

Executive Summary

Haile Gold Mine, Inc. (Haile or the Applicant), a subsidiary of OceanaGold Corporation, proposes to expand mining operations at its existing Haile Gold Mine located in Lancaster County, South Carolina (the Proposed Project). Haile initiated its mining activities in 2015 and processing operations in 2017, pursuant to permits issued as a result of the analysis conducted for the *2014 Final Environmental Impact Statement for the Haile Gold Mine Project* (2014 FEIS) (USACE 2014). This Supplemental Environmental Impact Statement (SEIS) updates the 2014 FEIS by describing and analyzing the potential impacts from the expanded mine facilities under the Applicant's Proposed Project and the alternatives considered by the U.S. Army Corps of Engineers (USACE).

The Proposed Project, as summarized in Chapter 2, *Proposed Action and Alternatives*, and further described in Appendix A, *Detailed Project Description for the Proposed Haile Gold Mine Expansion*, would increase the area within the mine plan boundary by approximately 947 acres to expand surface mining pits and associated facilities, initiate underground mining at the Horseshoe deposit, optimize mill operations and increase ore processing rates, and improve water treatment and storage capabilities. Haile has applied to USACE for a modification of its existing Department of the Army (DA) permit to impact waters of the United States.¹ As the lead federal agency, USACE must comply with the National Environmental Policy Act (NEPA) of 1969,² and undertake supplemental analysis to evaluate the Proposed Project and determine whether the Proposed Project activities should be authorized and permitted. Similarly, in June 2019, Haile applied to the South Carolina Department of Health and Environmental Control (SCDHEC) for a modification of its existing mine permit (SCDHEC Permit No. I-000601) consistent with the Proposed Project; SCDHEC is currently reviewing the permit modification request and is awaiting the conclusion of the NEPA process and results of this SEIS before making a final decision.

Further, in June 2020, Haile applied to SCDHEC Mining and Reclamation for an interim modification of its existing mine permit (SCDHEC Permit No. I-000601), as well to USACE for an interim modification of its existing DA permit to impact waters of the United States, while related permitting processes for the Proposed Project were pending. SCDHEC approved the permit modification in

¹ HGM has applied for a DA permit for the discharge of dredged or fill materials from the Proposed Project into waters of the United States per Section 404 of the Clean Water Act. The regulatory definition of waters of the United States can be found at 33 CFR Part 328; see also <https://www.epa.gov/cwa-404/policy-and-guidance-documents-under-cwa-section-404>.

² On September 14, 2020, the Council on Environmental Quality's "Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act", published at 85 Federal Register 43304 (July 16, 2020), went into effect (the revised NEPA regulations). However, the preamble to the revised NEPA regulations states as follows:

For NEPA reviews in process that agencies began before the final rule's effective date, agencies may choose whether to apply the revised regulations or proceed under the 1978 regulations and their existing agency NEPA procedures. Agencies should clearly indicate to interested and affected parties which procedures it is applying for each proposed action.

85 Fed. Reg. 43304, at 43340 (July 16, 2020). Because preparation of this SEIS had begun prior to September 14, 2020 (i.e., the effective date of the revised NEPA regulations), this SEIS has been prepared under the 1978 NEPA regulations and USACE's existing NEPA procedures (33 CFR Part 325, Appendix B).

September 2020, permitting five operational adjustments to the mine and reclamation plan as it was proposed in the 2014 FEIS. In addition, USACE approved a minor modification to the 2014-approved DA permit for Haile's interim modification that would affect 4.75 acres of wetlands in September 2020. These modifications allowed the operator to continue operations and maintain public health and safety and environmental standards while the NEPA process for the Proposed Project continued.

Project Purpose and Need

The Applicant's purpose and need for the Proposed Project is to expand gold-producing operations from mineralized gold-bearing zones on the Haile property. USACE's overall project purpose for the Proposed Project is to expand Haile's gold-mining operations using gold-bearing mineral reserves in the Carolina Slate Belt region.

USACE's determination that the Proposed Project is not water dependent under the Clean Water Act 404(b)(1) guidelines (40 Code of Federal Regulations [CFR] Part 230) is consistent with the 2014 FEIS in which USACE found that the project is not water dependent (USACE 2014).

Public, Agency, and Tribal Participation

USACE is the lead federal agency for the preparation of this SEIS. Two agencies, the U.S. Environmental Protection Agency and SCDHEC, formally elected to be cooperating agencies under NEPA and are assisting USACE in identifying issues of concern and providing meaningful and timely input throughout the NEPA process. USACE has also provided meaningful opportunities for public, agency, and tribal participation during preparation of this SEIS, including hosting a public scoping meeting, distributing project information through an area-wide mailing list and public website,³ hosting a joint virtual public hearing on the Draft SEIS and proposed mine permit modification with SCDHEC, and accepting public comments on the Draft SEIS.

Alternatives

This SEIS analyzes the No Action Alternative, which includes the permitted activities first analyzed in the 2014 FEIS and the subsequent operational adjustments approved in the 2020 mine permit and a September 2020 DA permit modification. The No Action Alternative represents the continuation of mining operations at Haile Gold Mine under the terms of current permits and approvals. Under this alternative, no new permits or further permit modifications would be approved. In this SEIS, USACE also analyzes the Proposed Action or Proposed Project, as described above, and various alternatives for five different project components. In total, the Applicant and USACE considered five project facilities/components that had three different configurations each, which resulted in 243 theoretical combinations. Chapter 2, *Proposed Action and Alternatives*, provides detailed information on the alternatives considered by USACE during SEIS development.

³ <http://www.hailegoldmineseis.com>

Affected Environment

This SEIS describes the existing environment that would be affected by the No Action Alternative or Proposed Project as a basis for the impact assessment. Each resource section includes a discussion of the study area, applicable regulations, and overall existing condition of the resource, including the natural and physical environment. Since publication of the 2014 FEIS, the Haile Gold Mine has obtained required permits, expanded its footprint, and started mining operations. Haile has also performed supplemental surveys and generated additional baseline data on the environment and conducted updated air dispersion and hydrologic modeling for this SEIS. Chapter 3, *Affected Environment*, has been updated where applicable to use recent data and provide detailed information on the affected environment by resource.

Environmental Consequences and Mitigation

USACE analyzed direct and indirect impacts on the following environmental resources: geology and mineral resources; water resources; soils; floodplains; wetlands and other waters of the United States; aquatic resources; terrestrial resources; federally listed species; socioeconomics and environmental justice; land use; transportation; cultural resources; visual resources and aesthetics; recreation; air quality and climate change; noise and vibration; public health and safety; and hazardous materials and waste. Adverse and beneficial impacts of the Proposed Project were evaluated, considering the likely magnitude, duration, potential to occur, and geographic extent of each impact.

Overall, environmental consequences of the No Action Alternative and the Proposed Project would be similar to those identified in the 2014 FEIS. Key anticipated impacts of the Proposed Project include direct impacts on 11 acres of floodplains, 85.82 acres of wetlands and open water, and 12,856 linear feet of streams from dredge and fill activities; adverse impacts on streamflow and aquatic habitat in the Haile Gold Mine Creek; loss of nestronia (*Nestronia umbellula*), a state listed sensitive plant species; visual impacts for individuals traveling on State Route 265 (SR 265) approaching the intersection with U.S. Highway 601 (US 601); and economic impacts due to increases in production, income, jobs, and tax revenues in the region. This SEIS considers numerous avoidance and minimization measures to reduce impacts on environmental resources from the Proposed Project. Chapter 6, *Mitigation and Monitoring*, as well as Appendix I, *Monitoring and Management Plan*, and Appendix J, *Haile Gold Mine Supplemental Mitigation Plan*, provide details on these measures.

Key Differences from the 2014 Final Environmental Impact Statement for the Haile Gold Mine Project

This SEIS updates the analysis and results from the 2014 FEIS. The most notable changes compared to the 2014 FEIS include the following.

- Haile's mine plan is now based on \$1,150 per troy ounce and a mineralization cutoff grade above 0.013 recoverable troy ounce per ton. This results in additional reserves being included in the mine plan.

- The mine boundary is proposed to increase from 4,522 acres to 5,469 acres. Disturbed acres are proposed to increase from 2,414 acres to approximately 3,747 acres.
- Existing conditions have been updated for multiple resources as a result of supplemental data collection since publication of the 2014 FEIS.
- In addition to the mitigation measures identified in the 2014 FEIS, Haile is proposing new mitigation measures, mitigation plans, and/or management plans for certain resources.
- The study areas for some resources have been modified from the 2014 FEIS as a result of the Proposed Project and the updated groundwater model.
- Since publication of the 2014 FEIS, some existing regulations have been updated that have affected resource analyses (e.g., air quality and climate change and noise and vibration) (Chapter 3, Section 3.11, *Air Quality and Climate Change*). The most current regulations are incorporated into this SEIS analysis.
- The conceptual hydrologic model (CHM) and numerical groundwater model have been refined based on supplemental hydrologic data collected by Haile since publication of the 2014 FEIS. Significant changes include the following (see also Chapter 3, Section 3.2, *Water Resources*, and Chapter 4, Section 4.2, *Water Resources*).
 - Elimination of the saprock unit as a widely occurring zone of relatively high hydraulic conductivity and groundwater inflow to the mine pits.
 - Reduction of the estimated values of hydraulic conductivity for weathered and unweathered bedrock.
 - Revised estimates of the rates of groundwater recharge by infiltration of precipitation for Coastal Plain sands and saprolite.
 - Reduction of the estimated vertical hydraulic conductivity and rate of vertical leakage for the saprolite hydrostratigraphic unit.
- The Proposed Project would directly affect 85.82 acres of wetlands and open water from expanding the existing mining operations at Haile Gold Mine. The Proposed Project would also directly affect 12,856 linear feet of streams (Chapter 3, Section 3.5, *Wetlands and Other Waters of the United States*, and Chapter 4, Section 4.5, *Wetlands and Other Waters of the United States*).
- Haile submitted a supplemental mitigation plan as compensatory mitigation to address project impacts on wetlands and other waters of the United States. As indicated in the following section, Haile updated and revised the supplemental mitigation plan since publication of the Draft SEIS. The revised supplemental mitigation plan is provided as Appendix J, *Haile Gold Mine Supplemental Mitigation Plan*, to this SEIS. It is a permittee-responsible mitigation plan that identifies four separate sites along Flat Creek in the Lynches River watershed for preservation and enhancement/restoration of outstanding aquatic resources (Chapter 3, Section 3.5, *Wetlands and Other Waters of the United States*, Chapter 4, Section 4.5, *Wetlands and Other Waters of the United States*, and Chapter 6, Section 6.3.3, *Compensatory Mitigation*).
- The Proposed Project could result in gold and silver production of \$256.1 million annually. The Proposed Project may also increase income, jobs, regional production, and tax revenues compared to the 2014 FEIS by expanding operations and extending the mine life (Chapter 3,

Section 3.9, *Socioeconomics and Environmental Justice*, and Chapter 4, Section 4.9, *Socioeconomics and Environmental Justice*).

- The air quality dispersion modeling was updated since publication of the 2014 FEIS. The modeling for this SEIS accounts for tailpipe and fugitive emissions from haul trucks and other nonroad mobile equipment, and fugitive emissions from surface blasting, which were not included in the 2014 FEIS modeling (Chapter 3, Section 3.11, *Air Quality and Climate Change*, and Chapter 4, Section 4.11, *Air Quality and Climate Change*).
- Since publication of the 2014 FEIS, 26 additional past, present, and reasonably foreseeable future actions have been identified and included in the cumulative impacts analysis.
- According to the most recent Reclamation Plan provided on April 30, 2020, Haile has proposed a total reclamation cost of \$83,452,000. These numbers are estimated by Haile and are further broken down in Appendix H, *Reclamation Plan*.

Key Differences from the 2021 Draft SEIS

This SEIS incorporates changes made in response to public and agency comments received on the Draft SEIS. An additional chapter in this SEIS (Chapter 10, *Responses to Comments Received on the Draft SEIS*) describes the process for obtaining public input in the form of comments, reviewing and preparing responses to the comments, and making changes or additions to the original text of the Draft SEIS, as appropriate, based on the comments received. Copies of all comment submittals received on the Draft SEIS are included in Appendix P, *Comments Received on the Draft SEIS*, of this SEIS. The most notable changes compared to the 2021 Draft SEIS include the following.

- Revised figures and acreages for Haile's project boundary and mine layout based on updated geographic information system (GIS) data produced by Haile. USACE requested the revised data to ensure the spatial layout of existing, authorized, and proposed facilities are accurately and consistently represented throughout this SEIS. Other length and area calculations generated through overlay of resource data with the mine boundary and layout data were updated accordingly. Chapter 10, Section 10.5.1, *Consolidated Response 1: Requests to Revise Acreages Reported in the Draft SEIS*, provides additional information. Please note that acreages reported for mine areas and mine features throughout this SEIS are generally calculated from GIS data for purposes of internal consistency and to enable overlay analysis; these calculated acreages may differ from acreages presented in other sources, such as prior permits, surveys, and reports.
- Clarifications to the assessment of future water quality predictions, stratification and mixing scenarios, and groundwater seepage from pit lakes at Haile Gold Mine (Chapter 4, Section 4.2.2.2, *Pit Lake Water Quality*). In response to concerns raised in public and agency comments, Haile prepared a monitoring and contingency plan to address potential mixing of the pit lake and discharges to groundwater above environmental standards.
- Minor corrections and updates to Appendix A, *Detailed Project Description for the Proposed Haile Gold Mine Expansion*, were provided by Haile. These changes did not have a substantive effect on this SEIS analysis.
- Updates to Appendix C, *Amendment to Memorandum of Agreement*, of this SEIS to incorporate updates to the revised Cultural Resources Management Plan that were completed in April 2022, after the release of the Draft SEIS. The associated Memorandum of Agreement among USACE,

South Carolina State Historic Preservation Office, Catawba Indian Nation, and the Applicant was amended in June 2022. These updates were mirrored as appropriate in Chapter 3, Section 3.18, *Cultural Resources*, and Chapter 4, Section 4.18, *Cultural Resources*.

- Revisions and updates to Appendix J, *Haile Gold Mine Supplemental Mitigation Plan*, including the addition of a new mitigation site and further details about proposed watershed preservation, restoration, and enhancement activities. See Chapter 6, Section 6.3.3, *Compensatory Mitigation*, and Chapter 10, Section 10.5.4, *Consolidated Response 4: Haile's Mitigation Plan*, for additional information.
- Addition of a new Appendix Q, *Revised Post-Closure Surface Water Quality Evaluation for Haile 2018 Mine Expansion Plan*, a report prepared by Schafer and ERC for Haile Gold Mine. The report was independently reviewed by USACE and served as a key citation for the surface water quality analysis; therefore, it has been included as part of this SEIS.

References

U.S. Army Corps of Engineers (USACE). 2014. *Final Environmental Impact Statement for the Haile Gold Mine Project*. U.S. Army Corps of Engineers, Charleston District. SAC 1992-24122-4IA. July 2014.