



June 18, 2026

Jonathan Hegna

U.S. Army Corps of Engineers

Jonathan.R.Hegna@usace.army.mil

Re: Donlin Gold Comments on Donlin Gold Preliminary Draft SEIS

Dear Jonathan:

Thank you for the opportunity to review and comment on the Preliminary Draft Supplemental Environmental Impact Statement (SEIS) for the Donlin Gold Project. Our comments are intended to assist the U.S. Army Corps of Engineers (Corps) in developing an SEIS that complies with the court's directive and provides a robust analysis. To that end, below please find a summary of our comments. In addition, please find attached a redline of the SEIS.

I. Chapter 2.1 – Applicable Regulations and Planning Requirements for Tailings Storage

We agree that explaining Alaska's state-law regulatory framework for tailings storage is an important part of the analysis. However, the current draft mostly duplicates background content from Chapter 3.24.1.5 of the 2018 EIS across two separate chapters of the SEIS, Chapters 2.1 and 4.23. The Corps should consider deleting Chapter 2.1 and consolidating this material into a single, more robust discussion of the minimization measures in Chapter 4.23, as described in Section V.A below. This chapter should also explain the framework's central significance: that it drastically reduces the remote likelihood of a dam failure (of any size) in the first instance.

II. Chapter 2.2 – Selection of Tailings Spill Scenarios for Analysis

We appreciate the Corps' consideration of the information Donlin submitted regarding tailings dam failure scenarios. However, Chapter 2.2 should further explain how the Corps used that information to identify the scenarios carried forward for analysis and assess impacts. We recommend improving the chapter by providing a step-by-step explanation of the methodology used to select the analyzed release scenarios and the key technical determinations made at each

step. Doing so would help to further demonstrate the reasoned basis for the Corps' exercise of technical judgment and strengthen the administrative record.

A. Introduction

We recommend this chapter begin with a summary paragraph. The introduction in Chapter 1.1 of the Donlin Gold Environmental Evaluation Document (EED) serves as a potential model. Based on the order of presentation in the SEIS, we recommend the following:

The U.S. District Court of Alaska's directive was to evaluate a "larger" tailings spill. The Court did not opine on the appropriate methodology for selecting that larger spill, nor did it pre-determine the appropriate size of that spill. The Corps evaluated information in the 2018 EIS, other record evidence, and the analysis prepared by BGC regarding failures at other international tailings dams and the design of the Donlin TSF dam, which is summarized in Chapter 2.2.1. Based on this information, the Corps determined that a tailings dam failure event of any size is extremely unlikely to occur at the Donlin Mine, due to the unique dam design, regulatory oversight, and mitigation measures, among other factors. The Corps then analyzed various peer-reviewed, published empirical models to calculate potential spill volumes. The Corps ultimately decided to rely on the Piciullo et al. (2022) model for the reasons discussed in Chapter 2.2.3. Given that any dam failure is extremely unlikely and that there are multiple reliable empirical models, the Corps elected to analyze a range of release scenarios, rather than a single release scenario.

B. Chapter 2.2.1

We recommend improving Chapter 2.2.1 by clarifying the purpose of comparing the Donlin TSF Main Dam to historically failed dams. The SEIS should explicitly state the key conclusion: a tailings dam failure of any size at the Donlin TSF Main Dam is extremely unlikely. As BGC (2026) explains, a review of the CSP2 database—the most comprehensive public record of tailings dam failures—found no documented failures of a facility with Donlin's proposed design: a downstream-raised rockfill embankment with a geomembrane liner founded on high-strength bedrock. Of the 94 U.S. failures between 1940 and 2018, only ten involved downstream construction, none were rockfill dams, and the most recent occurred in 1989—before modern dam safety standards and the Global Industry Standard on Tailings Management (BGC 2026). The SEIS currently cites these data to support a conservative breach volume; it should also state the equally important conclusion that a failure (of any magnitude) at the Donlin Main TSF Dam is extremely unlikely.

C. Chapter 2.2.2

Chapter 2.2.2 could be improved by explaining the basis for the Corps' selection of the piping-failure/overtopping scenario as the modeled failure mechanism and why the 2014 Failure Modes and Effects Analysis remains a reliable source of information notwithstanding its age. For example:

For the larger failure scenarios evaluated in this SEIS, an overtopping failure initiated by piping is the representative failure mechanism. Among the credible failure modes identified in the 2014 FMEA, a piping failure is the most plausible for a larger release scenario. This selection is also consistent with the historical record, as crest overtopping is the most frequently documented cause of tailings dam failures globally, and is consistent with guidance from the Alaska Department of Natural Resources Dam Safety Program, which recommends consideration of piping failures for embankment dams.

The 2014 FMEA remains a reliable foundation for the failure mode analysis in this SEIS. Although the FMEA was conducted at an early stage of design, the fundamental dam configuration has not changed materially since 2014, and the credible failure modes identified in the FMEA remain applicable to the proposed design. The FMEA was conducted by qualified independent experts and followed established practice for identifying plausible failure mechanisms at the feasibility stage of design.

D. Chapter 2.2.3

We recommend that Chapter 2.2.3 provide more detailed explanation as to why the Corps selected the Piciullo et al. (2022) methodology to model the releases, rather than the alternative approaches discussed in the BGC report. The following provides suggested language regarding the Corps' determinations.

Three additional release volume estimates using three different empirical methodologies identified in the BGC (2026) report—24.6 percent using Larrauri and Lall (2018), 36 percent using Adria et al. (2023) and the 3° backscarp angle method, and 38 percent Rico et al. (2008)—while valid in the right context, were not carried forward for modeling here. Piciullo et al. (2022) built upon and substantially expanded the datasets used by both Larrauri and Lall (2018) and Rico et al. (2008), evaluating 71 cases compared to 28 and 21 cases, respectively. The larger dataset includes greater variability in cases and therefore better reflects the

range of real-world outcomes. The 36 percent estimate was based in part on Adria et al. (2023), which relies largely on the Wahl (2014) dataset of primarily earthen dams. Such dams are of medium to high erodibility and commonly result in large releases, making this method less applicable to the Donlin TSF Main Dam, which will be constructed of rockfill. Rockfill dams are of materially lower erodibility, and analysis of the CSP2 dataset in Appendix A of the BGC (2026) report indicates that only 5 percent of documented tailings dam failures have occurred at rockfill or waste rock fill dams.

III. Chapter 2.3 – Tailings Spill Scenario Modeling

A. 2018 EIS Water-Only Release

We recommend adding an explanation in Chapter 2.3.2 as to why the water-only release scenario from the 2018 EIS was not carried forward in the SEIS. In particular, in the 2018 EIS, the water-only release served as an important upper bound on inundation extent: because water travels farther and faster than tailings slurry, that scenario's flow front reached the Kuskokwim River and communicated the maximum geographic footprint of risk. We therefore recommend inclusion of a paragraph like the following:

The water-only release scenario analyzed in the 2018 EIS is not carried forward into the SEIS for several reasons. First, it is inapplicable because it was tied to the partial breach failure modes evaluated in 2018; the larger overtopping failures now analyzed would necessarily mobilize tailings with process water, making a water-only release implausible. Second, it is unnecessary because, in the 2018 EIS, the water-only case served as a conservative upper bound on inundation, whereas the larger slurry releases in this SEIS exceed that footprint. Finally, it is unhelpful because a water-only scenario would not aid in comparing impacts across the larger slurry release volumes evaluated here.

B. Narrative Explanations of Release Scenarios

We recommend including brief narrative explanations of the inundation and deposition figures in Chapters 2.3.2 and 2.3.3, which are likely to receive significant public attention. This content is disbursed throughout Chapter 4. We recommend inserting content similar to that included in the 2018 EIS (as already inserted in the text), and adding analogous content for the other larger scenarios.

IV. Chapter 4 – Tailings Spill Scenario Impacts

We encourage the Corps to consider reorganizing the presentation of impacts across spill scenarios in many of the resource area chapters of Chapter 4. Currently, most of those chapters are divided into four spill volume-specific subsections, even where the analysis across scenarios is substantively similar or differs only in incremental, qualitative degree. To improve the analysis and make it easier to read, the Corps should consider presenting all spill scenarios in a single integrated section for that resource area, highlighting where and how impacts meaningfully differ. The SEIS's vegetation chapter (4.10) and the EED both demonstrate how scenario comparisons can be organized concisely to better communicate the range of potential impacts.

More substantively, we encourage the Corps to consider aligning the analysis in the socioeconomics and subsistence chapters (4.18 and 4.20, respectively) with that in the EED, which we believe may better reflect the perspectives of affected communities.

V. Chapter 4.23 – Impact Reducing Measures

A. Alaska Dam Safety Program

This chapter would benefit from a reference to Chapter 3.24.1.5 of the 2018 EIS, a more direct explanation of how the Alaska Dam Safety Program reduces the likelihood of dam failure and release, and an explanation of where Donlin is in the overall dam permitting process. For example, the following content may be helpful:

The TSF Main Dam is subject to robust regulation by the Alaska Department of Natural Resources (ADNR) through the Alaska Dam Safety Program (ADSP), which reduces the likelihood of dam failure and associated releases through enforceable design standards, independent technical review, and lifecycle oversight. ADNR approval is required for each stage of dam management: construction, operation, modification, and closure. A detailed explanation of that regulatory framework is provided in Chapter 3.24.1.5 of the FEIS; the following summarizes the regulatory framework applicable to those activities and provides compliance status updates since 2018.

To secure a certificate of approval for construction and operation, an applicant must demonstrate that the dam will be designed, constructed, operated, maintained, and closed in accordance with the Alaska Dam Safety Regulations (11 AAC 93) and guidelines, which address hydrology, hydraulics, slope stability,

seepage, cold-region conditions, and seismic performance. Notably, as a Class I facility, the Donlin TSF must withstand an Operating Basis Earthquake with a return period of 150 to greater than 250 years and a Maximum Design Earthquake with a return period of 2,500 years up to the Maximum Credible Earthquake. These standards are intended to ensure that the TSF is engineered to perform under severe hydrologic, geotechnical, and seismic conditions rather than average or typical conditions, substantially reducing the probability of overtopping, slope failure, or uncontrolled seepage.

The pre-construction dam safety certification process is a multi-step, multi-year technical review in which applicants submit detailed information on site conditions, engineering designs, and proposed construction and operating practices. ADSP evaluates that information at successive stages before approval is granted. ADSP reviews preliminary design packages before detailed design proceeds, ensuring that fundamental decisions—including facility siting, foundation treatment, embankment geometry, and spillway configuration—are evaluated and approved before significant engineering resources are committed, reducing the likelihood that critical safety issues are deferred or overlooked. Independent technical scrutiny at each stage provides a check on the applicant's engineering separate from the project proponent's own quality assurance processes. Construction-level drawings and specifications are reviewed at the final stage, and if ADSP determines that all requirements have been met, it issues a construction permit that typically includes specific conditions, limitations, and stipulations governing the safety and performance of the dam.

In addition to the pre-construction certification process, ADSP requires dam owners to prepare and maintain an Emergency Action Plan (EAP) that establishes procedures for detecting and responding to potential or actual dam safety emergencies. The EAP must include: notification flowcharts covering non-failure, potential failure, and imminent or action failure situations; procedures for emergency detection, evaluation, and classification for each of those situations; procedures for emergency and remedial response, including how response would vary between winter and summer conditions; inundation maps based on dam break analyses identifying downstream areas at risk; and plans for training, exercising, updating, and posting the EAP. The EAP is subject to ADSP review and must be kept current to ensure operational readiness.

The regulatory framework described above helps to ensure that any dam failure or release at Donlin, of whatever size or intensity, is extremely unlikely to occur in the first place.

Donlin has been working in close collaboration with ADSP on the design of the Donlin TSF since 2013. In 2024, Donlin Gold submitted the preliminary design packages for the certification to ADNOR. Following reviews and coordination with ADNOR, potential issuance of the certificate is projected for 2028.

B. Dam Design

We strongly recommend providing a complete, consolidated explanation of the TSF design elements that reduce the likelihood of a dam failure, based on information in the record. This discussion should identify each relevant design element and explain how it reduces the likelihood of a dam breach and large volume release and the impacts identified in the SEIS. Currently, this information is dispersed throughout the document—in Chapters 1.1 and 2.2.1, throughout the resource sections of Chapter 4, as well as in Chapter 4.23—making it difficult for readers to locate and evaluate the information. A single, dedicated discussion of these design elements would improve the SEIS clarity and ensure that the low probability of a release is accurately communicated.

In addition, several key design elements that directly reduce the likelihood of a dam failure or a large-volume release bear further emphasis in the SEIS. We recommend expanding the discussion of those elements, which are described in the 2018 EIS and Section 2.2 and Appendix A of BGC (2026), and collectively demonstrate that the impacts described throughout this SEIS are extremely unlikely to occur. A comprehensive discussion of the measures, in bullet format, is included as an Appendix A to this letter.

C. Monitoring and Adaptive Management Features

Beyond these design elements, we recommend the SEIS identify other mitigation measures specific to the TSF that were under consideration at the time of the 2018 FEIS (i.e., Tables 5.7-1A and 5.7-1B) and that are already required by other agency reviews or are still expected to be required by ADNOR in relation to the dam certificate. Specifically, the FEIS should include the measures identified in the table in Appendix B to this letter.

Jonathan Hegna
June 18, 2026

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We look forward to further collaboration with the Corps on this analysis. Please contact me if you have any questions.

Best,

A handwritten signature in black ink, reading "Enric Fernandez". The signature is fluid and cursive, with the first name "Enric" and last name "Fernandez" clearly distinguishable.

Enric Fernandez

Permitting and Environmental Manager
Donlin Gold LLC.

Appendix A: TSF Design Elements that Reduce the Likelihood of a Dam Failure & Related Impacts

- **Extensive site characterization over two decades.** The TSF design has been informed by extensive site characterization carried out over a period of two decades, including 51 overburden boreholes, 25 diamond drillholes with cored rock, and 43 test pits completed within the dam footprint, with boreholes drilled up to approximately 500 feet below the existing ground surface. Poor site characterization was identified as a root cause of the Mount Polley and Los Frailes failures, where weak clay layers in soil foundations were not properly characterized; within the Donlin TSF Main Dam footprint, no such weak layers have been identified. The adequacy of the site investigations will be assessed by the ADNOR as part of dam safety permitting.
- **Bedrock foundation.** The dam footprint will be excavated to expose bedrock, and all soil and highly weathered bedrock that could be considered frost susceptible will be removed. The sound foundation, confirmed in the extensive site characterization, minimizes embankment deformations, reduces the potential for collapse, and enhances embankment stability under both static and seismic loading.
- **Feasibility-level design to meet or exceed state and industry standards.** The dam has been designed at a feasibility level to meet or exceed State of Alaska and industry standards for stability under both static and seismic conditions. In 2026 the design is advancing at a detailed level considering the Global Tailings Review (2020), ICMM (2021), and ICOLD (2025) standards. The slope of the downstream face (1.7H:1V) and target factor of safety are more conservative than those documented at facilities that have experienced failures. The final design will be reviewed by ADNOR's Dam Safety Program and is subject to change as needed to protect life and property.
- **Phased, downstream construction method.** The TSF Main Dam will be raised in the downstream direction in seven construction campaigns beginning with a 198-foot starter dam, with raises approximately every four years. Downstream TSF main dams like that proposed for this project are significantly less likely to fail compared to centerline or upstream designs, and there has not been a failure of a TSF Main Dam built using the downstream design method in the United States for decades. The downstream raise method has failed at less than half the rate of upstream-raised dams, which are typically founded on previously deposited tailings materials.
- **Engineered embankment zone fills.** The dam embankment includes layers of bedding material, two filter materials, transition rockfill, and rockfill to protect against internal erosion and provide drainage in the event of dam seepage. These multiple filter zones address seismic hazards, static stability, and seepage concerns, consistent with Mount Polley Independent Review Panel recommendations for Best Applicable Practices for tailings retention dam design.
- **Flexible, cold-climate-rated geomembrane liner.** The TSF will include a relatively flexible, textured geomembrane liner (60 mil or 1.5 mm LLDPE) that acts as a low-permeability barrier to

seepage and is expected to withstand freezing temperatures, sharp rocks, and anticipated settlement scenarios with an appropriate factor of safety. The tailings themselves will also become a low-permeability medium as they consolidate and densify over time, providing an additional barrier to seepage. The liner design also includes allowance for differential settling due to permafrost and season.

- **Liner bedding and filter/transition layers.** Liner bedding and filter/transition layers separate the LLDPE liner from the rockfill. This layered system directs any leakage toward the underdrain network and seepage recovery system rather than allowing it to migrate undetected into the embankment or foundation.
- **Use of competent rockfill.** The embankment will be entirely constructed of durable rockfill sourced from quarry or select mine rock, placed and compacted in lifts to a dense state. Based on ICOLD statistical data, far fewer failures have occurred worldwide for rockfill dams compared to earthfill dams, and in a benchmarking study of B.C. TSF main dam failure frequency, IEEIRP (2015) found no failures of rockfill dams out of 525 dam-years of active operation for U.S. water dams.
- **Underdrain network.** A rockfill underdrain network will be constructed beneath the geomembrane liner within the lined impoundment and at the full width of the base of the TSF Main Dam. The underdrain serves to convey groundwater and potential leakage through the geomembrane liner across the base of the embankment, lowering the phreatic level within the embankment and increasing embankment stability.
- **Seismic design for maximum credible earthquake.** For the final detailed design, the seismic stability of the embankment will be evaluated based on a site-specific seismic hazard assessment and designed for the maximum credible earthquake (MCE) or 10,000-year return period event. The Donlin Gold TSF will be designed to withstand seismic loads determined based on that site-specific assessment, which is more stringent than many of the facilities that have experienced failures historically.
- **Flood management and freeboard.** The TSF will be sized to store the 24-hour probable maximum precipitation plus snowmelt, and accounts for climate change projections. Non-contact water diversion channels will be constructed around the TSF perimeter to divert runoff from the Anaconda Creek catchment away from the facility, reducing the volume of water requiring management. The TSF Main Dam will maintain a minimum freeboard such that pond water cannot overtop the dam due to wave action even under elevated pond levels or extreme wind conditions. The TSF is also permitted for treatment and discharge of intercepted precipitation, providing an additional safeguard against overtopping, which is documented as the most frequently reported cause of tailings dam failures in the historical record.
- **Tailings deposition plan.** The proposed tailings deposition plan is to create a tailings beach around the entire TSF perimeter, pushing the operating pond toward the center of the facility and away from the upstream face of the TSF Main Dam. This design approach reduces the hydraulic

head on the liner and geomembrane, reduces the risk of overtopping, and is consistent with standard industry practice for managing pond proximity to the dam face.

- **Seepage recovery system.** A seepage recovery system, comprised of a containment pond and pumping wells, will be installed downstream of the TSF Main Dam to collect groundwater baseflows and possible leakage from the lined impoundment. It is intended to prevent TSF seepage from being discharged to the environment, with collected waters pumped back, reused, or treated and discharged. These wells would be monitored per the Monitoring Plan, and Donlin Gold is required to perform corrective actions if a leak is detected.
- **Instrumentation and monitoring.** Instruments including vibrating wire piezometers, survey prisms, and slope inclinometers will be installed in the Starter Dam, with additional instruments added at each dam raise. Monitoring wells will be installed downstream of the seepage recovery system for groundwater quality testing. Continuous monitoring, review, and assessments of the water balance and available freeboard will be carried out throughout operations and closure to maintain adequate freeboard and mitigate against the potential of overtopping.
- **Emergency pumping and water management capabilities.** Stockpiles of fine and coarse filter materials, as well as rockfill and transitional rockfill, will be located in the vicinity of the dam to be readily available in an emergency to arrest or retard internal or external erosion and plug any erosion channels that may form on the dam crest or downstream face. Pumps will be on hand to lower the TSF pond level, utilizing the reclaim system to divert water to the open pit for temporary storage. Donlin Gold will have the necessary equipment, material, labor, and engineering expertise already on site that could be deployed to respond to an emergency immediately.
- **Dry closure.** During the closure phase, the operating pond will be pumped to the open pit to facilitate dry closure of the TSF. Tailings cover runoff will be diverted to Crevice Creek through the closure spillway, and the TSF cover will act as a growth medium for vegetation. Failure risk of TSF main dams with no ponded water after mine closure is small compared to dams in active operations with ponded water (IEEIRP 2015), and designing for dry closure from the outset specifically addresses this post-closure failure risk factor.
- **Independent Tailings Review Board and governance.** Risk-informed decision-making, continuous performance monitoring, independent review through an Independent Tailings Review Board (ITRB) and Dam Safety Reviews, and a commitment to the highest standard of tailings facility stewardship are embedded within the facility's governance plan. An ITRB was established for the Donlin Gold Project between 2007 and 2015 and restarted with new board members in 2024. Research indicates that improved practice and governance can each reduce the probability of failure by one order of magnitude, with two orders of magnitude reduction combined—none of the 20 TSF failure case studies reviewed by BGC had an ITRB established at the time of failure.

Appendix B: TSF Monitoring and Adaptive Management Measures in Progress

Monitoring or Adaptive Management Measure Description	Resources(s) Affected	Anticipated Jurisdiction
Make the Emergency Action Plan for the tailings dam available to the public to review. Require a communication and alert system to be in place that is sufficient to warn people in Crooked Creek and boaters on the Kuskokwim near Crooked Creek of the potential need to move out of the area.	Spill Risk Dam Safety Human Health Geohazards and Seismic Conditions	ADNR
Include detailed contingencies to mitigate the risk of ice damage and liner leakage in the TSF in an updated tailings deposition plan during final design.	Geohazards and Seismic Conditions Water Quality	ADNR
Implement a QA/QC system, using methods appropriate for the geomembrane type (e.g., TRI Environmental 2014), perform repairs prior to tailings placement, and update liner defect assumption in future WBM updates based on survey results and actual SRS flow and water quality data.	Groundwater Hydrology Water Quality	ADNR
Implement pertinent Best Applicable Practice (BAP) recommendations from the Mount Polley review panel for the tailings storage facility dam, design and tailings management, including participation in formalized tailings management program with audit functions, declaration of Quantitative Performance Objectives (QPOs) for tailings facility design and management, and use of independent tailings review boards.	Safety Geohazards and Seismic Conditions Water Quality	ADNR
During operation, the Failure Modes Effects Analysis (FMEA) should be reevaluated periodically, every five years, to ensure that the mine facility components, subcomponents, such as the TSF and dam, water dams, WRF, SRS, etc. are reviewed to identify all possible modes of failure, and their causes and effects as the mine develops, matures, and ages over the 27-year active mine life, and during post closure.	Dam Safety Water Quality Fish	ADNR
Include internal drains in the TSF to reduce saturation in the tailings and make them less likely to liquefy in the event of a dam failure.	Water Quality	ADNR