APPENDIX 2-A
MMER SCHEDULE 2 AMENDMENT APPLICATION

SEABRIDGE GOLD

January 31, 2013

Department of Fisheries and Oceans Canada
Environment Canada

Attention: June Rifkin, Environment Canada

Dear Ms. Rifkin,

Re: Application for a Regulatory Amendment to Schedule 2 of the Metal Mining Effluent Regulations for the KSM Project

Seabridge Gold Inc. is proposing to develop the KSM Gold-Copper Mine in British Columbia, Canada. Seabridge is submitting an Application for an Environmental Assessment Certificate pursuant to the BC *Environmental Assessment Act*, and an Environmental Impact Statement for an Environmental Assessment Decision Statement and associated Course of Action decisions by the Government of Canada in accordance with the *Canadian Environmental Assessment Act.*

The KSM Project will require a regulatory amendment to Schedule 2 of the Metal Mining Effluent Regulations (MMER) under the *Fisheries Act* because the project is proposing the use of natural water bodies frequented by fish as a Tailings Impoundment Area (referred to as a Tailing Management Facility for the KSM Project) in the upper tributaries of Treaty Creek and Teigen Creek.

Seabridge is submitting this application to Environment Canada and Fisheries and Oceans Canada to proceed with a request to Amend Schedule 2 of the MMER. An amendment to Schedule 2 of the MMER will enable Seabridge to construct and operate the KSM TMF, and will commit Seabridge to implement the MMER Fish Habitat Compensation Plan and Aquatic Effects Monitoring Plan if, and when, approved.

Seabridge has completed the following reports in support of this application which are included in the Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS).

1. Project Description

The KSM Project Description is presented in Part A Chapter 4 of the Application/EIS.

The Project Description describes the infrastructure and physical activities required to construct, operate, decommission, and reclaim the KSM Project, for both on-site and off-site Project components. The Project Description facilitates the assessment of potential environmental, social, health, heritage and economic effects. The Project Description also provides a Project schedule that describes how the proposed Project is planned to proceed through the construction, operation, closure, and post-closure phases of the Project.

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2. Assessment of Alternatives for KSM Project Tailing Management Facility

An "Assessment of Alternatives for the KSM Project Tailing Management Facility" conducted pursuant to the "Guidelines for the Assessment of Alternatives for Mine Waste Disposal" (the Guidelines) (Environment Canada, 2011) is presented in Appendix 33-B of the Application/EIS.

The TMF alternatives assessment is required for a regulatory amendment to Schedule 2 of the MMER to identify the best location for the TMF for the KSM Project. The Guidelines prescribe the required process of identifying, evaluating, ranking, and selecting the best location between the available options, following a Multiple Accounts Analysis (MAA) approach.

The TMF alternatives assessment process involved seven steps to select a TMF site using the MAA process of systematic analysis and elimination. The main evaluative step in the MAA starts with the development of a multiple accounts ledger, which is an explicit list of all the potential adverse effects associated with each TMF alternative that generates a clear and measurable description of those impacts.

Fourteen potential TMF candidate alternative sites were identified:

1. Upper Teigen/Treaty;
2. West Teigen Lake;
3. Bowser Lake;
4. Segmented Bowser Lake;
5. Knipple Lake;
6. Ted Morris Creek Valley;
7. McTagg Creek Valley;
8. Sulphurets Creek Valley;
9. In-pit Tailing Storage;
10. Burroughs Bay Submarine Disposal;
11. Scott Creek Valley;
12. Combined Sulphurets Creek Valley and Ted Morris Creek Valley;
13. Unuk Valley; and
14. Upper Treaty Creek Valley.

The result of the value-based MAA decision process was that the Upper Teigen/Treaty site is the most appropriate TMF alternative (i.e., receiving the highest score in the MAA process). The remaining three sites (Scott Creek Valley-West Teigen Lake; Unuk Valley – West Teigen Lake; and Upper Treaty Creek-West Teigen Lake) are significantly less preferable, and roughly equivalent to each other.

A sensitivity analysis was performed for the KSM TMF alternatives assessment according to the Guidelines. The result of the sensitivity analyses was that the Upper Teigen/Treaty site consistently emerged as the preferred option. Appendix 33-B fully documents the TMF alternative assessment process undertaken by Seabridge for the KSM project, in conjunction with consultation with Aboriginal groups, and local, provincial and federal government agencies.

The results of the TMF alternatives analyses were presented to the environmental assessment (EA) working group for the Project on March 29 and 30, 2012, in Smithers, BC. The Department of Fisheries and Oceans Canada (DFO) and Environment Canada (EC) have supported the outcome of the TMF assessment through the EA Working Group.

3. KSM Surface Water Quality Baseline Study

The KSM Surface Water Quality Baseline Study is presented in Appendices 14-A, 14-B and 14-C in the Application/EIS.

The study includes a characterization of the spatial and temporal variability of the surface water quality of lakes, streams and rivers in the proposed Project area, with reference to federal and provincial receiving environment water quality standards for the protection of freshwater aquatic life. Stream and lake water quality (general parameters, anions, nutrients, cyanides, total organic carbon and total and dissolved metals), and toxicity studies were included in the baseline monitoring program. Studies were conducted throughout 2008 and 2009 and continued at some sites through 2012.

4. KSM Fish and Fish Habitat Baseline Study

The KSM Fish Baseline Study is presented in Appendices 15-A, 15-C, 15-E, 15-G, 15-H, and 15-I of the Application/EIS.

The study characterizes the fish and fish habitat environment in the KSM Project area, including the following variables:

- fish presence, community, distribution and barriers to fish movement for watercourses within the local and regional study area;
- fish habitat within the baseline study area, with a detailed emphasis on streams within the footprint of the proposed TMF (i.e., stream and wetland fish habitat, including fish passage and riparian habitat);
- fish community composition and fish habitat quality in wetlands within the baseline study area;
- whole body fish tissue metal concentrations, fish diet, fish health, fish energy and reproductive investment at potential monitoring sites that may be required under the MMER;
- potential fish habitat compensation locations and the assessment of fish and fish habitat within those locations for potential future development of a preliminary fish habitat compensation plan; and
- Unuk River salmonid catch data provided by Alaskan state and US federal agencies.

5. KSM Aquatic Resources Baseline Studies

Baseline studies for Aquatic Resources are presented in Appendices 15-B, 15-D, 15-F, and 15-J of the Application/EIS.

The baseline studies characterize the following aquatic resources:

- stream benthic invertebrate community (genus richness, relative abundance, evenness, diversity and biomass);
- sediment quality (moisture, particle size, cyanides, nutrients, organic carbon, and total metal concentrations);
- stream periphyton community (genus richness, density, relative abundance, evenness, diversity and biomass as chlorophyll);
- lake phytoplankton community (genus richness, density, relative abundance, evenness, diversity and biomass as chlorophyll); and
- lake zooplankton community (genus richness, relative abundance, evenness and diversity).

6. KSM Surface Water Quality Effects Assessment

The KSM Surface Water Quality Effects Assessment is described in Part B Chapter 14 of the Application/EIS.

The Application/EIS identified potential effects on surface water quality during all phases of the Project. Predictions of water quality are provided for discharges from pits, pit lakes, rock storage facilities, ore stockpiles, tailing, dams, site surface water discharges, groundwater seepages and relevant receiving environment locations in local and regional watersheds.

Water quality effects for key flow conditions and relevant time steps in the mine life (including time frames for future pit lake discharges and steady state conditions) were assessed and took into consideration the components of the proposed Project that could affect surface water quality including:

- waste streams and containment ponds throughout the proposed Project area, including mine water, seepage and surface runoff;
- discharges from the TMF, process plant, water treatment facilities, tunnels, open pits and other mine workings; and
- blasting and its associated residues, in particular, nitrogen, nitrate, nitrite and ammonia.

The Application/EIS provides an assessment of water quality (metals, nutrients, major anions, physical parameters, and process chemicals) within and downstream of the proposed mine areas, including the pit lake post closure, as well as the proposed TMF area with comparisons to provincial water quality guidelines and federal discharge requirements including the MMER Schedule 3 and 4 where relevant.

Water quality predictive modelling included extreme low and high flows at relevant timeframes/milestones during the construction, operation and post closure phases of the mine life.

7. KSM Fish and Aquatic Habitat Effects Assessment

The KSM Fish and Aquatic Habitat Effects Assessment is provided in Part B Chapter 15 of the Application/EIS.

The Fish and Aquatic Habitat Effects Assessment is a comprehensive evaluation of the Project's potential effects on the following valued components: aquatic habitat (benthic invertebrates and sediment quality, periphyton, phytoplankton, zooplankton and associated fish habitat) and fish (Dolly Varden, Bull trout, Rainbow trout / steelhead, Pacific salmon – sockeye, chinook and coho).

The Application/EIS identified potential effects, such as potential impacts from predicted water and sediment chemistry changes, on fish and aquatic habitat during all phases of the proposed Project which includes, but is not limited to:

- infrastructure development activities;
- de-watering activities;
- flow changes from water management and diversions; and,
- impacts from habitat compensation activities.

An extensive analysis of the potential for a harmful alteration, disruption or destruction (HADD) of fish habitat was undertaken in accordance with DFO, EC, the BC Ministry of Environment (MOE), and Treaty

and First Nations requirements as outlined in the approved Application Information Requirements and Comprehensive Study Scope of Assessment for the KSM Project.

8. Aquatic Effects Monitoring Plan

The KSM Aquatic Effects Monitoring Plan (AEMP) is presented in Section 26.18.2 of the Application/EIS.

This Aquatic Effects Monitoring Plan (AEMP) provides a high-level overview of the aquatic monitoring program that will be implemented in order to ensure that the aquatic receiving environment will be protected from adverse effects due to Project activities. The AEMP has been designed to incorporate the requirements of, and ensure compliance with, the federal *Metal Mine Effluent Regulations* (MMER; SOR/2002-222), made under the Fisheries Act (1985).

The AEMP also includes provincial effluent permitting requirements with details on sampling sites, methodology, and data analysis/interpretation. The effectiveness of the AEMP will be assessed and adjusted accordingly throughout the various phases of Project activities (construction, operation, closure, and post-closure) but will, at minimum, meet monitoring requirements of the MMER and any permit conditions required during the permitting stage.

9. KSM Project - MMER Fish Habitat Compensation Plan

The KSM Project MMER Fish Habitat Compensation Plan is presented in Appendix 15-Q to the Application/EIS. The MMER Fish Habitat Compensation Plan has been developed with input from DFO, MOE, and Aboriginal groups as part of the EA Working Group. The purpose of the compensation plan is to offset for the loss of fish habitat resulting from the deposit of a deleterious substance into the water bodies that are proposed to be added to Schedule 2.

The MMER Fish Habitat Compensation Plan is based on field studies implemented in 2008 and 2009 which provided the information necessary to describe the physical habitat (bankfull width, bankfull depth, gradient, stream length, etc.) and biological (riparian cover, instream cover, fish community) attributes of each stream and reach where a loss of fish habitat will occur within the TMF. This information was used to assign fish habitat suitability indices to each stream and wetland.

Compensation for the loss of fish habitat within the TMF is governed by section 27.1 of the Metal Mining Effluent Regulations (SOR/2002-222). The objectives of the compensation plan are to:

- describe the location of the TMF and the fish habitat affected by the deposit;
- conduct a quantitative assessment of the deposit on the fish habitat;
- describe measures to be taken to offset the loss of fish habitat caused by the deposit;
- describe the measures to be taken during the planning and implementation of the compensation plan to mitigate any potential adverse effect on the fish habitat that could result from the plan's implementation;
- describe measures to be taken to monitor the plan's implementation;

- describe the measures to be taken to verify the extent to which the plan's purpose has been achieved;
- describe the time schedule for the plan's implementation, which time schedule shall provide for achievement of the plan's purpose within a reasonable time; and
- provide an estimate of the cost of implementing each element of the plan.

The total area of habitat that will be lost was calculated from the proposed TMF and seepage collection pond design. By multiplying each area by the appropriate habitat suitability indices, habitat units (HUs) that incorporate both quantity and quality of habitat were calculated.

Pre-field planning and field assessments implemented in 2009, 2010, and 2011 provided the information necessary to identify technically feasible compensation projects. Two compensation projects were identified as compensation sites to offset fish habitat loss within the TMF. These two projects are located in the Treaty and Bell-Irving watersheds. Existing site conditions, project objectives and techniques, and designs are discussed for each project within the report. The total number of HUs that will be created are presented for each project.

A Habitat Evaluation Procedure was used to prepare a habitat budget. Peer-reviewed habitat suitability indices were used for HU calculation. A peer-reviewed habitat suitability model does not exist for Dolly Varden, the only species of fish present within the TMF; hence, habitat suitability indices values were obtained from a search of the scientific literature on Dolly Varden habitat preferences.

A total area of 89,620 m^2 (8.96 ha) of fish habitat will be lost from South Teigen and North Treaty watersheds due to the deposit of deleterious substances into the proposed TMF and seepage collection ponds. This represents a total of 153,982 HUs. A total area of 211,665 m^2 (21.2 ha) of fish habitat will be created as a result of the two proposed technically feasible compensation projects. This area represents a total of 383,495 HUs.

The ratio of habitat gained, to habitat lost is 2.4:1. The ratio of HUs gained to HUs lost is 2.5:1. Therefore, the requirements to compensate for project related fish habitat loss has been effectively achieved.

Information Distribution and Consultation Reports

Part A, Chapter 3 of the Application/EIS provides a summary of the Information Distribution and Consultation that has been undertaken for the KSM Project.

The Project is subject to the BC *Environmental Assessment Act* (2002) and the *Canadian Environmental Assessment Act* (1992). Public consultation requirements for the BC EA process are set out in the BC EAA Public Consultation Policy Regulation (B.C. Reg. 373/02), which identifies requirements for public notice, access to information, and formal public comment periods. Section 4(1)(d) of CEAA 1992 identifies one of the purposes of the Act to be the provision of "opportunities for timely and meaningful public participation throughout the environmental assessment process." Comments from the public are required to be considered for comprehensive studies under section 16(1)(c) of the Act.

Consultation requirements for the Project are confirmed in the Section 11 Order (Order) issued by the BC Environmental Assessment Office (BC EAO) on November 9, 2009. The Order identifies consultation requirements for Nisga'a Nation, First Nations, government and the public (see Parts C, D and E). Specifically, the Order lists the Tahltan Central Council (on behalf of the Tahltan Nation), Gitanyow

Wilp[1] Wii'litsxw, huwilp of the Gitxsan First Nation (as identified by the Gitxsan Hereditary Chiefs Office) including Wilp Skii km Lax Ha as requiring consultation for the EA process. The Order requires Seabridge to "consult with the Nisga'a Nation in a manner that enables British Columbia to comply with the provisions of Chapter 10 (Environmental Assessment and Protection) of the Nisga'a Final Agreement."

Chapter 3 identifies information distribution and consultation methods (Section 3.2), summarizes information distribution and consultation activities with the Nisga'a Nation (Section 3.3), First Nations (Section 3.5), government agencies and local government (Section 3.7), and the public and stakeholders (Section 3.8) prior to submitting the Application/EIS. Plans for information distribution and consultation during the Application review stage are included for each group (Nisga'a Nation, First Nations, government agencies, local government, public and stakeholders) in their respective sections. Summaries of issues raised by each group, along with Seabridge's responses are provided as appendices to the Application/EIS (Appendices 3-J, 3-M, 3-N, 3-O, 3-P, 3-Q, 3-S, 3-T, and 3-U).

Since the initiation of the EA review, Seabridge has consulted the Nisga'a Nation, First Nations, local communities, third parties with interests in the Project area ("stakeholders") and other interested parties on a regular basis. Seabridge has approached these consultations in an open, transparent and collaborative manner. Prior to formally entering the BC EA process in April 2008, Seabridge met with the Nisga'a Nation and First Nations in February/March 2008 to introduce them to the Project. Seabridge met with local governments to introduce the Project beginning in September 2008. Seabridge held open houses in communities in northwest BC in June/July 2010; in Nisga'a villages in June 2011; in Ketchikan, Alaska in October 2011; in Telegraph Creek, Dease Lake and Iskut in October 2012; and in Stewart in October 2012.

Conclusion

Seabridge has attempted to include all the federally required information in order for the regulatory agencies to complete a timely and efficient review, and will be available during the Application/EIS review to discuss the Project and the various studies.

Please contact Brent Murphy, Vice-President Environmental Affairs or Elizabeth Miller, Manager of Environmental Affairs if there are any questions.

Sincerely,

R. Brent Murphy, Vice-President Environmental Affairs
Seabridge Gold Inc.

cc. B.C. Environmental Assessment Office – Chris Hamilton

[1] Wilp refers to a hereditary house, which is a key social structure of the Gitxsan and Gitanyow First Nations. Huwilp is the plural of wilp.

1. Deleterious substance is defined in the Metal Mining Effluent Regulations
2. Note the use of the term TIA in the MMER is the same as the use of the term TSF (Tailing Storage Facility) used in the KSM EA.