STATE OF ALASKA

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF AIR AND WATER QUALITY
WASTEWATER DISCHARGE PROGRAM

November 7, 2003

Mr. William Oelklaus
Kennecott Greens Creek Mining Company
PO Box 32199
Juneau, Alaska 99803

Subject: Waste Management Permit 0211-BA001 (replaces 0111-BA001)
Kennecott Greens Creek Mining Company

Dear Mr. Oelklaus:

The Alaska Department of Environmental Conservation has completed its evaluation of your request to continue disposing of treated tailings from a zinc, lead, silver and gold recovery facility to a lease area with an increased footprint to a total of 123.3 acres (inclusive of disposal area and treatment infrastructure adjacent to the disposal area) and various portions within the underground workings of the mine, and the disposal of waste rock (also known as production rock) to production rock disposal sites 23 and D. The above-ground tailings facility is projected to accept tailings up to a final projected total tailings footprint area of 62.2 acres and total volume of 5.3 million cubic yards (9.6 million tons). The facility includes a marine outfall with diffuser that is used for discharge of waters from the facility under an NPDES permit. The above ground production rock facility has a total capacity of 1.2 million cubic yards.

This permit is issued under the provisions of Alaska Statute 46.03, and the Alaska Administrative Code, 18 AAC 15, 18 AAC 60, 18 AAC 70, and 18 AAC 72 as amended or revised and, other applicable state laws and regulations, and references portions of the mine's the General Plan of Operations (GPO). Please review the conditions and stipulations in this permit and ensure that they are all understood. This permit is effective November 7, 2003 and expires November 7, 2008.

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195- 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 555 Cordova Street, Anchorage, AK 99501, within 15 days of

the permit decision. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days of the permit decision. If a hearing is not requested within 30 days, the right to appeal is waived.

Sincerely,

SIGNATURE ON FILE

William D. McGee
Technical Engineer

Enc.:
Permit 0211-BA001
Response to Comments

cc:

Rich Heig, Kennecott Greens Creek Mining Co.
Ed Emswiler, ADEC, Juneau
Kenwyn George, ADEC, Juneau
Jim Durst, ADF&G, Fairbanks
Joe Donohue, ADNR, Juneau
Stan Foo, ADNR, Anchorage
Steve McGroarty, ADNR, Fairbanks
Jim Vohden, ADNR, Fairbanks
David Cohen, ADNR, Lands, Juneau
Cam Leonard, ADOL, Fairbanks
Dale Pernula, CBJ, Director of Planning
Teri Camery, CBJ, Coastal District Coordinator, ACMP
Dave Chambers, Center for Science in Public Participation
Amy Crook, Center for Science in Public Participation
John Leeds, COE
Steve Hohensee, USFS / Juneau
Cindy Godsey, EPA/Anchorage
Page Else, Sitka Conservation Society
Ruth Hamilton Heese, Robertson, Monagle & Eastaugh
Kat Hall, SEACC
Buck Lindekugel, SEACC
Tim Obst, USDA - OGC
Pete Griffin, USFS / Juneau
Jeff DeFreest, USFS / Juneau
Dave Cox, USFS / Juneau
Forrest Cole, USFS / Ketchikan
Deborah Rudis, USFWS/Juneau
Theresa A.N. Woods, USFWS
Mac McLean, ADNR

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
610 UNIVERSITY AVE.
FAIRBANKS, AK 99709-3643

WASTE MANAGEMENT PERMIT

Permit 0211-BA001 **Date: November 7, 2003**

This Waste Management Permit is issued to the Kennecott Greens Creek Mining Company, POB 32199, Juneau, Alaska 99803, for the disposal of mine tailings and other solid wastes as defined in Section 2.1 of this permit, from a zinc, lead, silver and gold recovery facility to a lease area of 123.3 acres (inclusive of tailings disposal area and treatment infrastructure adjacent to the disposal facility) located within Sections 22, 23, 26, and 27, T.43S., R.65E., CRM, and the disposal of waste rock (also known as production rock) to production rock disposal sites 23 and D, located within the SW ¼ Section 4, & SE ¼ Section 5, T.44S., R.66E., CRM. Additionally, this permit allows for the disposal of tailings, production rock and other solid waste as defined in Section 2.1 to various locations within the underground workings of the mine. The above-ground tailings facility is projected to accept tailings up to a final projected total tailings footprint area of 62.2 acres and total volume of 5.3 million cubic yards (9.6 million tons). The facility includes a marine outfall with diffuser that is used for discharge of waters from the facility under an NPDES permit. The above ground production rock facility Site 23 has a total capacity of 1.2 million cubic yards covering 18 acres. The above ground production rock facility Site D has a total capacity of 210,000 cubic yards of production rock on the 8 acre site. Site D has been filled to capacity. This permit is issued under the provisions of Alaska Statute 46.03, and the Alaska Administrative Code, 18 AAC 15, 18 AAC 60, 18 AAC 70, 18 AAC 72 as amended or revised, and other applicable state laws and regulations. This permit is effective November 7, 2003 and expires November 7, 2008. It may be terminated or modified in accordance with AS 46.03.120.

This permit is subject to the conditions and stipulations contained in the following sections and appendices:

This permit references those portions of Appendices 1, 3, 11, and 14 of the General Plan of Operations that are applicable to the Tailings facility, Production Rock sites 23 and D, and the underground facilities. Changes to those portions in these Appendices must be approved by the Department if they affect this permit. If the Department does not agree with changes made after the effective date of this permit, the conditions of this permit will remain in effect. If there is a conflict between the GPO and the regulations or this permit, then the regulations or the permit, as the case may be, take precedence unless otherwise specified.

This permit may be modified to include other mine related disposal areas or waste materials if the Department determines that there is an environmental problem associated with the management of those areas or waste materials.

Unsaturated Soils Engineering, Ltd. (USE) designed the final cover for the waste disposal sites (Waste Rock Cover Design, dated December 23, 1998). This permit approves design profile #4, or any approved modification to this design, or any other cover that the Department determines will provide equal or better protection of the environment.

The permittee shall conduct post-closure care and monitoring for 30 years for the facilities under section 2.5 of this permit and according to 18 AAC 60.490(c). The need for additional post closure care and monitoring shall be assessed at the end of the post-closure care period. At the end of the post-closure period, the Department will determine whether post-closure care and monitoring should be extended. The marine outfall with diffuser for the facility is required to be bonded in accordance with Section 9.1 for 50 years in the case post-closure maintenance and monitoring is necessary.

This permit waives the following regulatory requirements:

1. 18 AAC 70.020. The requirement for ground water samples to be Total Recoverable for metals. Total recoverable will be required only if the Dissolved analysis shows the water quality to be at the point of or closely approaching the state water quality standards.
2. 18 AAC 60.243. This requires intermediate cover to be placed within 7 days after the waste is last deposited in that area, using a soil material at least 12 inches thick, graded to prevent water from ponding. This requirement is waived based on the nature and management of the materials being deposited and engineering review has confirmed its geotechnical stability.
3. 18 AAC 60.485(c). This requires a minimum slope of 3H:1V be used to ensure slopes are stable and do not erode or slough. This requirement is waived for the slope at production rock site #23 during construction. The slope at the production rock site #23 is designed and constructed to a 2.85(H):1(V). Benches will be used to ensure stability and monitoring will be done to ensure this. At closure, slopes shall be made to 3H:1V if necessary in order to maintain stability.

4. 18 AAC 60.820. This is a requirement for groundwater monitoring. At production rock site D, groundwater monitoring is limited to one well below site D to the southeast of the site. Additional groundwater monitoring below the site is waived because of the difficulty of locating wells in the area adjacent to Greens Creek. In lieu of groundwater monitoring, the Greens Creek river, into which the groundwater discharges, will be monitored for chemicals and metals; in addition to biological monitoring.

SIGNATURE ON FILE

William D. McGee
Technical Engineer

1 LIMITATIONS AND PROHIBITIONS

1.1 WASTES PROHIBITED.

The following materials may not be disposed into either surface or underground facilities, unless otherwise provided:

1.1.1 laboratory wastes and discarded, unused chemicals,

1.1.2 polluted soils, spill boom, liners used for the containment of spilled materials, chemicals used in the cleanup of spills or other spill clean up wastes,

1.1.3 uncombusted household waste,

1.1.4 sewage solids that are untreated and/or have less than 10% solids by weight,

1.1.5 asbestos waste,

1.1.6 hazardous wastes, as defined by 40 CFR Part 261, including radioactive material, explosives, oil, solvents, strong acids, untreated pathogenic waste,

1.1.7 glycol and solvents, and,

1.1.8 tires (prohibited from above ground disposal only), fuels, oil filters, transformers, paint, equipment and packing material.

1.1.9 Class 4 production rock disposal is prohibited at the surface facilities unless authorized in writing by the Department.

2 ITEMS APPLICABLE TO SURFACE WASTE DISPOSAL FACILITIES

2.1 TYPES OF WASTE ALLOWED

2.1.1 Mill tailings are allowed at the tailings disposal facility

2.1.2 Production rock is allowed at Site 23 and Site D, as well as at the tailings disposal facility

2.1.3 Up to five percent of the waste in the tailings disposal facility or Site 23 may be non-hazardous incidental wastes which may include the following:

2.1.3.1 settled solids from sumps, ditches, and degritting basins;

2.1.3.2 settled solids from the pit 5 water treatment plant (tailings area only)

2.1.3.3 dewatered sewage sludge (tailings area only);

2.1.3.4 incinerator ash and residue (tailings area only);

2.1.3.5 ash from the combustion of scrap wood material, and cardboard waste;

2.1.4 Incidental production and/or salvage rock to create access roads and to provide surface erosion control.

2.1.5 Other wastes may be disposed only with written approval of the land manager and the Department.

2.2 GENERAL REQUIREMENTS.

The permittee shall construct, operate, close, maintain and monitor the facility to:

2.2.1 prevent disposal of waste materials from exceeding the design capacity of the disposal facilities,

2.2.2 minimize run-on water from entering the facility from upgradient sources of surface and ground water. Any changes in the phreatic water surface level shall not interfere with the pile geotechnical stability,

2.2.3 control and treat surface water, ground water and leachate as necessary to prevent off-site water quality exceedance,

2.2.4 not cause a violation of 18 AAC 70 water quality regulations at or beyond all points of compliance,

2.2.5 not place solid waste in water,

2.2.6 control solid waste from washing away from the facility, using Best Management Practices,

2.2.7 minimize the infiltration of water and oxygen during the routine operations, closure, and post-closure care periods,

2.2.8 design and construct to ensure geotechnical stability of waste materials and cover systems,

2.2.9 minimize the potential for liquefaction within the facility in the event of a design basis earthquake (DBE) event for operations (crustal earthquake 1/475 year at magnitude 6.5), and a maximum design earthquake (MDE) at closure (equal to 75% of maximum credible earthquake, magnitude 7.0),

2.2.10 minimize the potential for development of acid rock drainage conditions within the facility,

2.2.11 control wind-blown airborne particulate dispersion, and,

2.2.12 after the placement of all Class 4 production rock underground, maximize the placement of Class 3 production rock and tailings underground to the greatest extent practical.

2.3 TEMPORARY CLOSURE

2.3.1 Temporary closure is defined as the period between 90 days and 3 years during which there has been a cessation of mining and milling activities. The length of time for a temporary closure may be extended beyond 3 years by written authorization from the Department.

2.3.2 KGCMC shall notify the Department in writing at least thirty days prior to any planned temporary closure of 90 days or longer. KGCMC shall notify the Department of any unanticipated temporary closure expected to last ninety days or longer within ten days after the first day of the temporary closure. The notice shall state the nature and reason for the temporary closure, the anticipated duration of the temporary closure, and any event that would reasonably be anticipated to result in recommencement of operations. Operations must resume for not less than ninety consecutive days in order to terminate the running of the temporary closure period.

2.3.3 The permittee shall submit a conceptual temporary closure plan to the Department for approval within 30 days after shutdown of all mill processes.

2.3.4 The permittee shall submit a detailed temporary closure plan to the Department within 60 days after shutdown of all mill processes. The permittee is encouraged to submit the detailed plan as early as possible within the 60 days. The detailed plan shall include the following:

2.3.4.1 procedures, methods, and schedule for the collection, treatment, disposal or storage of leachate,

2.3.4.2 management practices designed to control surface and ground water drainage to and from the facility and the surrounding area,

2.3.4.3 secure storage of chemicals during the period of closure, and,

2.3.4.4 management practices designed to minimize oxygen and moisture entry into the waste.

2.3.5 The Department shall have 15 days to review and approve, or to request modifications to, the temporary closure plan. Full implementation of the temporary closure plan is required once approved. The plan can be modified by

submitting a revision to the Department for approval.

2.3.6 During the temporary closure period, the permittee shall:

2.3.6.1 continue monitoring and reporting activities as if the facility were actively accepting waste, and,

2.3.6.2 complete concurrent reclamation on all areas that have achieved final elevation, except to the extent that completion of concurrent reclamation would impair the ability to perform work on adjacent areas upon recommencement of operations, and satisfy corrective action requirements as appropriate under this permit and the Reclamation Plan.

2.4 PERMANENT CLOSURE

The permit holder shall:

2.4.1 Within 180 days of the USDA Forest Service approving the lease boundary expansion and GPO amendment request based upon their Record of Decision (ROD) for the "Greens Creek Tailings Disposal" FEIS, dated November 2003, submit to the Department updated closure and post-closure plans for all facilities covered under this permit, which provides a detailed, site-specific and task-specific component of the Reclamation Plan. This plan shall include a preliminary analysis of the options that will effectively treat contact water after closure of the facilities, as well as a detailed submittal of the best available treatment option or options at that time. The analysis will address differing water flow volumes and pollutant concentrations that may reasonably be expected. This analysis may be ongoing throughout the life of the facility. Updates shall be submitted with the annual report when significant changes in the available technology have occurred such as for the Sulfate Reduction Monitoring Program (SRMP).

2.4.2 at least 60 days prior to the renewal of this permit, submit an updated closure plan in the form described above, in conjunction with the 5 year facility audit.

2.4.3 submit an updated closure plan to the Department with the annual report if there are changes made to the closure plan during any year of operation.

2.4.4 notify the Department of any changes to the closure plan at least 30 days before the site is to be permanently closed and/or the equipment withdrawn.

2.4.5 initiate final closure activities within 3 years to those areas that have reached final elevation and in which the intent is not to place future waste. Final closure for these areas may be extended beyond 3 years only with Department approval.

2.4.6 submit updated, detailed, cost-biddable, reclamation and monitoring plans for

approval within 90 days of the decision that permanent cessation of the mill process will occur. These updates must describe the manner in which reclamation and monitoring will take place and set standards for evaluating the success of the reclamation in light of the conditions existing at the facility at the time of closure. This plan will include a sequence-of-events schedule that is as specific as feasible.

2.4.7 complete the installation of the engineered cap and commence revegetation as part of closure within 2 construction seasons after initiation of site closure as specified in Section 2.4.5 of this permit unless otherwise approved.

2.4.8 Within 2 years from the issuance date of this permit, conduct a qualitative and quantitative study performed by a qualified plant or soil scientist that addresses long-term issues related to tree blow-down on the final cover system. Incorporate findings into reclamation plan as appropriate. The study shall provide reliable information on whether or not tree blow-down may cause deterioration of the integrity of the final cover system over time or change any of the design assumptions.

2.4.9 Closure of the facility shall require:

2.4.9.1 use profile #4 soil cover design as detailed in the Waste Rock Cover Design dated December 23, 1998 by Unsaturated Soils Engineering Ltd., or any modification to these designs, or any alternative cover, that the Department determines provides equal or better environmental protection,

2.4.9.2 installation of the cover system so that it functions properly according to the design 30 years after the facility is closed in its entirety,

2.4.9.3 monitoring and documentation of the final cover system and pile for the parameters found in 2.12.8.1 through 2.12.8.4 of this permit throughout closure and post-closure care,

2.4.9.4 construction of all outside slopes shall be no steeper than 3H:1V, except as otherwise specified by this permit.

2.4.9.5 stable slopes with no indication of sloughing or erosion,

2.4.9.6 effective run-on and run-off controls to handle a 25-year, 24-hour storm event,

2.4.9.7 minimization of leachate flows from the facility through the use of passive capping management practices,

2.4.9.8 compliance with State of Alaska water quality standards at all points of compliance, and,

2.4.9.9 revegatation in accordance with those requirements of the approved reclamation plan according to the GPO.

2.5 POST-CLOSURE CARE

2.5.1 Post-closure care shall begin after it is determined that closure is complete. Closure shall be deemed complete when the requirements of section 2.4 of this permit are met.

2.5.2 At least 180 days prior to closure of the facility, a post-closure care and monitoring plan shall be submitted to the Department for approval.

2.5.3 The permittee shall conduct post-closure care and monitoring for 30 years according to 18 AAC 60.490(c). The need for additional post-closure care and monitoring shall be assessed at the end of the post-closure care period. At the end of the post-closure period, the Department will determine whether post-closure care and monitoring should be extended.

2.5.4 The permittee shall:

2.5.4.1 prepare and submit to the Department, upon closure of the facility, a survey as-built which shows the location, types, and volume of waste deposited at the facility. A copy shall be made available to any purchaser or transferee at the time of property sale or transfer,

2.5.4.2 file the survey as-built of the tailings facility with the appropriate land records office within 60 days after the entire facility has been permanently closed, and submit proof of such recording to this Department,

2.5.4.3 install and maintain throughout the post-closure care period permanent markers, such as surveying benchmarks or GPS markers, from which the exact location of the closed facility and waste disposal pile can be determined.

2.5.4.4 record a notation on an instrument that is routinely examined on a title search of the property within 60 days of permanent closure notifying subsequent landowners:

2.5.4.4.1 the land has been used as a monofill,

2.5.4.4.2 the type of waste that has been buried on the property,

2.5.4.4.3 the geographic boundaries of the waste management areas,

2.5.4.4.4 details of any final cover, cap, or other structures or devices installed as a part of closure, and,

2.5.4.4.5 an engineered soil cover system has been placed over the waste and operations are carried out in a way that does not destroy or damage the performance or integrity of the cover system.

2.5.4.4.6 A detailed geographic location of any outfall pipe and diffuser if required.

2.5.5 The permittee shall conduct post-closure care for all parts of the facility. Post-closure care shall include:

2.5.5.1 post-closure monitoring as detailed in section 2.12 of this permit,

2.5.5.2 maintenance of the integrity and effectiveness of the final cover, slopes, vegetative cover, and drainage structures, including making repairs as necessary to correct the effects of settlement, subsidence, ponding, erosion, frost action, or degradation, and to prevent damage to the final cover by run-on and run-off and trees, and,

2.5.5.3 correction of any violation of permit conditions determined to be significant by the Department for the post-closure period.

2.6 MONITORING – GENERAL REQUIREMENTS

2.6.1 Monitoring requirements shall conform to the requirements of the Fresh Water Monitoring Program (FWMP) of the General Plan of Operations, and any Department approved updates to that program. In addition, the permittee shall adhere to 18 AAC 60.800 – 18 AAC 60.860 unless otherwise specified.

2.6.2 Test procedures for analysis of water samples and leachate samples shall conform to methods cited in the FWMP and 18 AAC 70.020(c), or as such regulations may be amended. To the extent the parameters, methods, and procedures of 18 AAC 70.020(c) differ from the FWMP, the permittee shall use the approved parameters, methods and procedures prescribed in the FWMP.

2.6.3 The Department may change monitoring requirements by permit modification or approval, in consultation with the permittee and the USFS, at the permittee's request, or in response to trends showing changes in the concentration of parameters being monitored,

2.6.4 Unless unforeseen circumstances occur, substitution of alternative methods of monitoring or analyses shall require prior written approval from the Department. When unforeseen circumstances require a change on site, those changes shall be reported to the Department within 30 days of those changes being made.

2.6.5 Problems found during visual monitoring, or an exceedance of a water quality standard during surface or groundwater monitoring at points of compliance, or a statistically significant change found in ground water monitoring results that suggests a problem shall be reported to the Department within 10 days of discovery. The report shall include a plan to correct the problem or state the actions taken to mitigate a problem needing immediate attention. The plan requires Departmental approval before implementation, except that advance approval is not required for actions taken to mitigate a problem needing immediate attention.

2.6.6 The Department may require a change in the sampling frequency, parameters or methods depending upon the results of analysis or change in operation.

2.6.7 If the permittee monitors any influent, effluent, receiving water, air or solid waste characteristic in addition to those identified in this permit, or monitors more frequently than required in this permit, the results of such monitoring shall be made available for inspection by the Commissioner or his/her representative at the project site, or other location proposed by the permittee and agreed upon by the Department. The permittee shall keep records for 5 years from the date of sample being taken for all monitoring and shall make records available for inspection to the Department upon request.

2.6.8 The general monitoring requirements of this section 2.6 are in addition to the specific monitoring requirements for the tailings and production rock, and the subject-specific monitoring requirements below.

2.7 MONITORING – VISUAL

The permittee shall:

2.7.1 conduct monthly visual checks of the facility when operations are in process, using an inspection checklist, in addition to any daily or weekly visual inspections made routinely as part of operation for which an inspection checklist is not required or used. During temporary closure visual inspections shall be conducted at least weekly in addition to the monthly inspection using a checklist. A person who is familiar with permit requirements shall conduct the checklist visual inspection, operations plan, closure and post-closure plan, corrective action plan, and the monitoring plan. Visual monitoring shall be conducted on routine facility operations, leachate collection and diversion systems, leachate pumping systems, the engineered cover and the facility perimeter. Structural changes or leakage noted during the inspections shall be documented. The Department may require more frequent monitoring if the conditions listed below exist. Visual monitoring shall include but may not be limited to the following:

2.7.1.1 signs of damage or potential damage to any component of the facility from

settlement, ponding, leakage, thermal instability, frost action, erosion, slip failure, thawing of the waste, or operations that contribute to a problem,

2.7.1.2 violation of conditions of this Waste Disposal permit,

2.7.1.3 escape of waste or leachate,

2.7.1.4 unauthorized waste disposal,

2.7.1.5 slippage, erosion, cracks, or other damage to the visible portion of a cover system,

2.7.1.6 damage to the structural integrity of a monitoring device, containment or seepage structure, retaining wall, erosion control or diversion structure, and,

2.7.1.7 evidence of death or stress to fish, wildlife, or vegetation caused by the facility.

2.7.2 The permittee shall document total precipitation and average temperature since the last checklist inspection and shall comment on unusual or extreme weather events. Data shall be reported from stations at each site and shall be summarized in the annual report.

2.7.3 If any structural change in or damage to the facility, or any violation of permit condition is observed during the visual monitoring program, the permittee shall report to the Department within 10 days and take appropriate action to correct the violation or damage, prevent the escape of waste or leachate, and clean up any improper waste disposal.

2.7.4 The permittee shall summarize visual observations and submit these in the annual report.

2.8 MONITORING – GROUNDWATER

2.8.1 The permittee shall:

follow procedures outlined in the FWMP (GPO Appendix 1) and 18 AAC 60.820 – 18 AAC 60.860. The permittee shall provide the following as components in addition to those required by the FWMP unless otherwise provided in this permit:

2.8.1.1 sample and analyze ground water from a system of wells that yields water from the uppermost aquifer that represents the quality of:

2.8.1.1.1 background ground water that has not been affected by leachate from the facility, and,

2.8.1.1.2 where feasible, down-gradient ground water at points of compliance,

2.8.2 design, install, and decommission monitoring wells in accordance with the Department's Recommended Practice for Monitoring Well Design, Installation, and Decommissioning, April 1992 or as otherwise approved by the Department.

2.8.3 collect, analyze and report the results of sampling in accordance with the FWMP.

2.8.3.1 Provide in the annual report one or more plan documents showing the locations of waste pile internal (not for compliance purposes) monitoring routinely performed at each facility showing the locations for installed performance monitoring devices. In the annual report also provide updates to the plan documents, and of the FWMP's map depicting monitoring locations, showing any changes in monitoring locations. The plan document(s) and updates shall include or be accompanied by tables providing available information about the design and use of the sample points, including depth and sampling periods.

2.9 MONITORING - SURFACE WATER

2.9.1 The permittee shall sample and analyze all seeps of any contact water found during visual monitoring where the seeps migrate beyond seepage and run-off control structures. Also, the permittee shall collect a sample that is representative of background conditions if feasible. Surface water must be sampled at the place where the highest concentration of hazardous constituents migrating off the facility will be detected, so that interference from sources of pollution unrelated to the facility's solid waste management operations will be minimized. Surface water shall be sampled on a schedule that is approved by the Department. Samples shall be taken at least during seasons of high flow and low flow each year during the operational, closure, and post-closure care phases unless another schedule is approved or required by the Department. The results of this monitoring shall be summarized in the annual report.

2.9.2 Test procedures for the analysis of water samples shall conform to the parameters, methods and procedures in the FWMP and in 18 AAC 60.820-860.

2.10 MONITORING – LEACHATE

2.10.1 The permittee shall quarterly document the flow and analyze the leachate from the tailings disposal facility and production rock facility according to the "Tailings Internal Environmental Monitoring Program" in Appendix 3 and the "Production Rock Internal Environmental Monitoring Program" in Appendix 11,

of the GPO. The samples shall be taken throughout the operational, closure and post-closure periods and the results of this monitoring shall be summarized in the annual report. See Table 1 for monitoring requirements.

2.11 MONITORING – BIOLOGICAL

2.11.1 Biological monitoring shall be conducted in accordance with the FWMP, Appendix 1 of the GPO.

2.11.2 Biological monitoring shall be conducted in July of each year as close in time as practical with the water chemistry monitoring required under Appendix 1, of the GPO using "suite P" parameters and methods. Should a significant increase occur in fish tissue of any of the parameters from "suite Q" that are not found in "suite P", then "suite Q" parameters and methods shall be monitored in water samples from that point forward.

2.12 MONITORING - POST-CLOSURE

2.12.1 Conduct visual monitoring semi-annually, in accordance with section 2.7 of this permit.

2.12.2 Conduct ground water monitoring semi-annually in accordance with section 2.8 of this permit. Samples shall be taken once during the dry season (May/June) and once during the rainy season (September/October).

2.12.3 Conduct surface water monitoring semi-annually in accordance with section 2.9 of this permit.

2.12.4 Conduct leachate water monitoring semi-annually in accordance with section 2.10 of this permit.

2.12.5 Conduct biological monitoring annually in accordance with section 2.11 of this permit.

2.12.6 Submit a post-closure care plan with updates to post-closure monitoring according to section 2.5.2.

2.12.7 Conduct an annual inspection for subsidence and movement within the pile by comparing the relative movement of the upper surface of the closed portion of the facility where subsidence and/or movement is expected to be the greatest over time utilizing either permanently installed survey markers or a GPS system. Observations shall be made consistently at the same general time each year or more often as the conditions deem necessary. The results of the inspection shall be reported to the Department with the annual report and shall detail the effect of any subsidence and/or surface movement on the integrity of the cover system,

2.12.8 Semi-annually monitor and document the infiltration/barrier, root zone layers and the establishment of growth and vegetation at the closed facilities in accordance with the approved final cover design. The analysis shall take place at least during the times of the year that represent high and low moisture precipitation. The results of these analyses shall include the following and be presented in the annual report:

2.12.8.1 Precipitation and temperature records for the week preceding on-site visual observations by means of remote weather stations at site 23 and Tailings,

2.12.8.2 measurement of soil suction and temperature by the use of a sufficient number of sensors, the number and location of which will be proposed by the permittee prior to installation of the cover for approval by the Department, for a period of time sufficient to determine the efficacy of the final cover system (semi-annually for the first five years, with subsequent monitoring needs determined from the data collected during this period),

2.12.8.3 measurement of cover infiltration rates by the use of a sufficient number of lysimeters at the base of the constructed cover system, the number and location of which will be proposed by the permittee prior to installation of the cover for approval by the Department, for a period of time sufficient to determine the efficacy of the final cover system (semi-annually for the first five years, with subsequent monitoring needs determined from the data collected during this period), and,

2.12.8.4 measurement of relative water content profiles by the use of a sufficient number of neutron probe access tubes, the number and location of which will be proposed by the permittee prior to installation of the cover for approval by the Department, for a period of time sufficient to determine the efficacy of the final cover system (semi-annually for the first five years, with subsequent monitoring needs determined from the data collected during this period).

2.12.9 Visual, ground water, surface water, leachate and biological monitoring shall be conducted at the frequencies shown in Table 1 of this permit. The permittee shall also record the rate of leachate discharged from the facilities at the frequency shown in Table 1.

2.12.10 If tailings underdrain water is discharged through the marine outfall, conduct marine sampling as specified in the EPA NPDES permit for the outfall.

2.12.11 The permittee shall include a summary of all post-closure monitoring results, records, and observations in the annual report.

2.12.12 At the end of the 30-year post-closure care period, the permittee shall conduct, in unison with a qualified independent third-party consultant, and agencies, an

evaluation of whether the cover has met performance standards, and the facility can be considered retired in accordance with 18 AAC 60.490(c). This inspection shall include but not be limited to an analysis of surface water, ground water, leachates and a visual inspection of the cover. A final report shall be submitted to the Department that describes the site conditions and addresses appropriate management of trees on the cover to prevent the potential for blow-down damage. This report shall summarize the information collected during the post-closure care period.

2.12.13 Based upon the results of the 30-year post-closure care report, the agencies and the permittee will decide whether to continue post-closure care or treatment.

2.13 TABLE 1. SUMMARY OF MONITORING REQUIREMENTS

Operational Phase and Post-Closure Monitoring

Note: Monitoring under this permit is for the surface facilities and the area immediately surrounding them. There is no monitoring requirement for underground disposal areas.

The permittee shall perform the operational and post-closure phase monitoring described in the tables below, unless the permittee submits to the Department a modified table or tables describing operational monitoring and the Department approves the modified table or tables as providing for monitoring equally or more effective than that below.

Operational Phase – Tailings and Production Rock facilities

Item #	Comments	Type	WQ parameters	Frequency
2.6.1	GPO – FWMP (Appendix 1)	Various	Various	Varies
2.7	Visual	By checklist		Monthly
2.7	Visual	No checklist		Daily or weekly
2.7.2	Precipitation & temperature			Since last insp.
2.8.1	Groundwater	FWMP	Suite Q	Varies
2.9	Surface water	Seeps	Suite Q	As agreed
2.10		Leachate	Suite H	Quarterly
2.11	GPO FWMP App 1, Sec 6.7	Biological		Mid-late July

Operational Phase – Additional monitoring for just the Tailings facility

Item #	Comments	Type	Tests	Frequency
3.6.2	Tailings		Chemistry, NNP, paste pH	Four per quarter Annually
3.6.4	Proctor	Density		Quarterly
3.6.5	Phreatic water level	Piezometer		Quarterly

Operational Phase – Additional monitoring for just the Production Rock facility

Item #	Comments	Type	Tests	Frequency
4.1.1.2	Production rock		Chemistry, NNP, paste pH	Annually
4.1.1.4	Phreatic water level	Piezometer		Quarterly

Post-closure phase – Tailings and Production Rock facilities

Item #	Comments	Type	Tests	Frequency**
2.12.1		Visual		Semi-annual
2.12.2		Groundwater		Semi-annual
2.12.3		Surface water		Semi-annual
2.12.4		Leachate water		Semi-annual
2.12.5		Biological		Annual
2.12.6		NNP & paste pH		Every 5 years
2.12.7	Subsidence and movement	Survey marker inspection		Annual
2.12.8	Engineered cap			Semi-annual
2.12.8.1	Remote weather station	Precipitation & temperature		Week's weather prior to visit.
2.12.8.2	Soil	Suction & temperature		Semi-annual
2.12.8.3	Cap	Infiltration rate		Semi-annual
2.12.8.4	Cap	Water content		Semi-annual
2.12.10	NPDES	Marine		Per NPDES

** For the first five years post-closure, then as determined needed based upon the se monitoring results

*Suite Q from the FWMP - Conductivity,
pH, Temperature & Hardness
Sulfate
Total Alkalinity
Dissolved Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver & Zinc

*Suite H from the TIEMP - Conductivity,
pH, Temperature & Hardness
Sulfate
Total Alkalinity
Dissolved Arsenic, Cadmium, Copper, Lead, Mercury & Zinc
Common Ions: Dissolved Calcium, Magnesium, Sodium & Potassium
Nitrate plus Nitrite, Bicarbonate, Silica & Chloride

3 TAILINGS DISPOSAL FACILITY

The tailings facility will comprise a lease area of 123.3 acres and up to a final projected total tailings footprint area of 62.2 acres and total volume of 5.3 million cubic yards (9.6 million tons). The expansion of the tailings facility includes:

1. expansion of the existing Pit 5 quarry to provide construction materials for infrastructure development and construction within tailings disposal area and eventually, the placement of tailings;
2. construction of a new water management pond system;
3. installation of surface water and groundwater controls and diversions;
4. use of existing Containment Pond No. 6 for containment and storage of permited solid wastes;
5. development of a borrow and storage area for excavated reclamation materials (topsoil and organics); and,
6. development of borrow areas for infrastructure development and reclamation materials storage.

3.1 SEWAGE SOLIDS

Sewage solids may be disposed of to the tailings facility. They shall contain no less than 10% solids by weight and shall be treated with lime so that a pH of 12 is maintained in the solids after one hour of contact before disposal. Sewage solids shall be covered with at least 6 inches of cover material immediately after disposal.

3.2 CONSTRUCTION, OPERATION AND MANAGEMENT

The tailings facility shall be constructed, operated and managed according to the operations plan as cited in the July 23, 1999 Evaluation of the Tailings Pile, by Klohn-Crippen Engineering. Changes to this plan must be authorized by a permit modification or approval of the Department before the change can be implemented. The plan states the following as major elements:

3.2.1 tailings shall be placed in a cellular format and the pile is divided into a number of cells,

3.2.2 new tailings shall not be placed on uncompacted saturated tailings,

3.2.3 the tailings shall be placed in small areas, one or two adjacent cells at a time. The tailings shall be placed in one-foot lifts and immediately compacted with a smooth drum roller to a Standard Proctor Density of no less than 90%. If the tailings cannot be placed and compacted upon arrival at the tailings facility, they shall be stockpiled to minimize any additional moisture absorption during wet periods, or drying during warm periods. The tailings shall be handled such that specified placement densities are achieved,

3.2.4 the top surface of the cells shall be graded away from access roads to ensure surface water runs off, and compacted with a smooth drum roller to minimize

infiltration from ruts or indentations,

3.2.5 placement shall then continue at another location/cell to allow time for any construction pore pressures, which may exist in the originally placed tailings, to dissipate, and,

3.2.6 construct with compacted outside side slopes that are no steeper than 3H:1V. Slopes during operation may be less than 3:1 if future operation or slope work is planned, or KGCMC receives approval for steeper slopes provided pile stability requirements are met.

3.3 2003 TAILINGS EXPANSION

The tailings area development shall follow the design and operational plans and objectives specified in the "Greens Creek Tailings Disposal" FEIS, dated November 2003, updated closure and post-closure plans specified under Section 2.4.1 of this permit, and other approved operating and engineering plans. Any changes to these plans which affect the design and performance shall be approved in writing by the Department. In addition, the following shall be implemented as major elements:

3.3.1 the facility shall be constructed according to the lease boundary and footprint approved by the U.S. Forest Service as presented in their ROD for "Greens Creek Tailings Disposal" FEIS, dated November 2003;

3.3.2 surface water interception and diversion structures shall be constructed to prevent run-on from flowing onto the active portion of the facility. The storm water control system must be capable of handling the peak discharge from a 25-year storm event;

3.3.3 ground water interception and diversion structures shall be designed and constructed having a permeability of no more than 1 x 10-6 cm/sec hydraulic conductivity;

3.3.4 expansion of the tailings pile shall be in accordance with an approved plan. The plan shall be submitted to the Department within 180 days of the USDA Forest Service issuing their approval for the lease boundary expansion and GPO amendment based upon their Record of Decision (ROD) for the "Greens Creek Tailings Disposal" FEIS, dated November 2003. The plan application material should specify the use of liners or other devices to prevent adverse impact to ground and surface water. The application material should specify underdrains, finger drains and french drains in a way which allows for tailings contact water to be effectively controlled;

3.3.5 underdrains shall be designed to minimize settling and clogging;

3.3.6 within the constraints of pile stability and safety, the facility shall be constructed

in a manner that achieves maximum vertical expansion followed by closure according to Section 2.4 of this permit.

3.3.7 The permittee shall maintain the facility, correcting any erosion or settlement of the tailings that may impair water quality or otherwise threaten the environment.

3.4 WASTEWATER TREATMENT PROCESSES AND PIPING

3.4.1 The permittee shall notify the Department at least 60 days before any significant change in mill processes, which may affect the quality or characteristics of tailings outside of normal operating ranges. If such a change would significantly affect disposal operations, the permittee shall request approval from the Department for the change.

3.4.2 The permittee shall submit to the Department within 90 days after completing construction of a new process component or of a significant modification to an existing process component:

3.4.2.1 as-built drawings of process component(s) changes which would affect performance of that process component, as required by 18 AAC 72.600,

3.4.2.2 a summary of the quality control activities carried out during construction, and,

3.4.2.3 final operating plans that reflect modifications made during construction.

3.4.3 By January 29, 2006 provide sufficient storage to contain and control the 24-hour, 25-year storm event. Pond overflows shall be reported to the Department within 1 day of discovery and water samples immediately outside the pond dyke shall be taken according to the surface water monitoring protocols of the FWMP.

3.4.4 The permittee shall provide and maintain secondary containment for all process piping, chemical mix tanks, and facilities containing hazardous or toxic materials. Secondary containment is considered to be 110% of the largest tank within the containment. The permittee shall design and install secondary containment structures in a manner that ensures solid waste or leachate will not escape from the structures. Facilities to prevent such discharges shall be maintained in good working condition at all times by the permittee.

3.4.5 Secondary containment of all hazardous substances as defined at AS 46.03.826 (5) must be impermeable to those stored hazardous materials.

3.4.6 The permittee shall design all new process piping, chemical mix tanks, and facilities containing hazardous or toxic materials to allow for routine inspections for leaks.

3.4.7 The permittee shall maintain fuel handling and storage facilities in a manner intended to prevent the discharge of hazardous substances. A Spill Prevention Control and Countermeasure Plan (SPCC Plan) shall be in effect according to provisions of 40 CFR 112 for facilities storing 660 gallons of fuel in a single container above ground, 1320 gallons in the aggregate above ground, or 42,000 gallons below ground.

3.5 SPILL RESPONSE PLAN AND NOTIFICATION

3.5.1 The permittee shall notify the Department of a discharge of any hazardous substance at the facility in conformance with 18 AAC 75, Article 3.

3.6 MONITORING - TAILINGS FACILITY

3.6.1 Visually monitor the facility in accordance with section 2.7.

3.6.2 Analyze four samples of fresh tailings each quarter for the Net Neutralizing Potential and exposed tailings annually for paste pH in accordance with Appendix 3 Section 4 of the GPO.

3.6.3 Maintain an inventory of all tailings wastes and an estimate of all other wastes disposed at the tailings facility.

3.6.4 Conduct quarterly Proctor density tests of tailings waste disposed into the facility.

3.6.5 Conduct semi-annual monitoring of the phreatic water surface using all installed methods capable of producing reliable data on water levels within the pile. Annual reports shall include a graphical cross-sectional representation of the phreatic water level during the reporting period. The phreatic water level shall be drawn on a cross-section of the tailings pile such that the distance from the surface and base of the pile is shown.

3.6.6 Observe and report any damage to the piezometers and any other monitoring devices.

3.6.7 The permittee shall provide summary data in an annual report. If data indicates exceedence or a problem, then report the exceedence or problem within 10 days of knowledge of the exceedence or problem.

4 PRODUCTION ROCK DISPOSAL FACILITIES SITES 23 AND D

The Production Rock disposal facility comprises two disposal sites designated Site 23 and Site D. Site D, adjacent to Greens Creek, was the first disposal site, primarily containing materials from development of the mill site area. The total area of site D is 8 acres and the volume of materials deposited was 210,000 cu. yd. Site D is filled to capacity and no longer receives

waste. Site 23 is located immediately upslope of Site D and is permitted by the USFS for an ultimate area of 11 acres and has an estimated total capacity of 1.2 million cubic yards. Between sites 23 and D runs the "B" road to the mine and mill, and beneath the road lies a curtain drain to divert subsurface flows beneath Site 23 from contact with Site D.

4.1 CONSTRUCTION, OPERATION, MANAGEMENT AND MONITORING

The facilities shall be constructed, managed, maintained and operated in accordance with Appendix 11 of the GPO and the permit application materials submitted to the Department September 7, 2000. Changes to this plan must be authorized by a permit modification or approval of this Department before the changes can be implemented.

4.1.1 Monitoring – Production Rock

4.1.1.1 Visually monitor the facility in accordance with section 2.7.

4.1.1.2 Analyze annually for the chemistry, net neutralizing potential and paste pH. The sampling schedule shall be in accordance with Appendix 11 of the GPO.

4.1.1.3 Inventory all production rock wastes at Sites 23/D, including the numerical classification. The annual report shall include a graphical cross-sectional representation of the various placement zones for waste classes at the site and the amount of waste placed during the reporting period.

4.1.1.4 If present, conduct semi-annual monitoring of the phreatic water surface using all installed methods capable of producing reliable data on water levels within the pile. Annual reports shall include a graphical cross-sectional representation of the phreatic water level during the reporting period. The phreatic water level shall be drawn on a cross-section of the production rock pile such that the distance from the surface and base of the pile is shown.

4.1.1.5 Observe and report any damage to the piezometers and any other monitoring device.

5 UNDERGROUND DISPOSAL OF WASTES

5.1 TYPES OF WASTE ALLOWED

5.1.1 Production rock and tailings are allowed at the underground facility

5.1.2 Up to five percent of the waste at the underground facility may be non-hazardous incidental wastes which may include the following:

5.1.2.1 tailings mixed with cement as required to provide stability for adjacent

mine activities,

5.1.2.2 iron (drill steel, empty cans, etc.),

5.1.3 used ventilation tubing,

5.1.4 tires,

5.1.5 used filter press cloth,

5.1.6 empty plastic and glass containers and other incidental wastes such as non-hazardous domestic garbage,

5.1.7 empty triple rinsed chemical containers,

5.1.8 settled solids from sumps, ditches and degritting basins,

5.1.9 such other material as would otherwise be disposed of in a surface landfill without special handling, and

5.1.10 other wastes only if disposed with written approval of the land manager and the Department.

5.2 OPERATIONAL PHASE

5.2.1 The permittee shall maximize deposit into the underground workings of the mine tailings and production rock.

5.2.2 The permittee shall notify the Department of a discharge of any hazardous substance at the facility in compliance with 18 AAC 75, Article 3. Reportable spills include but are not limited to unplanned discharges of oils, solvents, glycol, acids, process chemicals, or other hazardous wastes as defined by 40 CFR 261 which would violate limitations in this permit. All spills must be cleaned up in accordance with an approved spill plan and to the satisfaction of the Department.

5.3 CLOSURE, POST-CLOSURE CARE AND MONITORING

5.3.1 At least 180 days prior to planned, permanent closure of the underground facility, the permittee shall submit closure and post-closure care plans to the Department for approval. The permittee is encouraged to submit the specific plan sooner than 180 days if possible. This plan shall include but not be limited to:

5.3.1.1 waste disposal locations and inventory,

5.3.1.2 procedures, methods, and a schedule for securing and maintaining closure

of the facility,

5.3.1.3 control of surface and ground water drainage to and from the facility and the surrounding area.

6 REPORTING AND RECORDKEEPING

6.1 ADDRESSES AND PHONE NUMBERS

Provide all mailed reports and correspondence to:

Alaska Department of Environmental Conservation - AWQ
410 Willoughby Avenue, Suite 303
Juneau, AK 99801

Provide email copies to:
wqpermit@dec.state.ak.us

For reporting an incident by phone call either
ADEC Air & Water Quality @ 465-5300 or ADEC Solid Waste @ 465-5153

6.2 ITEMS TO BE SUBMITTED IN THE ANNUAL REPORT

6.2.1 Reports as detailed in Table 2.

6.2.2 A summary of the inspections and monitoring results set out in section 2.6 through section 2.13 of this permit. Copies of the laboratory reports with QA/QC information shall be made available for Departmental review on site.

6.2.3 A summary of any changes to the pertinent appendices of the General Plan of Operations (GPO) since the last submittal of any part of the GPO, or the last annual report. The permittee shall be prepared to discuss these changes to the GPO and whether such changes will require modification of this permit at the annual meeting with the department and any other agencies participating in that meeting.

6.2.4 Updates to the amount of financial assurance required for closure of the permitted waste disposal areas, including information on inflation, concurrent reclamation, expansion of the footprint, or other changes to the closure costs that have occurred since the last update. The financial assurance for the facility may be adjusted if the Department finds that the change is warranted, and the change amount is significant enough to justify the expenditure of the transaction costs of changing the financial assurance instrument. In the event of an increase, the new financial assurance instrument shall be due within 180 days of the Department's response to the annual report.

6.2.5 The location and volume of the placed tailings, the volume of production rock placed at Site 23, test results from tests required under this permit, and a discussion of any water quality or solid waste disposal violations or unpermitted releases, or stability problems related to the surface tailings facility or Site 23.

6.2.6 An executive summary that presents a summary of the items of information specified in sections 6.2.1 to 6.2.5 of this permit.

6.3 PRESENTATION OF ANNUAL REPORT

6.3.1 The permittee shall provide an overview and explanatory presentation of the annual report approximately two weeks after hard copy and electronic versions have been submitted to the agencies. An annual meeting with the Department shall be held with other agencies also invited. This presentation shall be open to the public and the permittee should be prepared to answer questions related to the report.

6.4 MAINTENANCE OF RECORDS.

6.4.1 The permittee shall maintain a copy of the records listed in Table 3 in the facility's operating record. The records shall be made available to Department staff for review during facility inspections.

6.5 TABLE 2. REPORTING REQUIREMENTS.

SECTION	REPORTING ITEM	FREQUENCY/REPORTING PERIOD
2.3.2	Planned closure of 90 days or more	Notify Department at least 30 days prior to closure
2.3.2	Unanticipated closure of 90 days or more	Within 10 days after first day of temporary closure
2.3.3	Conceptual Temporary Closure Plan	Within 30 days of mill shutdown
2.3.4	Detailed Temporary Closure Plan	Within 60 days of mill shutdown
2.4.1	Detailed closure plan	180 days after the Forest Service approval of the GPO and lease changes based upon the Stage II Tailings Expansion EIS and ROD
2.4.2	Updated closure plan	At least 60 days prior to permit renewal
2.4.2	Updated closure plan if changes made during the preceding year	Annual report
2.4.4	Changes to closure plan	At least 30 days prior to closure

SECTION	REPORTING ITEM	FREQUENCY/REPORTING PERIOD
		or equipment removed
2.4.5	Updated reclamation & monitoring plan	Within 90 days of mill shutdown
2.5.2	Post-Closure Care Plan	At least 180 days prior to closure
2.5.4.1	Survey as-built	Upon closure of the facility
2.5.4.2	File survey with Lands records office	Within 60 days of closure
2.5.4.4	Record details on plat	Within 60 days of closure
2.7.2	Precipitation and temperature	Annual report
2.7.3	Structural change or damage	Within 10 days of inspection
2.8.3.1	Plans or updates to the waste pile internal monitoring locations	Annual report
2.8.3.1	Update of waste pile internal monitoring and FWMP monitoring locations	Annual report
2.9.1	Surface seeps outside control structures	Annual report
2.10.1	Leachate	Annual report
2.11.1	Biological monitoring	Annual report
2.12.7	Post -closure Subsidence and movement	Annual report
2.12.8	Engineered cap performance	Annual report
2.12.11	Post-closure monitoring results, records, observations	Annual report
2.12.10	NPDES marine sampling	As required by the NPDES permit
2.12.12	30-year post-closure care report	Submit
3.4.1	Notification of Significant Change in Mill Wastewater Treatment Processes	At least 60 days before the change is implemented
3.4.2	New or Modified Wastewater Treatment Process Components: As-Built Drawings, QC Activities, Final Operating Plans	Within 90 days after completion of construction
3.5.1	Hazardous substance discharge	As specified in 18 AAC 75
3.6.6	Summary data of tailings monitoring	Annual report

SECTION	REPORTING ITEM	FREQUENCY/REPORTING PERIOD
5.2.2	Hazardous substance discharge	As specified in 18 AAC 75
5.3.1	Closure and Post-closure plans	At least 180 days prior to closure
6.2.2	Summary of inspections and monitoring results	Annual report
6.2.3	Summary of changes to the pertinent appendices of the GPO	Annual report
6.2.5	Location & volume of placed tailings Volume of placed production rock Test results Discussion of WQ or SW violations Discussion of WQ or SW unpermitted releases Stability problems at either facility	Annual report
6.2.6	Executive summary of items 6.2.1 through 6.2.5	Annual report

6.6 TABLE 3. RECORDKEEPING REQUIREMENTS.

RECORD KEEPING REQUIREMENTS	REGULATION CITATION:
Permit application and permit	18 AAC 60.235
Inspection records, training procedures, and notification procedures	18 AAC 60.235
Any demonstration, certification, finding, monitoring, testing, or analytical data required by 18 AAC 60.800 to 18 AAC 60.860	18 AAC 60.235
The operational plan	18 AAC 60.235
Any permit or record required under the Clean Water Act as that Act applies to leachate and stormwater discharges	18 AAC 60.235
As-built drawings	18 AAC 60.235
The quantity of each type of waste disposed at the facility	18 AAC 70.020
Water monitoring records & any related corrective action records	18 AAC 60.810
Ash monitoring records	18 AAC 60.020
Visual inspections and Records	18 AAC 60.800
Piezometer records (phreatic surface , damage to piezometer)	18 AAC 70.020
Subsidence records & consideration of cover integrity (distance)	18 AAC 70.020
Water volume measurements (flows from underdrains)	18 AAC 70.020
Closure & post-closure plans & post-closure	18 AAC 60.210(b)(14) & 60.490

RECORD KEEPING REQUIREMENTS	REGULATION CITATION:
notation to instrument that is routinely examined during a title search	
Closure & post-closure monitoring	18 AAC 60.490(c)

7 CORRECTIVE ACTION REQUIREMENTS

The permittee shall:

7.1.1 If any structural change in, or damage to, a facility is found such that environmental damage is likely to occur, or any violation of a permit condition is observed during monitoring or an inspection, the permittee shall take appropriate action as soon as practical to correct the damage or violation, prevent the escape of waste or leachate, and clean up any improperly disposed wastes.

7.1.2 If a statistically significant change in water quality is detected at a point of compliance as a result of the surface water monitoring program based on the criteria established in 18 AAC 60.830(h) and in the FWMP, or if a water quality standard is exceeded at any surface water point of compliance or groundwater downgradient monitoring well, the permittee shall:

7.1.2.1 orally notify and consult with the Department within one working day,

7.1.2.2 submit to the Department documentation of the occurrence and a plan to determine the cause and/or source of the exceedence within 5 working days,

7.1.2.3 evaluate whether the water quality standards in 18 AAC 70 are threatened to be or are exceeded at the point of compliance,

7.1.2.4 determine if migration of waste or leachate from the facility is the cause of the change in water quality;

7.1.2.5 determine the extent of the waste or leachate migration contamination;

7.1.2.6 submit for Department approval, within 10 working days, a plan of corrective actions to prevent adverse environmental impacts and further exceedences of applicable water quality standards or permit limits, and,

7.1.2.7 implement the corrective action plan as approved by the Department.

7.1.3 If a significant change occurs within the tailings pile to the pH, dissolved metals levels, net neutralizing potential or seepage flows, the permittee shall submit to

the Department within 30 days of the change being detected the results of any data or analyses showing the change. If the change is deleterious, then submit a proposal on how to mitigate the change or changes.

7.1.4 If the engineered barrier cover has visually observable damage of a type indicative of a threat to the integrity of the cover, or the cover does not operate as designed, the permittee shall submit to the Department within 30 days of the problem being noticed details of the problem and a proposal on how mitigate the problem.

7.1.5 If the vegetative cover does not perform as expected, or is harmed such that it is unable to function as required, the permittee shall submit to the Department within 30 days of the problem being noticed details of the problem and a proposal on how mitigate the problem.

8 FACILITY AUDIT AND POLLUTION PREVENTION STRATEGY

8.1 FACILITY AUDIT

8.1.1 Prior to the renewal of this permit every five years (expected in 2008), in coordination with a review of the General Plan of Operations, and prior to and in preparation for the termination of this permit, a facility audit shall be conducted at the expense of the permittee. The Department, in consultation with other agencies having land use management or regulatory authority over the facility and the permittee, shall mutually set the audit scope, and select a qualified auditor. The company will bear the burden of contract management during the audit process. To qualify, an auditor must:

8.1.1.1 Certify that no relationship exists through professional, financial, or personal reasons that could bias the auditor's judgment or the audit results and that no self-serving interest in the outcome of the audit exists;

8.1.1.2 Demonstrate a commitment to professional and ethical standards generally accepted in the environmental auditing profession; and

8.1.1.3 Demonstrate a professional proficiency in the specific areas of hardrock mining, associated environmental issues, and current federal/state regulatory programs and climate, and an appropriate working knowledge and appreciation of management principles, quantitative methods, and computerized information systems.

8.1.2 The intent of the audits will be to determine if both the facility management and regulatory controls of the facility provide reasonable assurances that the facility and controls are functioning as intended. The scope of subsequent audits may be revised as mutually agreed upon prior to initiation of each audit, to address specific issues or objectives not previously identified in this permit.

Identification of such issues or objectives may be accomplished through a joint permittee/agency meeting prior to the audit.

8.1.3 The audit will be an objective, systematic, documented review of the conditions, operations, and practices related to permit requirements and facility management conducted under this permit. The audit shall evaluate:

8.1.3.1 the permittee's compliance with all federal, State and local permits and authorizations related to the permitted facility, and specific compliance with the conditions of this permit;

8.1.3.2 The permittee's compliance with internal environmental policies, plans, and procedures, and established environmental management systems and policies, are subject to updating, amendment, or revision upon mutual agreement of the parties;

8.1.3.3 the reliability and integrity of information relating to facility reporting and compliance;

8.1.3.4 the adequacy of the Department's permit and other agencies' oversight of the facility;

8.1.3.5 the condition of containment structures;

8.1.3.6 laboratories and sample analysis procedures;

8.1.3.7 the pollution prevention strategy in section 10.8 of this permit; and,

8.1.3.8 the adequacy of the closure and post-closure bonding, including the collection, treatment and long-term disposal of contact water.

8.1.4 The Department and permittee will use the audit results to assist in:

8.1.4.1 updating, renewing, or amending this permit,

8.1.4.2 updating policies, plans, and procedures,

8.1.4.3 determining compliance with this permit, and

8.1.4.4 determining the adequacy of the closure and post-closure bonding, including the collection, treatment and long-term disposal of contact water.

8.1.5 The facility audit may be a component of, or combined with, an audit required by other agencies' permits or approvals or agreements pertaining to the Greens Creek Mine.

9 FINANCIAL RESPONSIBILITY

Solid waste regulation 18 AAC 60.265 allows the Department to require proof of financial responsibility for closure of the facility and post-closure monitoring. Although closure of the facility, apart from incidental concurrent reclamation of portions of the facility, is not expected within the term of this permit, financial responsibility is required for all closure activities, as if performed by a third party, based on the assumption that full closure, for whatever reason, may occur during the term of the permit. The closure activities and financial responsibility for them shall be based on the requirements of the approved GPO, Appendix 14, Attachment A Detailed Reclamation Plan cost estimates dated November 15, 2001, any updates to this plan and any closure-related requirements of this permit that exceed the requirements of the Reclamation Plan. Updates to the amount of financial assurance required for closure and post-closure monitoring of the permitted waste disposal areas, including information on inflation, concurrent reclamation, expansion of the footprint, or other changes to the closure costs that have occurred since the last update, shall be performed as required in section 6.2.4 of this permit. The financial assurance required for the facility may be adjusted if the Department finds that the change is warranted, and the increase or decrease in costs is significant enough to justify the expenditure of the transaction costs of changing the financial assurance instrument. In the event of an increase, the new financial assurance instrument shall be due within 180 days of the Department's response to the annual report.

9.1 BOND

9.1.1 The permittee shall provide the Department with proof of financial responsibility for closure of the facility and post-closure maintenance and monitoring. This proof shall cover financial responsibility for closure of the facility as required by this permit, and for post-closure care and monitoring of the facility for no less than 30 years. Financial assurance for post-closure monitoring and maintenance of a marine outfall and diffuser is for 50 years.

9.1.2 As of the date of this permit, the amount of financial assurance acceptable to the Department is $26,238,518 which reflects reclamation, closure and monitoring for the entire mine site, including the disturbance anticipated from development of the Stage II Tailings expansion of up to 123.3 acres of the tailings disposal facility. The details regarding financial assurance are specified in the KGCMC General Plan of Operations, Appendix 14, Attachment A dated November 15, 2001 (Detailed Reclamation Plan Cost Estimates) as updated October 2003, and as updated annually according to the requirements in Section 6.2.4 of this permit. Terms for the release and distribution of funds are specified in the financial instruments and in the Memorandum of Understanding (MOU), dated May 14, 2001.

9.1.3 The total amount of $26,238,518 shall be be secured before any expansion of the surface tailings facility into undisturbed areas occurs.

9.1.4 Should the amount of work estimated to be completed for closure purposes

change, as determined annually or at the time of the 5-year audit and permit renewal, or for any changes to post-closure requirements, then the amount of financial responsibility shall be adjusted accordingly. The new or supplemental financial assurance instrument shall be secured within 180 days of the Department's response to the annual report.

9.1.5 The cost for reclamation, closure and post-closure care of the facility shall include but not be limited to all costs for:

9.1.5.1.1 administrative overhead,

9.1.5.1.2 equipment mobilization, assuming all required equipment has to be brought to the site by a contractor,

9.1.5.1.3 the execution of tasks by contractors, including the cost of Davis-Bacon wages for contractor employees,

9.1.5.1.4 the cost of maintaining an abandoned site until and during final reclamation,

9.1.5.1.5 the long-term care and monitoring costs, and,

9.1.5.1.6 a contingency amount for unforeseen items.

9.1.6 The permittee shall comply with the Memorandum of Understanding (MOU) dated May 14, 2001, or any updates to this MOU, as agreed to by the Department and KGCMC.

9.1.7 The following requirements shall apply:

9.1.7.1 Where there are changes to the reclamation plan for the tailings facility and sites 23/D, the permittee will provide the Department with annual updates to the GPO Appendix 14, Attachment A, Detailed Reclamation Plan, and submit such updates with the annual report.

9.1.7.2 The permittee shall provide a complete update of the closure plan and Appendix 14, Attachment A Detailed Reclamation Plan including calculations suitable for determining whether adjustments for inflation are in order. This information shall be updated and submitted at each 5-year submittal of the audit, permit renewal application, or a significant change in the design or operation of the facility requiring amendment of this permit.

9.1.7.3 The proof of financial responsibility may be in the form of a trust fund, surety bond, letter of credit, insurance, or any other mechanism approved by the Department.

9.1.7.4 Any interest earned by the bond shall remain with the bond or other form of financial responsibility.

9.1.7.5 Approved proof of financial responsibility must remain in effect through the post-closure period for no less than 30 years, at a level determined by the Department to be necessary to ensure performance of obligations remaining after closure.

9.1.7.6 Partial release of the total financial responsibility amount, including accumulated interest, shall occur when closure has been satisfactorily achieved and the engineered cover system is shown to be operating as designed. The release of all amounts not required to ensure performance of post-closure maintenance, long-term water treatment/disposal and monitoring shall occur after both of the following: all site specific physical requirements of the Reclamation Plan have been met, and cover performance has been determined by the Department to be satisfactory.

9.1.7.7 Final release of the remaining bond amount, including interest, but excluding those costs for long-term maintenance and monitoring of any contact water disposal system shall not occur until the requirements for post-closure monitoring have been met and the engineered cover is shown to be operating as designed at the end of the 30 year post-closure period. Retention of the balance may be extended after this if the Department is not fully satisfied that full environmental protection exists at the end of the post-closure period.

9.1.7.8 No part of financial responsibility will be released until the Department certifies in writing that the requirements for partial or full release of the bond have been met.

9.1.7.9 Should another entity assume responsibility for permit compliance and/or post-closure monitoring, release of financial responsibility to KGCMC shall not occur until that other entity provides proof of financial assurance of the same amount to be released.

9.1.7.10 If the permittee is unable to continue acceptable proof of financial responsibility, or provide sufficient bonding determined by periodic updates, this permit will terminate automatically at that time, notwithstanding any other approvals to the contrary.

9.1.7.11 If the permittee fails to comply with the terms and conditions of this permit, as written, renewed, modified or amended, and if the Department concludes that such failure may prevent, inhibit or delay satisfactory closure or post-closure monitoring of the disposal facility, then, following notification and a reasonable time period for the permittee to respond to the

Department findings, the Department may exercise its rights under the approved mechanism for financial responsibility to access the funds and use them for appropriate closure and post-closure activities.

10 GENERAL PERMIT CONDITIONS

10.1 ACCESS AND INSPECTION.

10.1.1 The permittee shall allow the Commissioner or his/her representative access to the permitted facilities at reasonable times to conduct scheduled or unscheduled inspections or tests to determine compliance with this permit, state laws, and regulations.

10.1.2 Information access. Except where protected from disclosure by applicable State or Federal law, all records and reports submitted in accordance with the terms of this permit shall be available for public inspection at the State of Alaska Department of Environmental Conservation, Juneau, Alaska.

10.2 CIVIL AND CRIMINAL LIABILITY

10.2.1 Nothing in this permit shall relieve the permittee from any potential civil or criminal liability for noncompliance with the permit or with applicable law.

10.3 AVAILABILITY.

10.3.1 The permittee shall post or maintain a copy of this permit available to the public at the facility.

10.4 ADVERSE IMPACT.

10.4.1 The permittee shall take all necessary means to minimize any adverse impacts to the receiving waters or lands resulting from noncompliance with any limitation specified in this permit, including any additional monitoring needed to determine the nature and impact of the non-complying activity. The permittee shall cleanup and restore all areas adversely impacted by the noncompliance.

10.5 CULTURAL OR PALEONTOLOGICAL RESOURCES.

10.5.1 Should cultural or paleontological resources be discovered as a result of this activity, work which would disturb such resources is to be stopped, and the State Historic Preservation Office, Division of Parks and Outdoor Recreation, Department of Natural Resources (907-465-4563), is to be notified promptly.

10.6 APPLICATIONS FOR RENEWAL.

10.6.1 In accordance with 18 AAC 15.100 (d), applications for renewal or amendment

of this permit must be made no later than 30 days before the expiration date of the permit or the planned effective date of the amendment.

10.6.2 This permit does not relieve the permittee from the duty to obtain any other necessary permits from the Department or from other local, state, or federal agencies, and to comply with the requirements contained in any such permits. All activities conducted and all plans implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations.

10.7 TRANSFER OF OWNERSHIP

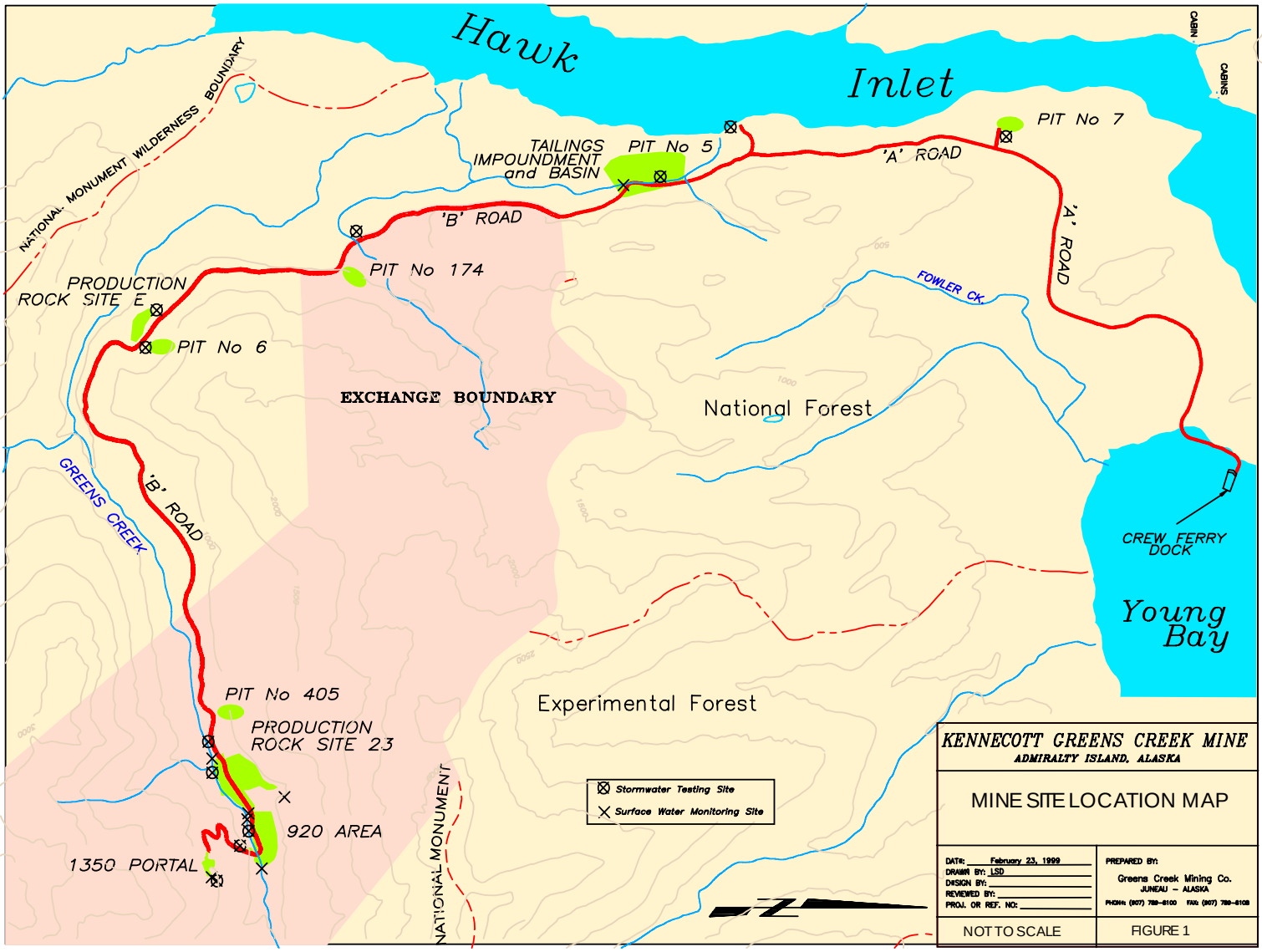
10.7.1 In the event of any change in control or ownership of the permitted facility, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Director of Air and Water Quality. The original permittee remains responsible for permit compliance unless and until the succeeding owner or controller agrees in writing to assume such responsibility, and the Department approves assignment of the permit. The Department will not unreasonably withhold such approval. However, the Department may require a reasonable period of post-closure observation of water quality before approving assignment of this permit to an organization contemplated by any Agreement for Funding Post-Reclamation Obligations entered into by the permittee and the Alaska Department of Natural Resources. As between the State and the permittee, no transfer of this permit shall relieve the permittee of any liability arising out of operations conducted prior to such transfer, regardless of whether such liability accrues before or after such transfer.

10.8 POLLUTION PREVENTION

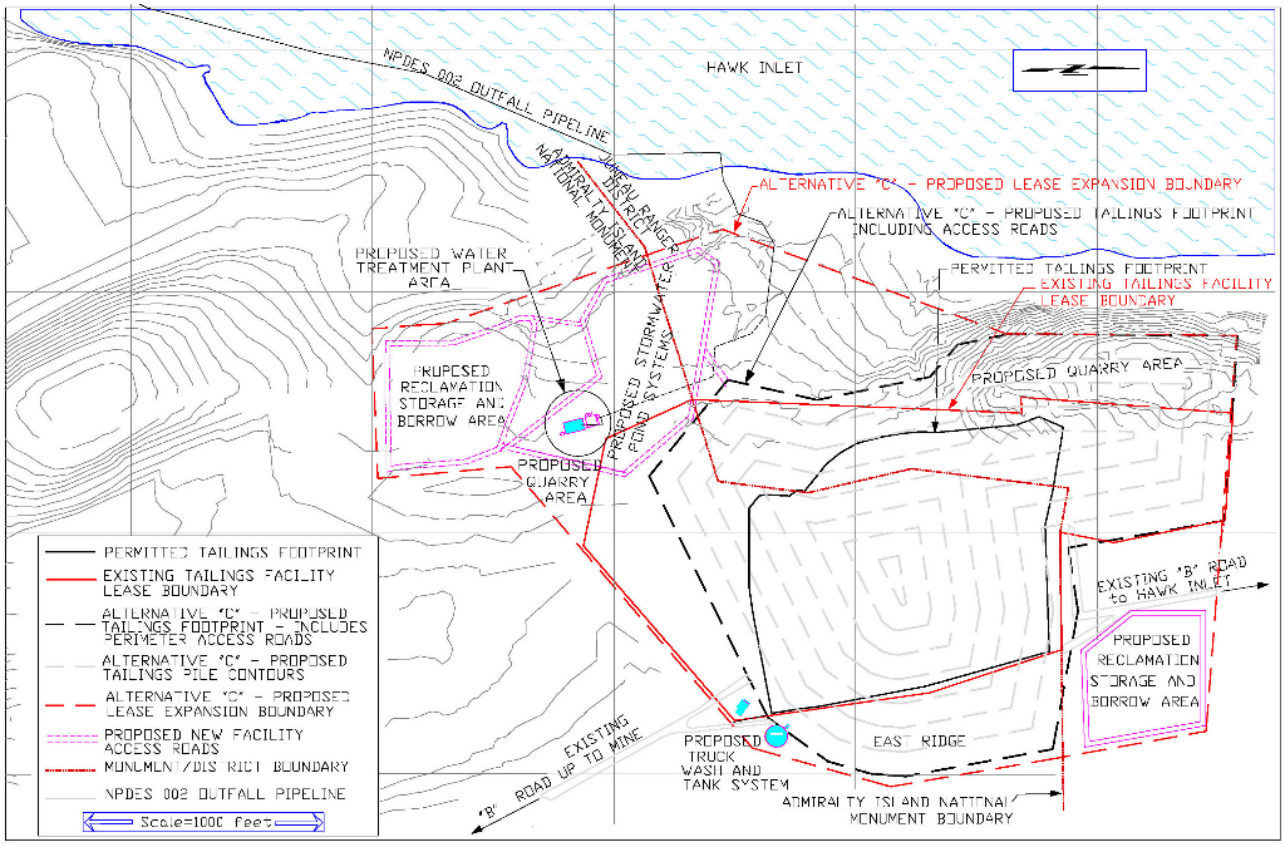
10.8.1 In order to prevent and minimize present and future pollution, when making management decisions that affect waste generation, the permittee shall consider the following order of priority options as outlined in AS 46.06.021: waste source reduction, recycling of waste, waste treatment, and waste disposal.

11 MAPS

11.1 LARGE SCALE MAP OF ALL MINE FACILITIES



11.2 MAP OF TAILINGS FACILITY



11.3 MAP OF PRODUCTION ROCK SITE NOTE:

12 GLOSSARY OF TERMS

FWMP	Fresh Water Monitoring Program
GPO	General Plan of Operations – comprised of a number of Appendices. The Waste Disposal Permit references Appendix 1, the Fresh Water Monitoring Program, Appendix 3, Tailings impoundment, Appendix 11, Production Rock Piles and Appendix 14, Reclamation Plan.
USE	Unsaturated Soils Engineering, Ltd.
SPLP	Synthetic Precipitate Leaching Procedure
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
ADNR	Alaska Department of Natural Resources
ADOL	Alaska Department of Labor
CBJ	City & Borough of Juneau
COE	U.S. Army Corp of Engineers
ADCBD	Alaska Department of Community and Business Development
EPA	United States Environmental Protection Agency
SEACC	Southeast Alaska Conservation Council
USDA-OGC	United States Department of Agriculture Office of General Council
USFS/ANM	United States Forest Service Admiralty National Monument
USF&WS	United States Fish and Wildlife Service
KGCMC	Kennecott Greens Creek Mining Company
AAC	Alaska Administrative Code
SPCC	Spill Prevention Control and Countermeasures Plan
MOU	Memorandum of Understanding