

TECHNICAL MEMORANDUM

DATE 20 November 2020

Reference No. 20136781.603.A1

TO Samuel Martel, Nalunaq A/S

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NALUNAQ GOLD PROJECT – DRY STACK TAILINGS STORAGE FACILITY DESIGN CRITERIA

1.0 INTRODUCTION

Following discovery of the Nalunaq gold mine in southern Greenland 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 Nalunaq area. It is understood that Nalunaq A/S are aiming to restart mining operations in 2022.

As set out in our fee proposal (reference P20136781/3/V.2, dated July 2020) Golder Associates (UK) Ltd. (“Golder”) have been contracted to Nalunaq A/S to provide support for the water and tailings management at their Nalunaq mine. As part of the initial scope Golder completed a Tailings Disposal Options Study through which a dry stack tailings storage facility (DTSF) was proposed as the preferred tailings disposal option for the project, as presented in Golder’s Technical Memorandum dated 09 October 2020 (reference 20136781.602.A0).

This Technical Memorandum presents the preliminary proposed engineering Design Criteria for the DTSF.

2.0 DESIGN STANDARDS AND GUIDELINES

The following standards and guidelines will be used for the design of the DTSF:

- Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC;
- European Union Commission, 2018. Best Available Techniques (BAT) Reference Document for the Management of Waste from Extractive Industries in accordance with Directive 2006/21/EC; and
- International Council on Mining and Metals (ICMM), United Nations Environment Programme (UNEP) and Principles for Responsible Investment (PRI), 2020. Global Industry Standard on Tailings Management (GISTM). August 2020.

3.0 DTSF ENGINEERING DESIGN CRITERIA

The current Design Criteria have been derived from data from various sources and each criterion is referenced to its respective source as shown in Table 1. It is noted that some assumptions may require further verification as design progresses.

Table 1: Design Criteria Sources and Notations

Source	Notation
Assumption or Professional Judgement	A
Nalunaq A/S	NQ
Design Guidance	DG
Geotechnical Test Work	GT
Golder	GA

3.1 General

Table 2: General Project Design Inputs

Item	Design Value or Description	Source	Source Reference
Topographical Data	Point cloud in electronic format	NQ	Drone Data DTSF Area
Process Plant and DTSF Location	Plans in electronic format (dwg, pdf)	NQ	Nalunaq Project - Drawing No. GRNA-6010-G-60005 Rev. 0C
Life of Mine	5 years	NQ	Verbal communication from NQ
DTSF Consequence Classification	Significant	A	Assumed based on GISTM (2020)
Flood Design Event	1-in-1000 yr 300 mm freeboard	NQ	Email from NQ dated 18/11/20 (selected from Golder (2020) Flood Risk Assessment scenario modelling)

3.2 Process Plant Operation

Table 3: Process Plant Design Inputs

Item	Design Value or Description	Source	Source Reference
Process Plant Design Basis			
Plant Throughput	300 t/day (109 500t/year)	NQ	Verbal communication from NQ
Concentrator Operating Hours/Year	95% availability: 8,322 hours	NQ	Verbal communication from NQ
Tailings Characteristics			

Item	Design Value or Description	Source	Source Reference
In Situ Dry Density	1.7 t/m ³	GT	Golder (2020) Nalunaq tailings sample laboratory tests
Filtered Tailings Moisture Content	10 – 12%	NQ	Verbal communication from NQ

3.3 DTSF

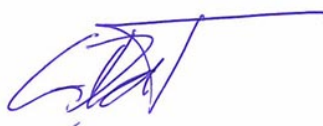
Table 4: DTSF Design Inputs

Item	Design Value or Description	Source	Source Reference
Storage Capacity	550 000 t	NQ	Verbal communication from NQ
Design Life	5 years	NQ	Verbal communication from NQ
Foundation Platform Height	1.8 m	NQ	Email from NQ dated 18/11/20 (selected from Golder (2020) Flood Risk Assessment scenario modelling)
Tailings Transport and Stacking Method	Truck haul, place, and compaction	NQ	Verbal communication from NQ
Slope Stability Analysis Factor of Safety	1.5 After Closure	DG	EU (2018)
	1.3 Operational Phase		
Seismic Design - Annual Exceedance Probability			
Operations and Closure (Active Care)	1/1 000	GA	GISTM (2020)
Passive Closure (Passive Care)	1/10 000	GA	GISTM (2020)

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