INTEGRATED WASTE MANAGEMENT AND DISPOSAL PLAN ADDENDUM TO THE FRESHWATER MONITORING PLAN FOR THE KENSINGTON GOLD PROJECT

COEUR
ALASKA
KENSINGTON GOLD MINE

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1.0 INTRODUCTION

This Addendum to the Freshwater Monitoring Plan (FWMP) for the Kensington Gold Project incorporates additional monitoring and sampling of facilities and activities authorized under the Alaska Department of Environmental Conservation (ADEC) Integrated Waste Management and Disposal Permit and regulations (18 AAC 60 Solid Waste Management).

The Kensington Gold Project Integrated Waste Management and Disposal Plan (IWMDP) describes the required procedures for deposition of mill tailings and managing solid wastes and hazardous materials generated at the proposed Kensington Gold Project facilities. The temporary storage and final disposal of graphitic phyllite materials excavated during construction of the Kensington Tailings Treatment Facility (TTF) is also addressed in this addendum. The specific monitoring and sampling for temporary and long-term monitoring and sampling for waste management and disposal associated with the Kensington Mine operations are identified in this addendum to the FWMP.

All sample identification, sampling procedures, sample handling, and quality assurance/ quality control are identical to those established in the FWMP.

2.0 MONITORING GOALS

The following monitoring goals have been developed to ensure that this Addendum to the FWMP will:

1. meet ADEC monitoring requirements for solid waste management and to comply with applicable state water quality standards;

2. ensure that data collected are of known and acceptable quality;

3. ensure that project-specific methods and procedures are implemented as identified in the FWMP;

4. document pre-mine baseline and background water quality conditions;

5. characterize water quality and hydrologic flow conditions above and below nonpoint source activities (i.e. inert landfill trenches, graphitic phyllite temporary storage areas, etc.), and determine the effectiveness of best management practices (BMPs); and,

6. characterize material that is mined, milled, or excavate for construction to assess their potential to affect water quality.

3.0 SAMPLING SITES

Sampling sites are throughout the Johnson, Slate, and Sherman creek drainages. Sampling location are described below in Section 3.2.

3.1 Sample Site Identification

Monitoring sites will be clearly identified in the field by driving a steel tee fence post on the stream bank at the monitoring location. The sample point name will be either written on the side of the post using a white paint pen or will be stamped into a metal nametag and attached to the post.

Sample site identification numbers are based on systems previously used for historic monitoring for the Kensington Gold Project. The nomenclature previously used includes numeric, alpha, and alpha-numeric designations. For example, for sites located in the Sherman Creek drainage, a three digit numeric designation is used (e.g., 109), in the Slate Creek Drainage sites are designated using the SL- or ML- prefix combined with an alpha designation (e.g., SL-B), and in the Johnson Creek drainage an alpha numeric designation using a JS- prefix with a numeric designation is used (e.g., JS-4). Previous site identification schemes will be maintained to provide consistency with historic monitoring. New sample locations will be added using the next available designation for each system. Sites will not be renamed or names from abandoned sites reused to avoid confusion and error interpreting historic data.

3.2 Monitoring Site Locations and Monitoring Schedule

The site designation, location, rational for site selection, and monitoring frequency are provided in Table 1. Table 2 provides the monitoring and analytical parameters for each of the monitoring sites specifically associated with the IWMDP.

Table 1

Additional Monitoring			
Site	**Location**	**Rationale**	**Frequency**
Pit #3 Graphitic Phyllite Storage Sump	Pit #3 (adjacent to Jualin access road)	Monitor pH of water contacting graphitic phyllite	Weekly
#5	Slate Creek ~ 25 meters downstream of stabilized area	Monitor water quality in Slate Creek downstream of stabilized graphitic phyllite	Weekly
SLB	East Fork Slate Creek directly up stream of the confluence of the West Fork of Slate Creek	Monitor water quality in East Fork of Slate Creek downstream of the TTF	Monthly
SH111	Ophir Creek ~ 25 meters upstream of the Comet Portal development rock pile	Monitor water quality up-gradient of the Comet Portal development rock pile	May, July, September, November
SH103	Ophir Creek above the confluence with Ivanhoe Creek	Monitor water quality down-gradient of the Comet Portal development rock pile	May, July, September, November
JS4	~ 75 meters downstream of lower bridge on Johnson Creek	Monitor water quality down-gradient of the Jualin Landfill Trench	Monthly
SH113	~ 100 meters downstream of the Sherman Creek Bridge	Monitor water quality down-gradient of the Comet Landfill Trench	Monthly

Table 2

Site	Parameters
Pit # 3 Graphitic Phyllite Storage	Field pH
#5	**Total Metals:** Aluminum, Arsenic, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness
SLB	**Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N
SH111	**Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N
SH103	**Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N
JS4	**Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N
SH113	**Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N

4.0 Geochemical Characterization of Materials to be Excavated, Mined, or Milled

Materials to be excavated for construction, development rock from the mine used for construction, and mill tailings that could potentially affect water quality will be geochemically characterized and managed if necessary to prevent degradation of water resources. Material characterization will be performed using one or more of the established analytical procedures; multi-element analysis, Acid Base Accounting (ABA), kinetic testing, and Meteoric Water Mobility Procedure (MWMP). These analytical tools will be used when appropriate to accurately classify the material and their potential to affect water quality.

Tailings solids will be collected quarterly as a 5 kilogram (11 lb) grab sample for ABA and MWMP analyses. Quarterly development rock samples will be collected as two separate 5 kilogram (11 lb) grab samples from the Development Rock Facility near surface and mid-point on the dump slope. The development rock samples will also have the ABA and MWMP analyses.

Table 3

Material Characterization	
Material	**Method/Parameters**
Tailings Solid	Acid Base Accounting and Meteoric Water Mobility Procedure **Total & Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N
Development Rock	Acid Base Accounting and Meteoric Water Mobility Procedure **Total & Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N
Borrow Pit Material	Acid Base Accounting and Meteoric Water Mobility Procedure **Total & Dissolved Metals:** Aluminum, Arsenic, Cadmium, Chromium (total), Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Zinc, Low Level Mercury **General Parameters:** Sulfate, Turbidity, Total Suspended Solids, Hardness (total), Chloride, Color, Alkalinity as CaCO3 Nutrients: Total Ammonia as N, Nitrate as N