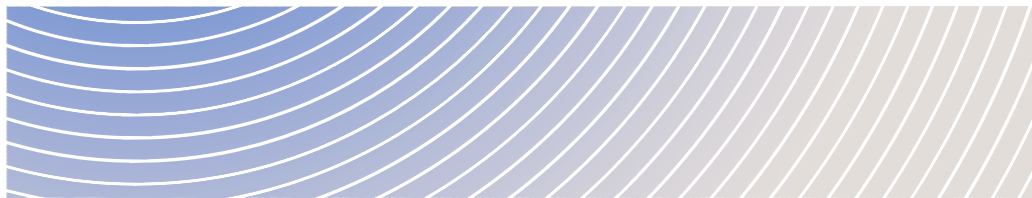


Impact Assessment Agency of Canada



ANALYSIS OF MARATHON GOLD'S PROPOSED CHANGES TO THE
VALENTINE GOLD PROJECT (THIRD PIT)

JUNE 2024



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1. Introduction

The Valentine Gold Project ([the Project](#)), as proposed by Marathon Gold Corporation (the proponent), includes the construction, operation, decommissioning, and reclamation of an open-pit gold mine located at Valentine Lake, approximately 55 kilometres southwest of Millertown in Newfoundland and Labrador. As approved, the Project would include two open pits, disposal piles, crushing and stockpiling areas, site infrastructure, a tailings management facility, and mine site haul and access roads. Production capacity is estimated at 10,960 tonnes per day of high- and low-grade ore, with an operation life of 13 years.

The Project was subject to an environmental assessment under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). The environmental assessment was conducted by the Impact Assessment Agency of Canada (the Agency). The Minister of Environment and Climate Change issued a [Decision Statement](#) for the Project on August 23, 2022. The Decision Statement contains 133 legally binding conditions, which include mitigation and follow-up program measures that the proponent must comply with throughout the life of the Project.

On August 28, 2019, the *Impact Assessment Act* (IAA) came into force, repealing CEAA 2012. Section 68 of the IAA provides the Minister of Environment and Climate Change with the legislative authority to amend a Decision Statement to add new conditions, and to remove or modify existing conditions. The Minister of Environment and Climate Change must be of the opinion that adding, removing or modifying a condition does not increase the extent to which the effects of the Project, as assessed during the environmental assessment, are adverse. The decision included in the Decision Statement cannot be changed.

Condition 2.16¹ of the Decision Statement requires the proponent to notify the Agency in advance of carrying out any proposed change to the Project. The [Decision Statement](#) was first amended on May 25, 2023 to include the addition of a communications tower in the definition of Designated Project.

On August 11, 2023, the proponent provided the Agency with information about additional proposed changes to the Project in a document titled "[Berry Pit Expansion Environmental Registration / Environmental Assessment \(Valentine Gold Project\) Update](#)" which included the addition of a third open pit and modifications to associated infrastructure (Canadian Impact Assessment Registry Reference Number 80169, Document Number 85).

The Government of Newfoundland and Labrador reviewed the Project expansion through an interdepartmental environmental assessment screening committee and conducted a public comment period under the *Newfoundland and Labrador Environmental Protection Act*. The Project expansion was [released](#) from provincial environmental assessment, subject to conditions, on October 27, 2023. The provincial conditions are focused on water quality, caribou, and socio-economic benefits.

¹ Condition 2.16 says "If the Proponent is proposing to carry out the Designated Project in a manner other than described in condition 1.8, the Proponent shall notify the Agency in writing in advance of carrying out those proposed activities."

This report includes the Agency's analysis of the proposed Project changes and the potential adverse environmental effects of those changes, including:

- whether the changes constitute a new or different designated project as defined in the IAA that may require a new impact assessment; and
- whether any change (including addition or removal) may be required to the mitigation measures and follow-up program requirements included as conditions in the Decision Statement to address the proposed Project changes.

2. Proposed Project Changes

Following additional analysis of the mineral resources within the Leprechaun and Marathon pits described in the 2022 Environmental Assessment Report, the proponent determined that the mineable resources within these pits were less than anticipated. The discovery of the Berry deposit within the existing mine site, would offset the decrease in mineable resources from the other two pits and improve the economic outlook for the Project in the face of rising costs. As a result, the proponent is proposing changes to the Project that would include the mining and processing of ore from the Berry deposit and other associated changes.

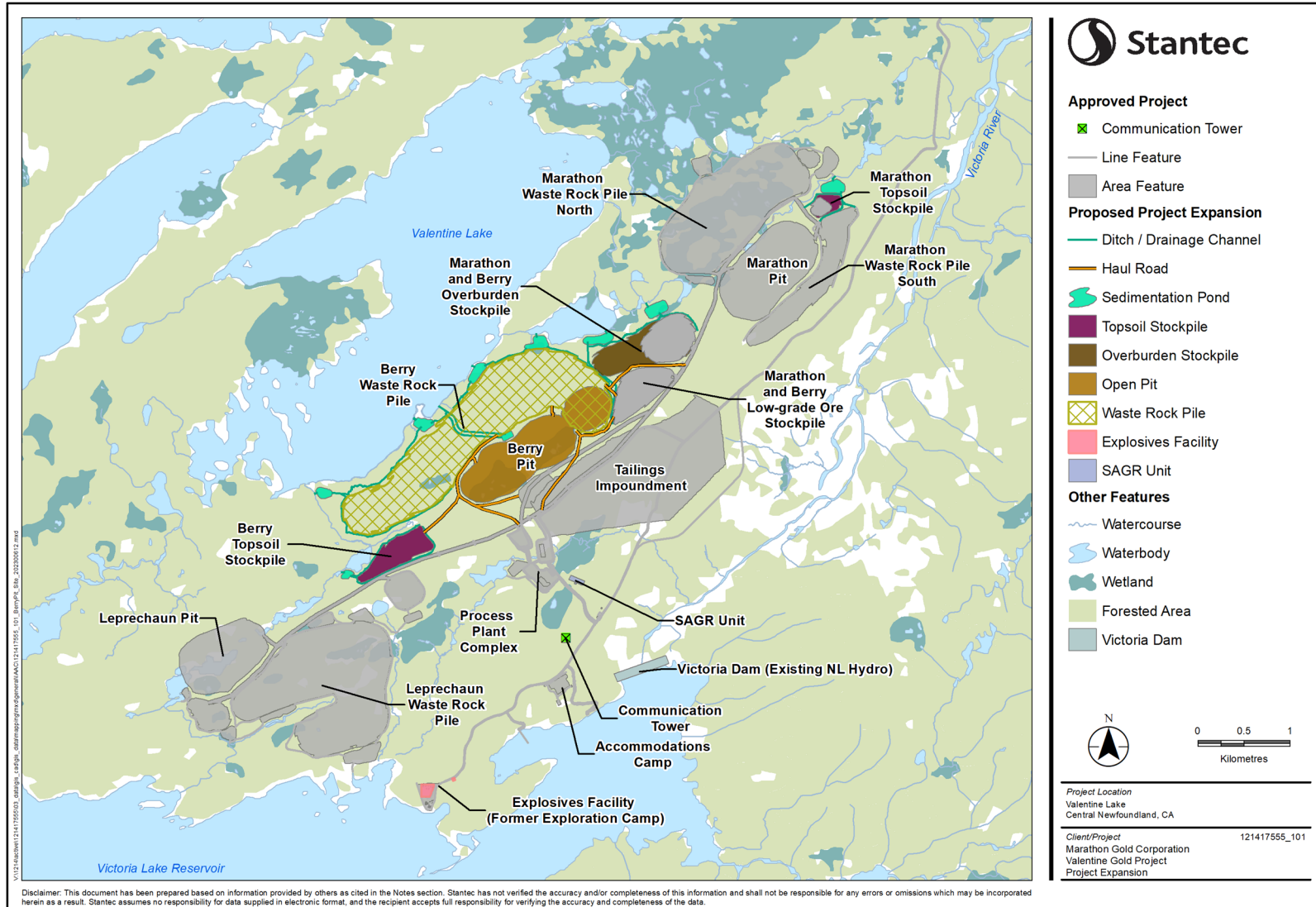
The proposed changes to the Project include the following:

- addition of a third open pit (the Berry Pit) with new associated haul roads;
- new waste rock pile, and two additional topsoil stockpiles;
- the expansion of the Marathon pit overburden and low-grade ore stockpiles to accommodate materials from the Berry Pit;
- eight new sedimentation ponds associated with the Berry Pit, one new temporary sedimentation pond, and the relocation of a previously-planned sedimentation pond;
- the relocation of the explosives storage facility to maintain safety setbacks from infrastructure;
- relocation of tailings disposal from the mined-out Leprechaun pit to the mined-out Berry Pit starting in year 10 of the Project;
- the replacement of the secondary water treatment technology from a polishing pond to a submerged attached growth reactor (SAGR) to improve treatment for nitrogen species.

The proposed modified layout of the mine site and the main Project components are illustrated in Figure 1. The Project area originally assessed was 3497 hectares and would expand by approximately 3.4 hectares to accommodate three of the eight new sedimentation ponds, their associated ditches/drainage channels, and the relocation of the explosives facility, while all other additional and existing Project components would be within the Project's original Project area. The original assessment assumed that all habitat within the mine site would be lost so the Project changes represents an additional 0.1% increase in area assumed to be lost. Figure 2 illustrates the new Designated Project area which includes all project components. The implementation of Project changes would begin as soon as regulatory approvals are in place, taking four to six months to construct and increasing the overall operation phase of the mine by approximately 1.4 years without increasing the annual ore production.

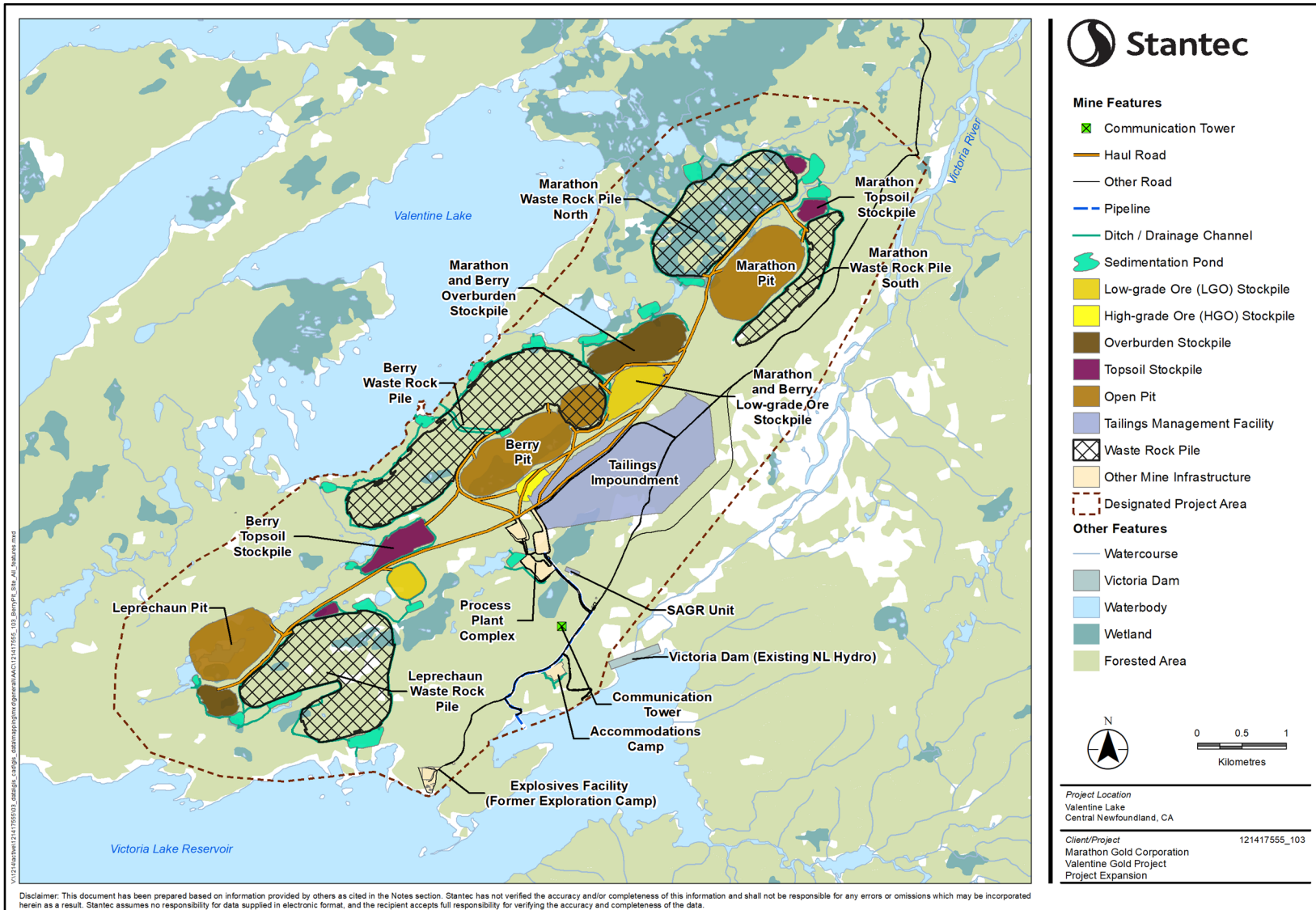
The proposed changes to the Project do not include changes to mining methods, processing infrastructure, tailings management or other Project components not listed above, as the Berry Pit deposit lithology and other characteristics are similar to those of the Marathon and Leprechaun pits.

Figure 1. Proponent's Proposed Changes to Project Components and Layout.



Source: Marathon Gold, January 2024

Figure 2. Proponent's Proposed Project Components and Layout within the Designated Project Area



Source: Marathon Gold, January 2024

3. Agency's Analysis of Changes

The *Physical Activities Regulations* under IAA identify the physical activities that constitute designated projects that may require an impact assessment. Section 19(c) of the *Physical Activities Regulations* reads:

19 The expansion of an existing mine, mill, quarry or sand or gravel pit in one of the following circumstances:

(c) in the case of an existing metal mine, other than a rare earth element mine, placer mine or uranium mine, if the expansion would result in an increase in the area of mining operations of 50% or more and the total ore production capacity would be 5 000 t/day or more after the expansion;

According to the analysis completed by the proponent, the Project changes would increase the area of mining operations by 39.79%. Prior to the proposed changes, the Project's total ore production capacity was already over 5 000 t/day. The proposed Project changes would not increase this production capacity. The Agency is of the view that the proposed Project changes do not constitute a new or different designated project that may require a new impact assessment.

The following sections of this report include the Agency's analysis of the Project changes and the potential adverse environmental effects of those changes, and whether the mitigation measures and follow-up program requirements described in [the 2022 Environmental Assessment Report](#) may require additions or alterations to account for the proposed changes.

4. Assessment of potential adverse environmental effects

The proposed Project changes could cause effects to fish and fish habitat, migratory birds, species at risk, Indigenous peoples, and result in greenhouse gas emissions. The assessment focuses mainly on the new components of the Project that would fall outside the area originally assessed for the Project in 2022 and the new open pit. Some Project changes, namely the relocation of the explosives storage facility to an area that has been previously cleared, are not discussed as they are not expected to cause further changes to the environment than those predicted in the assessment from 2022.

4.1 Fish and fish habitat

Proponent's assessment

The Project changes are adjacent to Valentine Lake, which provides good to excellent habitat for Brook trout, Atlantic salmon, and Arctic char. American eel and Three-spined stickleback are also present in the other streams, rivers, and lakes in the Project area. The Project changes would affect three ponds (ValP2, M2, and ValP3) that all drain into Valentine Lake via streams. Habitat quality is low for Brook trout and landlocked

Atlantic salmon and excellent for Three-spined stickleback as a result of quantity of fine grain substrates and aquatic vegetation. The proponent described habitat as similar to other ponds assessed in the original environmental assessment.

The Project changes would result in direct loss of 350 m² of habitat during construction and operation and indirect loss of 2213 m² of habitat during all phases of the Project. Direct habitat losses are due to placement of channel outlets in receiving waterbodies for each of the eight sedimentation ponds. Indirect habitat losses are due to reductions in stream flows in six streams, particularly during summer low-flow periods. The proponent has indicated that it would be required to develop and implement a Fish Habitat Offsetting Plan under the *Fisheries Act* to offset both direct and indirect losses.

The Project changes would result in changes to quality of fish habitat due to changes in water quality from discharge of effluent and seepage during the operation and closure phases. The proponent updated its water quality model for the Project as a whole to account for the Project change. During operation, the proponent has indicated that, in the “worst case” scenario, water quality parameters would meet *Canadian Water Quality Guidelines for Protection of Freshwater Aquatic Life* (CWQG-FAL) within 100 m of the mixing zone for final discharge points of most sediment ponds. Local water quality downstream of one final discharge point would not meet CWQG-FAL but contaminants would be expected to be dissipated within 300 m of entering Valentine Lake. During closure, groundwater from the Berry waste rock pile (part of the Project change) is expected to resurface in Valentine Lake and would not meet CWQG-FAL at the point of discharge. However, it is expected to mix with water in Valentine Lake and meet water quality standards within 300 m of the shoreline. The original 2020 Environmental Impact Statement also predicted that water quality standards would be met within 300 m of the shoreline and therefore the predictions associated with the Project changes are consistent with the predictions made as part of the original environmental assessment.

Seepage from the tailings management may lead to sub-lethal effects to fish during operation and closure phases. As discussed above, water quality is expected to meet CWQG-FAL within 300 m of mixing with the receiving environment, so the proponent does not anticipate residual effects. The proponent also intends to conduct an Environmental Effects Monitoring program, as required under Schedule 5 of the *Metal and Diamond Mining Effluent Regulations*, to monitor any effects.

Views expressed

Fisheries and Oceans Canada (DFO) noted that the proponent has adequately analyzed potential effects to fish and fish habitat and that existing mitigation measures are sufficient to address effects associated with the Project change. DFO also noted that the proponent currently holds an active *Fisheries Act* authorization and that an amendment and additional offsetting may be required to consider the Project change. DFO indicated that they will work with the proponent on any potential amendments after completion of the Agency's amendment process.

Natural Resources Canada (NRCan) provided comments related to geochemistry (metal leaching and acid rock drainage) and hydrogeology. NRCan confirmed that the proponent has generally completed an adequate assessment of effects and that existing mitigation measures in the Decision Statement remain sufficient.

NRCan also shared comments related to the numerical groundwater model. As part of the model calibration and update for the Project changes, the proponent identified an error in vertical hydraulic conductivity values

used in the original environmental assessment. NRCan indicated this correction has resulted in shorter predicted times for groundwater seepage to discharge to surface water. Given the shorter predicted travel times, NRCan recommended that early establishment of a monitoring network is critical to meeting the conditions of the federal decision statement. NRCan recommended that the proponent update the assessment of effects to surface water and fish and fish habitat to consider the updated modelling. The proponent responded that the surface water predictions for the Project changes incorporate the updated groundwater model.

NRCan also identified that particle tracking results were not provided for all waste rock backfilled to the Berry Pit at closure. In response, the proponent provided a [memo](#) with the requested information and NRCan confirmed that the updated information addresses the issue.

Environment and Climate Change Canada noted that they do not have any comments on the Project changes from the perspective of environmental emergencies.

Miawpukek First Nation expressed concerns about the performance and reliability of the new water treatment technology associated with the Project changes. Miawpukek also expressed an interest in working with the proponent on fish habitat offsetting and as part of the follow-up program. Most of Miawpukek First Nation's comments focused on water quality in relation to the Project as a whole. Miawpukek First Nation re-stated concerns shared as part of the original environmental assessment, including mercury contamination and that the *Metal and Diamond Mining Effluent Regulations* Schedule 3 limits are not sufficiently protective of the downstream environment because it does not take into account assimilative capacity of the receiving environment. Miawpukek First Nation requested that the Agency impose an effluent quality criterion for mercury, and impose or require Miawpukek First Nation authorization of water quality objectives for each final discharge point that considers assimilative capacity of the receiving environment. The proponent responded that, with the implementation of mitigation measures identified in the federal Decision Statement which requires removal of vegetation from the tailings management facility prior to filling or flooding, generation of methylmercury is not expected. However, total mercury will be monitored as part of the follow-up program at downstream monitoring stations and reference sites. The proponent also confirmed that their assimilative capacity study was updated for the Project changes and that the criteria used to assess impacts (i.e. water meets CWQG-FAL or baseline conditions after considering the mixing zone in the receiving environment) for the Project changes are consistent with the original environmental assessment and industry standard in Canada.

Qalipu First Nation shared concerns about a "worst case scenario" involving a spill or release of deleterious substances from the Project as a whole and requested more information about emergency response measures including a bond or similar mechanism to help pay for cleanup, restoration and fish and invertebrate restocking. The proponent responded by sharing information related to emergency response plans for the Project as a whole. The proponent acknowledged that plans do not currently contemplate fish and invertebrate restocking but expressed interest in discussing this further as part of the Environmental Stewardship Committee established by the Socio-Economic Agreement.

Agency analysis and conclusions

The Agency has considered the proponent's assessment, advice from DFO and NRCan, comments from Miawpukek First Nation and Qalipu First Nation, and the conclusions of the original environmental

assessment. With respect to habitat loss, the Agency notes that the direct and indirect loss of 2563 m² of fish habitat represents a small (1.4%) change to the 186,705 m² of habitat loss predicted in the original assessment. With respect to changes in water quality, the Agency also notes that the same metric, i.e. meeting water quality standards within 300 m of shoreline, was also predicted in the original environmental assessment. The Agency appreciates comments from Miawpukek First Nation and Qalipu First Nation regarding water quality limits and emergency response that relate to the Project as a whole and encourages the proponent to work with both groups during the permitting process.

There are 32 conditions related to fish and fish habitat in the existing Decision Statement, including the requirement to develop an offsetting plan to the satisfaction of DFO, minimizing water withdrawals to maintain stream flows, and conducting in-water works outside of timing windows for Newfoundland and Labrador. The proponent is also required to collect all mine effluent and treat it prior to release, in order to meet the requirements of the *Metal and Diamond Mining Effluent Regulations* and pollution prevention provisions of the *Fisheries Act*. The proponent's modeling indicates that meeting these legislative requirements would mean that water would meet CWQG-FAL within 300 m of the shoreline in Valentine Lake. These conditions would continue to apply to the Project changes and would adequately mitigate effects to fish and fish habitat.

With regards to NRCan's comments on the proponent's updated groundwater model and revisions to groundwater travel times, the Agency agrees with NRCan's comments that the monitoring and follow-up program would need to consider these updates. The follow-up program currently set out in condition 3.17 requires the proponent to monitor for surface and groundwater flows, levels and quality. The Agency is recommending that this condition be amended so that the proponent must take into account the updated modelling in its surface and groundwater monitoring. The Agency's proposed amended condition can be found in Table 1.

4.2 Migratory birds

Proponent's assessment

The proponent did not complete a specific assessment for effects to avifauna, which includes migratory birds. The rationale is that the original environmental assessment assumed that all habitat within the mine site would be lost. The proponent stated that there would be no change to the assessment completed in the original environmental assessment, and the conclusions remain valid with the addition of the Project change.

Views expressed

Environment and Climate Change Canada – Canadian Wildlife Service shared comments on the proponent's submission related to migratory birds. They acknowledged the proponent's conclusions regarding the additional 3.4 hectares of land clearing, noted that the conclusions remain relevant, and shared a reminder that the preferred approach to avoiding effects to migratory birds is to avoid activities during breeding season which is mid-April to mid-August. Environment and Climate Change Canada did not share any outstanding concerns with the proponent's assessment or recommend any new mitigation measures for migratory birds.

Miawpukek First Nation requested that breeding bird surveys be conducted by the Miawpukek First Nation environmental monitor near the proposed explosives facility. The proponent confirmed that the explosive facility is located in an area that has been previously cleared which is why breeding bird surveys were not completed in that area. The proponent also re-affirmed the commitment to provide funding for two Indigenous monitors, at least one of whom is a member of Miawpukek First Nation.

Qalipu First Nation shared concerns about effects of clearing during the breeding window for the mineral claim area and Project as a whole. The proponent responded that they would avoid clearing during the breeding bird season, where practical, and implement additional mitigation such as buffers around active nests if clearing during the nesting season takes place.

Agency analysis and conclusions

The Agency recognizes that the additional 3.4 hectares that would be associated with the Project changes is a 0.1% increase in the area assumed to be lost. There are 13 conditions related to migratory birds in the Decision Statement including the mitigation measures identified by Environment and Climate Change Canada in relation to the Project change. In particular, conditions would address Miawpukek First Nation and Qalipu First Nation's comments as the proponent is already required to conduct vegetation clearing outside of regional nesting periods, unless not technically feasible, and conduct migratory bird surveys every year for three years from the beginning of construction. These conditions would continue to apply to the Project changes and would adequately mitigate and monitor effects to migratory birds.

4.3 Species at risk

Proponent's assessment

Woodland Caribou

The Newfoundland population of Woodland caribou (*Rangifer tarandus caribou*) is listed as special concern on Schedule 1 of the *Species at Risk Act*. In the original environmental assessment, the proponent noted that the Project would be most likely to affect the Buchans and Grey River herds. The Project is located within the primary spring and fall migration corridor for the Buchans herd which connects the calving area on the Buchans Plateau and the winter range in Grey River.

The proponent noted that the Project changes may affect caribou through changes in habitat, movement, and mortality risk, and revisited its previous effects assessment to consider the Project changes. As mentioned above, the Project changes would be almost entirely within the area assessed as part of the original environmental assessment. The original assessment assumed that all habitat within the mine site would be lost. The additional 3.4 hectares for three sedimentation ponds represents an additional 0.1% of habitat loss compared to the original environmental assessment (there are eight new sedimentation ponds, but only three are outside the area that was already assessed as part of the original environmental assessment). The proponent explained that given the incremental direct habitat changes and that there is no increase in blasting frequency, indirect habitat changes (e.g., sensory disturbance) are assumed to be already accounted for in the original environmental assessment. Direct and indirect habitat changes represent 5.5% of high and

moderate-ranked habitat available in the Ecological Land Classification Area² which was used by the Project to assess effects. In addition, the proposed Berry Pit would be located southwest of the Marathon pit and southwest of the area of highest caribou use during the spring and fall migration.

The proponent said that the primary additional effect from the Project changes would be from changes in movement during the post-closure period as the pit and waste rock pile would remain a physical barrier to movement through the mine site. However, the original assessment noted that caribou are expected to largely avoid the mine site during closure and post-closure anyway as the area was assumed to be cleared and caribou would be accustomed to using alternate paths during operations. The proponent described this as a marginal increase to residual effects when compared to the original environmental assessment. The proponent conservatively predicted that residual effects on the Buchans herd from the original Project would be significant due to overlap with the migration corridor, and that the residual effects of the Project as a whole, including the Project changes, would remain unchanged.

American marten

The Newfoundland population of American marten is currently listed on Schedule 1 of the *Species at Risk Act* as Threatened; however, the Committee on the Status of Wildlife in Canada (COSEWIC) recently recommended a change to its status to Special Concern based on increased population. The proponent did not complete a specific assessment for effects to American marten or other wildlife. The rationale is that the original environmental assessment assumed that all habitat within the mine site would be lost. The 2020 Environmental Impact Statement stated that effects to American marten would be limited because there is widely available suitable habitat available for marten in the regional area. The proponent stated that these conclusions remain valid with the Project change. The proponent noted that planned mitigation measures, including its “Other Wildlife Follow-up Monitoring Plan”, would be updated for the Project changes as well.

Views expressed

Woodland caribou

Environment and Climate Change Canada indicated that there would be potentially unmitigated residual and cumulative effects on caribou as a result of the original Project in combination with the Project change. Environment and Climate Change Canada recommended an offsetting plan to address residual and cumulative effects.

Miawpukek First Nation requested habitat value rankings in the area of the Berry Pit, caribou migration through the Project area, and mortality risk from interactions with vehicles. Miawpukek also requested ongoing participation in planning, execution, and analysis of caribou monitoring activities. The proponent responded by pointing Miawpukek to a specific table in the proponent’s submission and committed to continuing to engage Miawpukek through the Environmental Stewardship Subcommittee established by the Socio-Economic Agreement.

² The ecological land classification area was the area used to assess effects to wildlife. The 1,830 square kilometre area is smaller than the Proponent’s local and regional assessment area and represents an ecologically conservative estimate to assess significance of effects.

Qalipu First Nation requested offsetting of lost caribou habitat and protection of the offset area. Qalipu First Nation expressed the importance of a proactive approach to caribou management and requested additional study of alternative migration pathways. The proponent responded that establishing a protected area for caribou is not within their purview and rather would be within the purview of the provincial government but that they will continue to discuss strategies with members of the Environmental Stewardship Committee.

American marten

Environment and Climate Change Canada indicated that there would be an unmitigated residual effect to American marten as a result of the original approved Project and the proposed Project changes. ECCC noted that the original approved footprint overlaps with 6.3 km² of designated critical habitat and that an offsetting plan is recommended to address residual effects associated with the Project change. ECCC acknowledged that the proponent's conclusions that an additional 3.4 hectares of clearing and any additional disturbances associated with the proposed Project changes would not substantially affect the conclusions made during the original approved Project assessment.

Miawpukek First Nation requested mitigation for the marten and requested additional surveys in the area of the Berry Pit. The proponent confirmed their intent to carry out surveys in 2024 during the construction phase and described the follow-up program for American marten.

Qalipu First Nation raised concerns about American marten habitat continuity and requested protection of the adjoining habitat until the impacted area can be re-established. Qalipu First Nation also requested that the proponent consider a multi-decade reclamation plan. In response, the proponent provided information about American marten use of the Project area.

Agency analysis and conclusions

The Agency acknowledges that the 2020 Environmental Impact Statement and 2022 Environmental Assessment Report assumed that all caribou and American marten habitat within the Project area would be lost and that the additional disturbed area associated with the Project changes is 3.4 hectares (0.1% increase relative to the Project area). The Agency agrees with the proponent that, with the Project changes, the physical impediment presented by the mine site to caribou movement would likely continue in the closure and post-closure phase. The Agency agrees with the proponent's assessment that the Project changes would cause a marginal increase to the effect to both caribou and American marten but that the effect would not change the overall conclusions of the original environmental assessment.

The Agency recognizes that the Government of Newfoundland and Labrador is the leading expert authority on caribou within the province and that caribou potentially affected by the Project are located entirely on provincial lands. Therefore, the Agency looks to the Province to determine the potential effects and any required mitigation measures for caribou. The Province has released the Project from further environmental assessment, subject to conditions. Provincial conditions include the requirement for the proponent to continue to collect data related to caribou, including data specifically in the Berry Pit area, to assess caribou response to the Project, and report on the efficacy of mitigation to the Department of Fisheries, Forest, and Agriculture. The provincial conditions for the original environmental assessment also require the proponent to update the Caribou Protection and Environmental Effects Monitoring Plan twice per year, prior to each migration. The Agency also notes that there is one condition in the Decision Statement focused on caribou and another

focused on American marten which require the proponent to identify and implement mitigation measures for caribou and American marten and their habitat in consultation with Environment and Climate Change Canada. These conditions would continue to apply to the Project change.

4.5 Indigenous peoples

There are two Mi'kmaq First Nation groups on the Island of Newfoundland that are potentially affected by the Project: Miawpukek First Nation and Qalipu First Nation. The Miawpukek Mi'kamaway Mawi'omi Reserve is located approximately 113 km from the Project. The Qalipu Mi'kmaq First Nation does not have reserve lands and community members live throughout Newfoundland including nearby communities of Buchans (55 kilometers from the Project) and Millertown (49 kilometers from the Project).

Proponent's assessment

The proponent updated its assessment of effects to Miawpukek First Nation and Qalipu First Nation from the Project changes, including effects to health and socio-economic conditions, and current use of lands and resources for traditional purposes.

With respect to human health, the proponent indicated that the Project changes are not expected to result in changes to quality of air, soil, water, and country foods, and therefore there are no changes to the human health risk assessment completed for the original environmental assessment. Sound levels are also not expected to exceed health-based guidelines. Therefore, the proponent said that the effects to health remain unchanged from the original environmental assessment.

The proponent described current use in the Project area by Miawpukek First Nation and Qalipu First Nation as limited. As part of the original environmental assessment, Miawpukek First Nation prepared the *Mi'kmaq Knowledge, Land Use and Occupancy Study for the Valentine Project* which identified 432 sites of historic and current land use including 127 in the study area. However, modern land use is focused closer to the community in the Conne River area. The proponent explained that since the Project footprint is mostly contained within the area originally assessed, the Project changes are not likely to change the conclusions of the 2020 Environmental Impact Statement.

The original environmental assessment indicated that there were no registered archaeological sites and no known cultural or spiritual sites identified in the Project area. For the Project changes, the proponent stated that there would be no changes to the conclusions made in the original environmental assessment.

Views expressed

Health Canada identified some methodological limitations in the proponent's human health risk assessment that were also shared as part of the original environmental assessment. Health Canada noted that the proponent identified cabins and outfitters but did not comprehensively identify all potential receptors (i.e. recreational use location, drinking water wells). Health Canada also commented that the proponent did not use health-based guidelines (i.e. *Guidelines for Canadian Drinking Water Quality*) when considering effects to human health from water quality. Health Canada also noted that fine particulate matter (PM_{2.5}) and nitrogen

dioxide are non-threshold pollutants which means that population health effects occur at all levels of exposure, even levels below the *Canadian Ambient Air Quality Standards*.

Finally, Health Canada re-iterated a comment that was first shared as part of the original environmental assessment: The proponent compared predicted exposure level of a contaminant for a single pathway with human health guidelines. Health Canada recommends a more comprehensive approach which combines all exposure pathways.

Miawpukek First Nation shared concerns about effects to health from inhalation of dust and deposit of particulate and trace metals on traditionally-important vegetation communities. The proponent responded that they have committed to monitoring trace metals in air, including the contaminants specifically mentioned by Miawpukek First Nation, as part of the air quality follow-up program. The proponent is also monitoring particulate and trace metals on vegetation including blueberries and Labrador tea leaves as part of the country foods follow-up program. Qalipu First Nation did not share concerns about human health, socio-economic conditions, current use of lands and resources, or heritage.

Agency analysis and conclusions

Consistent with other potential effects, the Agency is of the view that potential effects to Indigenous peoples would be limited in consideration of the limited use of the area by Miawpukek First Nation and Qalipu First Nation, small increase to the Project footprint, limited increase in the labour force, and small changes to environmental media. With respect to human health, the Agency notes that the proponent's approach taken for the human health risk assessment, is consistent with the methodology applied in the original environmental assessment as well as common environmental assessment practices. As a way to manage the uncertainty identified by Health Canada in the original environmental assessment, the Agency notes that the proponent is required to develop and implement a follow-up program in consultation with Health Canada and Indigenous groups, to monitor for contaminants of concern in surface water, air, and fish tissue, and that these requirements would apply to the Project changes as well.

4.4 Greenhouse gas emissions

Proponent's assessment

The proponent did not conduct a separate assessment of greenhouse gas emissions specifically for the Project changes, given that the activities associated with the Project changes that create emissions are so closely interrelated with those of the original Project. Instead, the proponent updated its assessment for the Project as a whole.

The proponent indicated that emissions during the construction phase would not change, but that emissions during the operations phase would increase due to increased fuel (diesel) consumption from equipment and vehicles and a 37% increase in explosives consumption. In 2028, the year of peak activities and emissions, the proponent predicted a total of 125,759 tonnes CO_{2e}. Over the 14.4 year life of the mine the total greenhouse gas (GHG) emissions are estimated at 690,051 tonnes of CO_{2e} which represents 1.5% of Newfoundland and Labrador's emissions and 0.02% of national emissions (2021). The proponent described

these emissions as low in magnitude for construction, and moderate during operations, and negligible during decommissioning. There was no change between residual effects characterization (i.e. magnitude, geographic extent, duration, frequency, reversibility, or context) in the 2020 Environmental Impact Statement and the updated assessment which considers the Project change.

Views expressed

Environment and Climate Change Canada provided comments related to the Project changes but did not provide comments on GHGs.

Miawpukek First Nation requested that the proponent prepare a GHG offsetting plan, requested GHG emissions related to fuel hauling and freight, and requested consideration of the use of alternative technologies (LNG or electric mining equipment). The proponent committed to exploring the possibility of GHG offsetting and alternative technologies. With respect to emissions from fuel hauling and freight, the proponent noted that fuel handling and freight are considered “scope 3” emissions that are not within the control of the proponent.

Agency analysis and conclusions

The recent amendments to the IAA resulted in changes to the definition of effects within federal jurisdiction. As such and in accordance with the transition provisions of the *Budget Implementation Act, 2024*, the conditions related to greenhouse gas emissions were removed from the Decision Statement for the Project. The Agency notes that the total emissions predicted as part of the original environmental assessment was 657,738 tonnes so the Project changes would result in a 4.9% increase, primarily due to increased equipment and vehicle use. The Agency also notes that the Government of Newfoundland and Labrador included a requirement in its project release document that the proponent uphold all commitments made in the environmental assessment submission to mitigate the effects of the Project on the environment.

5. Consultation and Engagement

5.1 Proponent’s Engagement with Indigenous Groups

The proponent indicated that they have engaged with both Qalipu First Nation and Miawpukek First Nation on the proposed Project changes and each Nation prepared a report which describes their comments on the proponent’s proposed Project changes. The proponent also indicated that both Qalipu First Nation and Miawpukek First Nation have participated in recent site visits and continue to meet with the proponent regularly as to meet as members of the Environmental Stewardship Committee (Qalipu First Nation) and Environmental Stewardship Sub-committee (Miawpukek First Nation). The Environmental Stewardship Committee and Environmental Stewardship Sub-Committee were commitments made as part of the Socio-economic Agreements with both Qalipu First Nation and Miawpukek First Nation and which were completed in 2021 and 2023, respectively.

5.2 Agency's Engagement on Proposed Project Changes

The Agency engaged with Qalipu First Nation and Miawpukek First Nation to verify that the proponent informed, and provided an opportunity to, the two First Nations to provide comments on the proposed Project changes.

The Agency also sought additional comments from Qalipu First Nation, Miawpukek First Nation, federal authorities, and the public on the proposed Project changes, to provide advice to the Minister of Environment and Climate Change on a final recommendation for potential amendments to the Decision Statement.

6. Conclusion

The Agency is of the view that the proposed Project changes will be managed by the existing mitigation and follow-up program measures included as conditions in the Decision Statement. The Agency is also of the view that the proposed Project changes will not increase the extent of adverse environmental effects beyond what was described in the 2022 Environmental Assessment Report.

Given that the proposed Project changes would not be captured by the definition of the Designated Project as currently written in the Decision Statement, the Agency recommends that the definition of Designated Project be updated, to include the Berry Pit and the associated infrastructure as described in section 2 of this analysis report. This update will ensure that the conditions included in the Decision statement also apply to the proposed project change. As well, changes have been proposed to some follow-up program conditions in order to take into account the updated predictions from the proponent's analysis. All the proposed changes to the Decision Statement are provided in the table below.

Table 1 – Recommended amendments to the Decision Statement

Latest Decision Statement issued May 25 th , 2023	Recommended amendment to the Decision Statement
<p>Description of the Designated Project:</p> <p>Marathon Gold Corporation is proposing the construction, operation, decommissioning, and reclamation of an open-pit gold mine located at Valentine Lake, approximately 55 kilometres southwest of Millertown in Newfoundland and Labrador. As proposed, the Valentine Gold Project would include two open pits, disposal piles, crushing and stockpiling areas, site infrastructure, a tailings management facility, and mine site haul and access roads. Production capacity is estimated at 10,960 tonnes per day of high- and low-grade ore, with an operation life of 13 years.</p>	<p>Revised language:</p> <p>Marathon Gold Corporation is proposing the construction, operation, decommissioning, and reclamation of an open-pit gold mine located at Valentine Lake, approximately 55 kilometres southwest of Millertown in Newfoundland and Labrador. As proposed, the Valentine Gold Project would include <u>three</u> open pits, disposal piles, crushing and stockpiling areas, site infrastructure, a tailings management facility, and mine site haul and access roads. Production capacity is estimated at 10,960 tonnes per day of high- and low-grade ore, with an operation life of <u>14.4 years</u>.</p>
	<p>New condition 1.3:</p> <p><u>Berry pit expansion report means <i>Marathon Gold's Berry Pit Expansion Environmental Registration / Environmental Assessment (Valentine Gold Project) Update (Canadian Impact Assessment Registry Reference Number 80169, Document Number 85)</i>.</u></p>
<p>Condition 1.8:</p> <p><i>Designated Project</i> means the Valentine Gold Project as described in section 2 of the environmental assessment report prepared by the Impact Assessment Agency of Canada (Canadian Impact Assessment Registry Reference Number 80169, Document Number 75), and section 2 of the Agency's analysis report <i>Marathon Gold's Proposed Change to the</i></p>	<p>Revised condition 1.9:</p> <p><i>Designated Project</i> means the Valentine Gold Project as described in section 2 of the environmental assessment report prepared by the Impact Assessment Agency of Canada (Canadian Impact Assessment Registry Reference Number 80169, Document Number 75), and section 2 of the Agency's analysis report <i>Marathon Gold's Proposed Change to the Valentine Gold Project (communications tower)</i> (Canadian Impact Assessment Registry Reference Number 80169,</p>

<p><i>Valentine Gold Project (communications tower)</i> (Canadian Impact Assessment Registry Reference Number 80169).</p>	<p><u>Document Number 83), and Agency’s report <i>Analysis of Marathon Gold’s Proposed Changes to the Valentine Gold Project (third pit)</i> (Canadian Impact Assessment Registry Reference Number 80169, Document Number 88).</u></p>
<p>Condition 1.9:</p> <p><i>Designated Project area</i> means the geographic area occupied by the Designated Project, as defined by “mine site” in Figure 4 of the environmental assessment report.</p>	<p>Revised condition 1.10:</p> <p><i>Designated Project area</i> means the geographic area occupied by the Designated Project, as defined by <u>Figure 2 of the Agency’s report <i>Analysis of Marathon Gold’s Proposed Changes to the Valentine Gold Project (third pit)</i> (Canadian Impact Assessment Registry Reference Number 80169, Document Number 88).</u></p>
<p>Condition 3.17:</p> <p>The Proponent shall develop, prior to construction and in consultation with Indigenous groups, Fisheries and Oceans Canada, Environment and Climate Change Canada and other relevant authorities, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as they pertain to adverse environmental effects of the Designated Project on fish and fish habitat. The Proponent shall implement the follow-up program during all phases of the Designated Project, taking into account the Monitoring Framework in Section 7.9.1 of the environmental impact statement and including the environmental effects monitoring requirements set out in Schedule 5 of the <i>Metal and Diamond Mining Effluent Regulations</i>. As part of the follow-up program, the Proponent shall:</p>	<p>Revised condition 3.17:</p> <p>The Proponent shall develop, prior to construction and in consultation with Indigenous groups, Fisheries and Oceans Canada, Environment and Climate Change Canada and other relevant authorities, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as they pertain to adverse environmental effects of the Designated Project on fish and fish habitat. The Proponent shall implement the follow-up program during all phases of the Designated Project, taking into account the Monitoring Framework in Section 7.9.1 of the environmental impact statement <u>and section 8.8 of the <i>Berry pit expansion report</i></u> and including the environmental effects monitoring requirements set out in Schedule 5 of the <i>Metal and Diamond Mining Effluent Regulations</i>. As part of the follow-up program, the Proponent shall:</p>
<p>Condition 3.17.2:</p> <p>monitor, during all phases of the project, surface water and groundwater flows, levels and quality to verify the assessment</p>	<p>Revised condition 3.17.2:</p> <p>Monitor, during all phases of the project, surface water and groundwater flows, levels and quality to verify the assessment</p>

<p>predictions identified in Appendices 7A, 7B and 7C of the environmental impact statement;</p>	<p>predictions identified in Appendices 7A, 7B and 7C of the environmental impact statement <u>and Appendix 8A and 8B of the Berry pit expansion report;</u></p>
<p>Condition 3.17.3:</p> <p>monitor, during all phases of the Designated Project, in consultation with relevant authorities, and taking into account the Canadian Council of Ministers of the Environment's Canadian Water Quality Guidelines for Protection of Aquatic Life, contaminants of concern prescribed by the <i>Metal and Diamond Mining Effluent Regulations</i> as well as mercury, chromium, nitrogen, and phosphorous at locations identified in Section 7.9.1 of the environmental impact statement and at offshore locations on Valentine and Victoria lakes to confirm the zone of influence predicted in the assimilative capacity assessment in appendix 7C of the environmental impact statement;</p>	<p>Revised condition 3.17.3:</p> <p>monitor, during all phases of the Designated Project, in consultation with relevant authorities, and taking into account the Canadian Council of Ministers of the Environment's Canadian Water Quality Guidelines for Protection of Aquatic Life, contaminants of concern prescribed by the <i>Metal and Diamond Mining Effluent Regulations</i> as well as mercury, chromium, nitrogen, and phosphorous at locations identified in Section 7.9.1 of the environmental impact statement, <u>section 8.8 of the Berry pit expansion report,</u> and at offshore locations on Valentine and Victoria lakes to confirm the zone of influence predicted in the assimilative capacity assessment in appendix 7C of the environmental impact statement <u>and Appendix 8B of the Berry pit expansion report;</u></p>