (L)	1	2	3 (L)	1	2	3 (L)	1	2	3 (L)													
2.2	Roads	Road slope failure (e.g., due to rockfall, avalanche, debris flow)	Road cuts fail, blocking acccess and egress from the Adits.	3	2	8 (M)	3	1	4 (L)	3	2	8 (M)	3	1	4 (L)	3	1	4 (L)	Inert rock to be removed from roads as far as possible; remaining rock to be landscaped and revegetated	2	2	5 (L)	1	2	3 (L)	1	2	3 (L)	1	2	3 (L)	1	2	3 (L)													
2.3	Underground workings	Potential contamination of surface water bodies (Kirkespir River) from ARD and inorganic and organic contamination from site activities	Breach of discharge standards and prosecution	4	3	17 (S)	4	4	21 (H)	4	4	21 (H)	4	4	21 (H)	4	4	21 (H)	Water quality will continue to be monitored upon closure; kinetic testing currently being undertaken; AMD study suggests that AMD is	1	3	6 (M)	1	4	10 (M)	1	4	10 (M)	1	4	10 (M)	1	4	10 (M)													
2.4	Underground workings	Collapse of adits and drift	Collapse, blocking access and egress, loss of ventilation and drainage from adits and loss of ground support	3	4	18 (S)	3	4	18 (S)	3	4	18 (S)	3	3	13 (S)	3	3	13 (S)		1	4	10 (M)	1	2	3 (L)	1	4	10 (M)	1	3	6 (M)	1	3	6 (M)													
2.5	Underground workings	Investigation by public	death or injury due to rockfall	3	5	22 (H)	2	1	2 (L)	3	5	22 (H)	3	5	22 (H)	3	5	22 (H)	Mine entries will be sealed and made safe	3	1	4 (L)	3	1	4 (L)	3	1	4 (L)	3	1	4 (L)	3	1	4 (L)													
3.0	**DTSF**																																											
3.1	DTSF Facility	Damage to DTSF exacerbated by climate change. Rockfall, avalanche damage, flooding.	Erosion or scouring of DTSF, risk of landform becoming unstable	3	3	13 (S)	3	4	18 (S)	3	3	13 (S)	3	3	13 (S)	3	3	13 (S)	Mine closure planning includes limited final height, berm and batter walls constructed at specified angle for closure, revegetation of walls, rock armouring, capping if specified, revegetation to prevent erosion. Annual audit to check for damage.	2	3	9 (M)	3	3	13 (S)	2	3	9 (M)	2	3	9 (M)	2	3	9 (M)													
3.2	DTSF Facility	Contamination of ground and surface waters	Concentrations of potential contaminants of concern (PCOCs)may exceed Greenland water quality guidelines, with the potential to adversely impact the ecosystem of the river	4	3	17 (S)	4	5	24 (H)	4	5	24 (H)	4	5	24 (H)	4	5	24 (H)	An environmental monitoring programme has been in place on site and no detrimental impacts from the historical mining have been identified to date. Materials are classed as inert with respect to ARD potential, and there is a low concentration of the only identified potential contaminant of concern (PCOC).	2	2	5 (L)	2	4	14 (S)	2	4	14 (S)	2	4	14 (S)	2	4	14 (S)													
4.0	**Processing Site**																																											
4.1	Buildings	Contamination of building fabric and soils with hazardous chemicals (e.g. metals, solvents, reagents, fuels and solvents)	Soil and water contamination, potential health risks	5	3	20 (S)	5	4	23 (H)	5	3	20 (S)	5	3	20 (S)	5	4	23 (H)	Water quality will continue to be monitored upon closure; careful management during decommissioning of storage facilities	1	2	3 (L)	1	4	10 (M)	1	4	10 (M)	1	3	6 (M)	1	4	10 (M)													
4.2	Ponds, wet areas	Contamination of building fabric	Soil and water contamination, potential health risks	5	3	20 (S)	5	4	23 (H)	5	3	20 (S)	5	3	20 (S)	5	4	23 (H)	Water quality will continue to be monitored upon closure; careful management during decommissioning of storage facilities	1	2	3 (L)	1	4	10 (M)	1	4	10 (M)	1	3	6 (M)	1	4	10 (M)													
4.3	Fuel storage	Spillage of oils and chemicals during decommissioning	Contamination of groundwater and surface waters and potential ecological impact	5	3	20 (S)	5	4	23 (H)	5	3	20 (S)	5	3	20 (S)	5	4	23 (H)	Water quality will continue to be monitored upon closure; careful management during decommissioning of oil and chemical storage facilities	1	2	3 (L)	1	4	10 (M)	1	4	10 (M)	1	3	6 (M)	1	4	10 (M)													
4.4	Ore/waste stockpiles	Waste rock slope failure	Failure of the waste tips onto surrounding area	3	3	13 (S)	3	4	18 (S)	3	3	13 (S)	3	3	13 (S)	3	3	13 (S)	Waste rock to be deposited within stopes as far as possible; existing waste tip areas to be landscaped and revegetated.	2	2	5 (L)	1	4	10 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)													
5.0	**Explosive store**																																											
5.1	Explosive store	Contamination of store / ground with explosive residues	Nitrate impact to surface and ground waters from nitrate residues, death, injury from improper handing during decommissioning	1	5	15 (S)	1	4	10 (M)	1	4	10 (M)	1	3	6 (M)	1	3	6 (M)	Emulsion will be used for blasting activities and this is surrounded by a film of oil which will minimise contact with water sources and also has a low capacity to release nitrogen to the water sources. Spillage kits will be available, and any spillage will be cleaned up using cat litter, bentonite or similar and disposed of in accordance with available guidance. As such, it is unlikely that residues	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)													
6.0	**Jetty**																																											
	Fuel storage	Spillage of oils and chemicals during decommissioning	Contamination of groundwater and surface waters and potential ecological impact	5	3	20 (S)	5	4	23 (H)	5	3	20 (S)	5	3	20 (S)	5	4	23 (H)	Water quality will continue to be monitored upon closure; careful management during decommissioning of oil and chemical storage facilities	1	2	3 (L)	2	4	14 (S)	2	4	14 (S)	2	3	9 (M)	2	4	14 (S)													
	Site access	Boat landing not possible due to adverse weather	Access removed or restricted. Could disrupt monitoring activities.	4	3	17 (S)	4	4	21 (H)	4	2	12 (M)	4	2	12 (M)	4	2	12 (M)	Assess weather conditions; flexible monitoring arrangements	2	2	5 (L)	2	4	14 (S)	2	2	5 (L)	2	3	9 (M)	2	1	2 (L)													
7.0	**Other Aspects**																																											
7.1	Monitoring	Credibility of monitoring results	Lack of defensible baseline at closure, inadequate knowledge base to facilitate/support closure	2	2	5 (L)	2	3	9 (M)	2	3	9 (M)	2	3	9 (M)	2	2	5 (L)	Ensure monitoring is agreed in writing with relevant authorities; update closure plan during mine construction and operation activities.	1	2	3 (L)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	2	3 (L)													
7.2	Stakeholder engagement	Insufficient stakeholder engagement	Stakeholder and community dissatisfaction, not addressing stakeholder requirements throughout the operational period, leading up to decommissioning and closure, lack of closure plan update	2	2	5 (L)	2	3	9 (M)	2	3	9 (M)	2	3	9 (M)	2	2	5 (L)	Ensure monitoring is agreed in writing with relevant authorities; update closure plan during mine construction and operation activities.	1	2	3 (L)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	2	3 (L)													
7.3	Liability	Potential liabilities regarding legacy issues.	Liability for contamination mitigation / clean-up	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	2	3 (L)	Legacy issues appear to be well researched and established, liabilities appear to be low.	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	3	6 (M)	1	2	3 (L)													

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