

STATE OF ALASKA

**DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WASTEWATER DISCHARGE PROGRAM**

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DRAFT May 31, 2006

File #400.62.001

Mr. Doug Nicholson
Alaska Gold Company
PO Box 640
Nome AK 99762-0640

**Certified Mail #
Return Receipt Requested**

Subject: Waste Management Permit 2003-DB0051, Rock Creek and Big Hurrah Mines

Dear Mr. Nicholson:

The Alaska Department of Environmental Conservation has completed its evaluation of your Waste Management Permit application for the disposal of wastes from the Rock Creek and Big Hurrah Mine projects, as detailed in your application materials and in the attached permit. The attached permit covers disposal of waste to the Tailings Storage Facility (TSF), surface landfill solid waste facilities, underground injection of treated mine dewatering wastewater, and, the groundwater and surface water monitoring systems at the Rock Creek Mine. This permit also covers disposal of waste to surface landfill solid waste facilities, including storage of potentially acid generating (PAG) development rock prior to disposal in the pit at closure, underground injection of treated mine dewatering wastewater, and, the groundwater and surface water monitoring systems at the Big Hurrah Mine. In addition to the disposal of wastes listed above, this permit covers hazardous chemical storage and containment, and reclamation and closure activities related to both facilities.

The attached 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 and other applicable state laws and regulations. The attached permit incorporates the Rock Creek project's May 2006 Solid Waste Permit Application, the May 2006 Groundwater Injection Well Permit Application, the May 2006 Plan of Operations, the May 2006 Reclamation Plan, the May 2006 Waste Management Plan and the May 2006 Monitoring Plan. Please review the conditions and stipulations in this permit and ensure that they are all understood. This permit is effective _____, 2006, and expires _____, 2011.

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. An informal review request must be delivered to the Director, Division of Water, 555 Cordova Street, Anchorage, AK 99501, within 15 days of receipt of the permit decision. An adjudicatory hearing request 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,

DRAFT

Program Manager
Wastewater Discharge Program

Enclosures: Waste Management Permit 2003-DB0051, Rock Creek and Big Hurrah Mines

CC:

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

WASTE MANAGEMENT PERMIT

**For
The Rock Creek and Big Hurrah Mines**

Permit No. 2003-DB0051

DRAFT Date: May 31, 2006

This Waste Management Permit is issued to Alaska Gold Company, PO Box 640 Nome AK 99762-0640, for the disposal of wastes as defined in Section 1.2 of this permit, from the Rock Creek and Big Hurrah Mines. The Rock Creek Mine facilities are located approximately 6 miles north of Nome, AK, within Sections 14, 15, 22, 23, 24, 25, 26 and 33; T10S; R34W; Kateel River Meridian. The Big Hurrah Mine facilities are located approximately 42 miles east of Nome, AK, within Sections 2, 3, 4, 5, 10 and 11; T10S; R28W; and Section 34; T9S; R28W; Kateel River Meridian. This permit is issued under the provisions of Alaska Statutes 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. This permit is effective _____, 2006, and expires _____, 2011. It may be terminated or modified in accordance with AS 46.03.120.

This permit is subject to the conditions and stipulations contained in Sections 1 - 5. This permit incorporates by reference the Rock Creek project's May 2006 Solid Waste Permit Application, the May 2006 Groundwater Injection Well Permit Application, the May 2006 Plan of Operations, the May 2006 Reclamation Plan, the May 2006 Waste Management Plan and the May 2006 Monitoring Plan. Changes to the documents incorporated herein must be approved by the Department if they affect this permit. If the Department approves the changes, they become part of this permit.

The Department requires the permittee to conduct post-closure maintenance and monitoring for a minimum of 30 years after closure. The permittee shall assess the conditions at the facility and respond accordingly throughout 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 beyond 30 years, based upon the information collected by that time.

DRAFT

Program Manager
Wastewater Discharge Program

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1 SPECIFIC PERMIT CONDITIONS

1.1 INTRODUCTION

- 1.1.1 This permit covers disposal of waste to the Tailings Storage Facility (TSF), surface landfill solid waste facilities, underground injection of treated mine dewatering wastewater, and, the groundwater and surface water monitoring systems at the Rock Creek Mine. This permit also covers disposal of waste to surface landfill solid waste facilities, including storage of potentially acid generating (PAG) development rock prior to disposal in the pit at closure, underground injection of treated mine dewatering wastewater, and, the groundwater and surface water monitoring systems at the Big Hurrah Mine. In addition to the disposal of wastes listed above, this permit covers hazardous chemical storage and containment, and reclamation and closure activities related to both facilities.
- 1.1.2 This permit covers disposal of 7,000 dry tonnes per day, as a weekly average, of paste tailings placed in the TSF. Ore mined from the Rock Creek and Big Hurrah Pits will be crushed, followed by gravity separation and flotation, the gravity and flotation concentrates will be cyanide-leached in a carbon in-pulp circuit and gold doré will be produced on site. Tailings from the cyanide leach process will be run through a cyanide destruct process and intermingled with the tailings produced from the gravity and flotation circuits prior to placement in the TSF.
- 1.1.3 In addition to the stipulations in this permit, the permittee shall adhere to the requirements of 18 AAC 60 Solid Waste Management Regulations as applicable, 18 AAC 70 Alaska Water Quality Standards, and 18 AAC 72.500 – 72.600 Non-Domestic Wastewater. The permittee shall also adhere to requirements of the Rock Creek Mine Plan of Operations and Reclamation Plan, Monitoring Plan and the Rock Creek Project Quality Assurance Project Plan as approved by the Department.
- 1.1.4 During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to dispose of solid waste and wastewater as specified in this permit into the TSF, underground injection wells and the surface landfill at the Rock Creek Mine. Additionally, the permittee is authorized to dispose of solid waste and wastewater as specified in this permit into the and underground injection wells, PAG development rock temporary storage area and the surface landfill at Big Hurrah Mine.
- 1.1.5 Prior to temporary storage or disposal of PAG development rock at the Big Hurrah Mine the permittee shall conduct geochemical testing to determine the cutoff Neutralization Potential to Acid Potential Ratio (NP/AP) for PAG development rock that can be submerged in the pit at closure as required in section 1.7.

1.2 LIMITATIONS

- 1.2.1 The waste materials covered under this section are limited to a facility maximum of 9,000,000 dry tonnes of mine tailings disposal, meeting the conditions in this permit, deposited into the Rock Creek TSF.
- 1.2.2 The following materials shall not be disposed into the surface landfills, the TSF or the injections wells, unless otherwise provided or approved in writing by the Department:
- 1.2.2.1 Treated or untreated process water in quantities or concentrations that would exceed water quality standards in 18 AAC 70 except treated pit dewatering wastewater disposed of into the injection wells, as allowed in Section 1.6 of this permit. Recycled process water sent to the TSF or interstitial waters entrained in the tailings are allowed by this permit.
 - 1.2.2.2 PAG development rock at Big Hurrah meeting the definition of PAG in section 1.1.4 of this permit. PAG development rock at Big Hurrah may be stored in the temporary PAG development rock storage area during active mining operations. At closure the PAG development rock will be disposed of in accordance with section 1.12.3.2 of this permit.
 - 1.2.2.3 Chemical containers (unless triple-rinsed) and discarded, unused chemicals.
 - 1.2.2.4 Uncombusted household waste.
 - 1.2.2.5 Laboratory wastes other than wash waters, neutralized acids and neutralized bases.
 - 1.2.2.6 Sewage solids that are untreated and/or have less than 10% solids by weight.
 - 1.2.2.7 Asbestos waste.
 - 1.2.2.8 Hazardous wastes, as defined by 40 C.F.R. Part 261, including radioactive material, explosives, strong acids and untreated pathogenic waste. This prohibition does not preclude disposal of residual wastes included as byproducts of the beneficiation process due to recycling of refinery slag, fire assay crucibles and cupels.
 - 1.2.2.9 Fuels, oil, transformers, paint and/or associated equipment and packing material.
 - 1.2.2.10 Glycol and solvents.

- 1.2.2.11 Batteries.
- 1.2.2.12 Tailings exposed to cyanide during ore processing except when subjected to cyanide destruction as required by section 1.2.3.
- 1.2.3 Prior to disposal of tailings exposed to cyanide to the TSF, the tailings shall be subjected to cyanide destruction using the SO₂ /air process or other suitable cyanide destruction process approved by the Department. At least 90% of the samples shall contain less than 10 mg/kg of WAD cyanide and none of the samples shall contain more than 25 mg/kg of WAD cyanide.
- 1.2.4 Water recycled to the TSF shall not exceed the following WAD CN levels: at least 90% of the samples shall contain less than 10 mg/L of WAD cyanide and none of the samples shall contain more than 25 mg/L of WAD cyanide.
- 1.2.5 Prior to commencing placement of waste material into the TSF, the permittee shall receive written approval from the Department.
- 1.2.6 The permittee shall not place PAG development rock in the development rock stockpiles at Big Hurrah Mine or as backfill in the satellite pit (unless specifically authorized by the ADEC). During operations the permittee shall sample, characterize, segregate and store the PAG development rock in a location and manner approved by ADEC. At closure the PAG development shall be submerged below the water table in the pit at Big Hurrah in accordance with the ADEC approved Closure and Reclamation Plan.
- 1.2.7 The permittee shall not place sludge generated from the treatment of pit dewatering into the development rock stockpiles. The permittee may place sludge generated from the treatment of pit dewatering into the TSF in accordance with section 1.4.6.
- 1.2.8 Wash water from the vehicle maintenance shop may go into the tailings disposal facility. Oily water must go through an oil/water separator and the treated water may not have a sheen prior to entering the tailings disposal facility. Dry methods of cleanup shall be used for initial cleanup of oil spills in the maintenance shop.
- 1.2.9 Activities at the site which will cause a greater amount of waste material to be treated and disposed of, above that contemplated in this section of the permit, are prohibited without the prior approval by the Department.
- 1.2.10 The water in the groundwater monitoring wells, located below the toe of the TSF dam and/or down gradient of the injection system must not exceed the State Water Quality Standards (18 AAC 70) or show a statistically significant increase in concentration above the applicable WQS, including natural condition, for the parameters monitored. If these standards are exceeded or if a statistically significant change above the WQS is detected, the corrective action outlined in Section 1.9 must be implemented.

- 1.2.11 The limitations in Section 1.2 do not preclude, and authorization is hereby given for, disposal of non-hazardous incidental wastes such as (i) settled solids from sumps, ditches, and degritting basins; (ii) incinerator ash and residue; (iii) ash from combustion of scrap wood material; (iv) iron (drill steel, balls, empty case, etc.); (v) empty plastic and glass containers; (vi) inert domestic waste; (vii) construction debris; (viii) tires; (ix) spill cleanup debris approved by the Department; (x) non-terne plated used oil filters that have been gravity hot-drained; and (xi) such other material as would otherwise be disposed of in a surface landfill without special handling.
- 1.2.12 The Department may set or modify permit conditions based on monitoring results or changes in facility processes, after consultation with the permittee, in accordance with permit amendment or modification procedures.

1.3 SITE MAINTENANCE

- 1.3.1 Information on engineering changes to the mill, new waste treatment processes, changes to solid waste or wastewater disposal facilities, changes to the groundwater monitoring well system, change of the PAG development rock cutoff NP/AP ratio and the addition of new waste streams that discharge into the TSF must be submitted to the Department and approval must be obtained prior to any such changes or discharges. This includes the introduction of tailings generated from ore, other than from currently permitted Rock Creek Pit and Big Hurrah Pit.
- 1.3.2 The permittee shall provide and maintain secondary containment for all process piping and chemical mix tanks containing hazardous or toxic materials. Secondary containment is considered to be 110% of the largest tank within one containment, or the total volume of manifolded tanks. The permittee must design and install secondary containment structures in a manner that ensures that solid waste and 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.
- 1.3.3 Secondary containment of all hazardous substances, as defined at AS 46.03.826(5), must be impermeable to those stored hazardous substances.
- 1.3.4 The permittee shall design all process piping and chemical mix tanks to allow for routine inspections for leaks. Process piping outside of the mill building must not be buried unless secondary containment is used that provides the ability to inspect for leaks. This stipulation does not apply to the recycle water return lines leading from the TSF to the mill.
- 1.3.5 The permittee shall develop the site in accordance with the plans submitted by the applicant as required by this permit and approved by the Department, and approved amendments to those plans. Pollution prevention concepts shall be incorporated into operations plans for the project.

1.4 SITE CONSTRUCTION AND OPERATION

- 1.4.1 The permittee shall construct and maintain a seepage collection system below the TSF in accordance with plans approved by the Department. This seepage collection system shall be constructed and maintained such that seepage and runoff water from the TSF will be directed to the mill recycle water pond. The seepage and runoff collection system shall be operated to ensure that the TSF operates as a no discharge facility.
- 1.4.2 The freeboard limit of 3.3 feet in the TSF shall be maintained to minimize overtopping as indicated in the Rock Creek Project's Operation, Maintenance and Emergency Action Manual approved by ADNR, Division of Mining, Land and Water, Dam Safety and Construction Unit.
- 1.4.3 The permittee shall ensure that wastes are deposited into the TSF in a manner that will not damage or otherwise jeopardize the integrity of the containment of the TSF.
- 1.4.4 The permittee shall take reasonable measures to control dust and/or particulates that may occur from TSF, roads or other mine components by wetting or other effective measures.
- 1.4.5 The permittee shall not dispose of waste materials in quantities exceeding the design capacity of the disposal facilities.
- 1.4.6 The permittee may place sludge generated from the treatment of pit dewatering wastewater into the TSF.
- 1.4.7 The permittee shall place development rock in a manner to ensure adequate blending to prevent acid production at the Rock Creek Mine/Mill Complex.
- 1.4.8 The permittee shall minimize run-on water from entering the TSF and the surface landfills from upgradient sources of surface and groundwater.
- 1.4.9 The permittee shall control and treat surface water, groundwater and seepage as necessary to prevent off-site water quality exceedances.
- 1.4.10 The permittee shall notify the Department in writing at least 15 days before the introduction of a new chemical into the process or waste treatment streams. Material Safety Data Sheets on new chemicals must be forwarded to the Department at time of notification and maintained on site. Introduction of new chemicals into the process require Department approval.
- 1.4.11 The permittee shall submit plans to the Department, at least 60 days before construction of the modification, and receive Department approval of any changes that will significantly modify the quality or quantity of a discharge, significantly

modify the operation of a waste treatment component, or significantly modify the disposal facilities.

- 1.4.12 The permittee must notify the Department in writing at least 15 days before the introduction of new process solutions into an existing process or waste treatment component that has been significantly modified.
- 1.4.13 The permittee must submit to the Department within 90 days after completing construction of a significant modification to an existing process component:
 - 1.4.13.1 As built drawings of the process component(s) which show any changes of those aspects that would affect performance of that process component as required in 18 AAC 72.600.
 - 1.4.13.2 A summary of the quality control activities that were carried out during construction.
 - 1.4.13.3 The revised operating plans that reflect modifications made during construction.
- 1.4.14 The permittee shall maintain fuel handling and storage facilities in a manner, which will prevent the discharge of hazardous substances. A Spill Prevention, Control and Countermeasures (SPCC) plan shall be in effect according to provisions of 40 C.F.R. Part 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.
- 1.4.15 The permittee shall notify the Department of a discharge of any hazardous substance at the facility in conformance with 18 AAC 75 Article 3. Reportable spills include unplanned discharges of process chemicals to the TSF which would violate limitations in this permit.
- 1.4.16 Using best efforts, the permittee shall develop spill response plans for the transportation of hazardous substances, including petroleum products, by the permittee to the facility and shall require other transporters of these substances under contract with the permittee to make such spill plans available to the permittee and/or the Department upon request.
- 1.4.17 Any area of open water in the mine area must not become an attractive area for waterfowl or shorebirds. Any wildlife casualties shall be reported to the Department and to the appropriate state and federal agencies.

1.5 INERT SOLID WASTE LANDFILLS

- 1.5.1 The permittee shall comply with the provisions in the Rock Creek Mill/Mine Complex and Big Hurrah Mine Waste Management Plan as approved by the

Department.

- 1.5.2 The permittee shall cover disposed solid waste in the surface landfills with six inches of earthen material, or an alternate material approved by the Department, as needed to control disease vectors, fire, odor, blowing litter, and scavenging.
 - 1.5.3 The permittee shall apply an intermediate cover to any inactive portion of the surface landfills within seven days after the waste is last deposited in that area, using a soil material at least 12 inches thick and graded to prevent water from ponding.
 - 1.5.4 The permittee shall control and treat surface water, groundwater and seepage as necessary to prevent off-site water quality exceedances, shall not place solid waste in water in the surface landfills, and shall not allow solid waste to wash away from the facility.
- 1.6 INJECTION OF WASTEWATER
- 1.6.1 Waste materials authorized to be injected under this permit are limited to treated wastewater and stormwater from pit dewatering which meets the limits in Table 1. For purposes of this permit pit dewatering water is defined as water that is captured in interception wells or in a sump installed in the pit that is pumped to drop the surrounding water table, this also includes precipitation (stormwater) that falls on the pit and/or drains into the pit. Disposal of process water in the injection system is prohibited with the exception of a one-time disposal of water contained in the TSF prior to closure of the TSF as in accordance with section 1.6.5 of this permit.

Table 1. Limitations on Wastewater for Groundwater Injection

Parameter	Maximum Effluent Concentration*	Method	Monitoring Frequency**
Antimony, total recoverable	6	EPA 200.8	Weekly
Arsenic, total recoverable	10	EPA 200.8	Weekly
Copper, dissolved	14	EPA 200.8	Weekly
Iron, total recoverable	1000	EPA 200.7	Weekly
Manganese, total recoverable	50	EPA 200.8	Weekly
pH	6.5 to 8.5	EPA 150.1	Daily
Conductivity	NA	EPA 120.1	Daily
Chloride	250	EPA 300	Weekly
Cyanide -WAD	5.2	SM20 4500	Monthly
Hardness	NA	EPA 130.1	Weekly
Nitrate	10	EPA 300	Weekly
Sulfate	250	EPA 300	Weekly
Temperature	NA	EPA 170.1	Daily
Total Dissolved Solids	500	EPA 160.1	Weekly

Parameter	Maximum Effluent Concentration*	Method	Monitoring Frequency**
Flow	NA	Meter	Continuous

* units are µg/L unless otherwise noted

** Monitoring frequencies of parameters may be reviewed during operations and may be adjusted after written approval from ADEC.

These limits are required to ensure that the Water Quality Standards are met in the ground water. Wastewater must be sampled as required in the above table and in the Monitoring Plan, as approved by the Department. The above effluent limits shall be met prior to discharge into groundwater.

1.6.2 The permittee shall submit plans of the wastewater treatment system to ADEC and receive ADEC approval prior to construction of the wastewater treatment plant.

1.6.3 The permittee shall submit as built drawings to ADEC and receive ADEC approval prior to disposal of wastewater to the injection system.

1.6.4 Prior to disposal of wastewater into the injection system, if ADEC approved down-gradient monitoring wells are not present, the permittee shall install a monitoring well(s) down-gradient of each proposed injection site in location(s) approved by ADEC. Six months of bi-monthly (twice a month) water quality sampling (12 samples) shall be conducted in the down gradient monitoring well(s) prior to discharge of treated pit dewatering water to the injection system.

1.6.5 The pH of the wastewater will be adjusted to between 6.5 and 8.5 before discharge.

1.6.6 The permittee shall ensure that injection of treated wastewater does not result in groundwater mounding to the degree that a surface discharge occurs.

1.6.6.1 The permittee shall visually monitor the land surface in the vicinity of any active wastewater injection site as required in the Monitoring Plan, as approved by the Department. If wastewater is observed surfacing the permittee shall discontinue discharging to the well area where surfacing is occurring.

1.6.7 This permit allows for a one-time discharge of water contained in the TSF into the injection system prior to closure of the Rock Creek Mine/Mill Complex. This one-time discharge of water contained in the TSF shall not occur prior to the permittee receiving written approval from ADEC. Prior to discharge of accumulated water to the injection system, the permittee will submit for ADEC approval a plan for the proposed discharge. The application for approval, at a minimum, shall include the following information:

1.6.7.1 Estimated volume of wastewater to be disposed of;

- 1.6.7.2 Water quality sampling results of the water to be disposed of, the permittee shall, at a minimum, analyze for the parameters listed in Table 5-2 of the Rock Creek Monitoring Plan;
- 1.6.7.3 Proposed dates of disposal;
- 1.6.7.4 Description of procedures to be followed in preparing for and completing the disposal. Information shall include the disposal rate and the method of treatment of the wastewater prior to disposal;
- 1.6.7.5 Based on information submitted in the application for approval for the one-time disposal of water contained in the TSF the ADEC may modify the effluent limitations and monitoring requirements contained in Table 1 above to ensure that Water Quality Standards are met in the discharge.
- 1.6.8 The injection systems shall be operated in compliance with U.S. Environmental Protection Agency (EPA) rules for Class V injection wells (40 CFR 144).
- 1.7 STORAGE AND DISPOSAL OF PAG DEVELOPMENT ROCK AT BIG HURRAH
- 1.7.1 The temporary storage PAG development rock at the Big Hurrah Mine is prohibited unless specific written approval from ADEC has been received. The request for approval to temporarily store PAG development rock at Big Hurrah shall include:
- 1.7.1.1 Adequate geochemical characterization of the development rock to determine the PAG NP/AP cutoff ratio that minimizes the risk of the blended "non-PAG" development rock dump creating water quality exceedances and allows for the maximum amount of PAG development rock to be backfilled into the pit at closure with adequate water cover to minimize potential acid production;
- 1.7.1.1.1 The permittee shall receive ADEC approval prior to implementation of the geochemical characterization plan above;
- 1.7.1.1.2 The PAG NP/AP cutoff ratio shall not be less than 1:1. The ADEC will evaluate the results of the ongoing geochemical characterization program and may require changes to the PAG NP/AP cutoff ratio;
- 1.7.1.2 An operational development rock characterization and handling plan;
- 1.7.1.2.1 The operational development rock characterization and handling plan shall ensure that development rock is adequately characterized and handled to

minimize the amount of PAG development rock that is placed in the blended “non-PAG” development rock dump at Big Hurrah;

- 1.7.1.2.2 The operational development rock characterization and handling plan shall ensure that PAG development rock is temporarily stored, prior to disposal at mine closure, such that run-on water is minimized and runoff water does not reach waters of the State;
- 1.7.1.2.3 Prior to mining Big Hurrah the operational development rock characterization and handling plan shall be approved by ADEC;
- 1.7.1.3 An update to the financial responsibility cost estimate as required in section 1.13 that addresses any changes resulting from the updated geochemical characterization program.
- 1.7.1.4 Other information the permittee believes is necessary to demonstrate that the PAG development rock can be managed to minimize the potential for water quality standard exceedances.
- 1.7.2 Upon closure of the Big Hurrah Mine the permittee shall dispose of the PAG development rock in the pit at Big Hurrah and allow for adequate water cover to prevent the PAG development rock from producing acid. Prior to closure of the Big Hurrah mine the permittee shall submit for ADEC approval a water management plan that addresses how the permittee will manage water inflow and outflow from the pit lake to ensure that water quality standards are not exceeded.

1.8 MONITORING

- 1.8.1 The Monitoring Plan submitted on May 31, 2006 by Alaska Gold Company, Inc., and approved by the Department, is incorporated into this permit. Future Department-approved changes to project monitoring will be included as modifications to the Monitoring Plan and do not require reissuance or modification of this permit. The Monitoring Plan shall maintain monitoring procedures as follows:
 - 1.8.1.1 Weekly visual monitoring of the facilities for signs of damage or potential damage from settlement, ponding, leakage, erosion or operations at the site. Visual monitoring shall be documented.
 - 1.8.1.2 Monitoring of surface waters near the sites, as required in the Rock Creek Project Monitoring Plan to ensure that water quality standards are not exceeded.
 - 1.8.1.3 Quarterly groundwater/seep sampling and analyses for parameters listed in the Rock Creek Project Monitoring Plan which will ensure that sample

results are representative and statistically valid.

- 1.8.1.4 Monitoring of the treated pit dewatering wastewater prior to injection to ensure the limits in Section 1.6 are met.
 - 1.8.1.5 Geochemical monitoring of development rock and tailings samples from the Rock Creek Mine to ensure that there is low potential for production of leachate that is acidic and/or contains elevated levels of metals.
 - 1.8.1.6 Monitoring of the paste tailings prior to placement in the TSF to ensure that the limitations contained in Sections 1.2.3 and 1.2.4 are met.
 - 1.8.1.7 Geochemical monitoring of development rock produced at Big Hurrah designed to detect and segregate PAG development rock in accordance with sections 1.2.6 and 1.7.1.2.
 - 1.8.1.8 Monitoring of any seepage, leachate, runoff and down-gradient groundwater of the PAG development rock storage area.
 - 1.8.1.9 A fluid management monitoring plan including a water accounting of the quantity of seepage through the TSF and treated pit dewatering wastewater discharged to the injection wells.
 - 1.8.1.10 Wildlife monitoring as required in section 1.4.17.
- 1.8.2 The Monitoring Plan submitted on May 31, 2006 by Alaska Gold Company, Inc., and approved by the Department includes a Quality Assurance Project Plan (QAPP). The permittee shall update and maintain the QAPP to include the following:
- 1.8.2.1 Adhere to conditions in the ADEC approved Rock Creek Mine Project QAPP Quality Control and Quality Assurance Objectives sections. The QAPP will reflect the current sampling program for the injection of pit dewatering wastewater and solid waste components of the mine facilities. Any significant changes in the QAPP procedures shall be submitted to the Department for approval.
 - 1.8.2.2 Ensure samples are analyzed by a laboratory that follows EPA-approved procedures, quality control requirements, reporting and documentation procedures. The QAPP, containing quality control procedures and criteria, analytical methods, detection limits and reporting requirements pertinent to the permit holder's samples, shall be submitted to the Department for approval and must be updated annually and whenever changes to methods or changes in the laboratories used occur.

- 1.8.2.3 Analyze collected samples using methods set out in EPA-600/4-79-020 Methods for Chemical Analysis of Water and Wastes; EPA-600/4-82-057 Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater; Standard Methods for the Examination of Water and Wastewater (edition in effect at the time of sampling); or other methods approved by the Department. Each result must be accompanied by a reference, such as the method number, to the method that was used to perform the analysis.
- 1.8.2.4 Conduct inspections of the TSF in conformance with the Operations, Maintenance and Emergency Action Manual approved by ADNR, Division of Mining, Land and Water, Dam Safety and Construction Unit.
- 1.8.3 Samples taken as required by Section 1.6.1 shall be analyzed in conformance with the most recent Monitoring Plan and QAPP submitted by Alaska Gold Company, Inc., as approved by the Department.
- 1.8.4 A sample from any ground water well or surface water monitoring location that has a positive result for cyanide concentration shall be reported to the Department as soon as possible, but no later than the end of the next working day. Resampling for sample confirmation shall be performed as soon as practicable.
- 1.8.5 The permittee shall maintain a log of all wastes disposed into the TSF, the inert waste landfills, the development rock dump at Rock Creek, the PAG development rock dump at Big Hurrah, the non-PAG development rock dump at Big Hurrah, and any backfill of the satellite pit at Big Hurrah. The log shall include the date of disposal, estimated volume of waste, a description of the waste and any required sampling or analysis performed on the waste. A summary shall be included in the annual report required in Section 1.9.
- 1.8.6 Maintenance of inspection and sampling logs, and procedures for processing, consolidating and reporting inspection and sampling data shall be in conformance with the most recent Monitoring Plan and QAPP submitted by Alaska Gold Company, Inc., as approved by the Department.
- 1.8.7 Groundwater monitoring and corrective action shall be in accordance with Section 1.9, 18 AAC 60 Solid Waste Management Regulations, and the most recent Monitoring Plan and QAPP submitted by Alaska Gold Company, Inc., as approved by the Department or modified by amendment to this permit.
- 1.8.8 The Department may modify monitoring requirements, including the establishment of additional compliance points in response to trends showing changes in the concentration of parameters being monitored.
- 1.8.9 If the permittee monitors any influent, effluent, receiving water, air or solid waste characteristic in addition to those identified in this permit, or more frequently than

required, the permittee shall notify ADEC that the additional monitoring has occurred in the next quarterly report after the monitoring has occurred. The results of such monitoring shall be 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 ADEC. The permittee shall provide copies of the results to the Department upon request.

1.9 REPORTING

- 1.9.1 For each year of sample collection and analysis, the permittee shall submit to the Department quarterly monitoring reports, for a total of three quarterly reports each year and one annual monitoring report, which includes the fourth quarter monitoring data, summarizing the inspection and monitoring results set out in Section 1.8. All quarterly reports shall be submitted to the Department no later than 60 days after the last day of the quarter. The annual report will be due annually by March 1st and will summarize the preceding calendar year. Copies of the laboratory reports should be submitted with the quarterly reports for the first year of data collection and analysis, or for the first year after a change of the laboratory performing the analysis is made. Electronic copies of reports shall be submitted to the Department using commercially available software along with the hard copies, or according to electronic reporting requirements established by the Department.
- 1.9.2 Quarterly and annual reports required in Section 1.8.1 shall include information necessary to determine data validity, data variations and trends, and any exceedence of limits contained in this permit, water quality standards or criteria (see Section 1.1.3). All records and information which validate the QAPP, resulting from the monitoring activities required by this permit, including but not limited to all records of analyses performed, calibration and maintenance of instrumentation, and recordings from continuous monitoring instrumentation, shall be retained in Alaska for observation by the Department for three years. Upon request from the Department, the permittee shall submit certified copies of such records. The Department may at its discretion perform field and laboratory audits of monitoring activities.
- 1.9.3 The annual report required in Section 1.9.1 shall also address the adequacy of the financial responsibility, including, but not limited to, inflation, significant changes in reclamation activity costs, and concurrent reclamation, expansion or other changes to the operation of the facility.
- 1.9.4 The permittee shall maintain an updated Plan of Operations and Reclamation Plan, as required by ADNR, showing site use and development plans, and shall provide the Department with copies of any amendments to that Plan of Operations affecting the waste disposal operations authorized by the permit.
- 1.9.5 Notifications and reporting as required under this permit shall be submitted to the Department at the following address:

Department of Environmental Conservation
Division of Water
610 University Avenue
Fairbanks, Alaska 99709-3643

Phone: (907) 451-2142

Knowingly making a false statement, by the permittee, the operator or other employees, including contractors, on any such report may result in the imposition of criminal penalties as provided for under AS 46.03.790.

1.10 CORRECTIVE ACTIONS

- 1.10.1 The permittee shall comply with 18 AAC 60.815 if the visual monitoring program in Section 1.8.1.1 discovers damage or potential damage to the waste disposal-related facility that could lead to water quality violations.
- 1.10.2 The permittee shall comply with 18 AAC 60.820-860 if a statistically significant increase above background in water quality in any of the groundwater sampling locations is detected. Statistical significance shall be determined using one of the methods outlined in 18 AAC 60.830(h) and performance standards outlined in 18 AAC 60.830(i). The permittee shall comply with the notification requirements in 18 AAC 850(c) upon determination of a statistically significant increase above background water quality.
- 1.10.3 If a violation of water quality standards is detected at a surface water or groundwater monitoring station, or if an exceedence of the limits set out in Section 1.2 is detected, the permittee shall:
 - 1.10.3.1 Verbally notify the Department within 24 hours of receipt of monitoring results.
 - 1.10.3.2 Determine the extent of the exceedence.
 - 1.10.3.3 In consultation with the Department and documented in writing, implement a plan to determine the cause and/or source of the exceedence.
 - 1.10.3.4 Submit to the Department, within seven working days after an exceedence is verified by the permittee, a plan for corrective actions to prevent adverse environmental impacts and further exceedences of applicable water quality standards or permit limits.
 - 1.10.3.5 Implement the corrective action plan as approved by the Department.

1.11 TEMPORARY CLOSURE

- 1.11.1 A temporary closure shall be defined as a suspension of mining or milling activities for more than 90 days but less than three years. The length of time for a temporary closure may be extended beyond three years by written authorization from the Department. The permittee shall submit a conceptual temporary closure plan to the Department prior to commencement of tailings disposal operations at the site.
- 1.11.2 The permittee shall submit a specific temporary closure plan to the Department no later than ten days after a temporary closure has been initiated. The permittee is encouraged to submit the specific plan immediately upon availability, and prior to commencement of the temporary closure if possible. The specific plan shall include the following:
 - 1.11.2.1 The procedures, methods, and schedule to be implemented for the treatment, disposal, and/or storage of process water.
 - 1.11.2.2 The control of surface and groundwater drainage to and from the facility and the surrounding area.
 - 1.11.2.3 The control of erosion from the TSF and inert solid waste landfills.
 - 1.11.2.4 The secure storage of chemicals during the period of closure.
- 1.11.3 The Department shall have 15 days to review and approve or request modifications to the temporary closure plan.
- 1.11.4 Once a temporary closure plan has been approved, full implementation of the approved specific plan is required. The plan can be amended by submitting a revised plan to the Department for approval.
- 1.11.5 During temporary closure of the site, the permittee shall:
 - 1.11.5.1 Continue pollution control activities associated with the tailings disposal facilities, including but not limited to dust control, maintenance of the drainage diversion structures, maintenance of all leakage control structures and processes, and maintenance of the TSF including appropriate freeboard as specified by this permit or the temporary closure plan.
 - 1.11.5.2 Continue monitoring and reporting activities of all active portions of the site including the TSF and the inert solid waste landfills as specified by this permit or the temporary closure plan.
 - 1.11.5.3 Complete reclamation and corrective action requirements as appropriate under the Reclamation Plan in light of the nature of the closure.

- 1.11.5.4 Manage and monitor the PAG development rock stockpile at Big Hurrah to ensure that seepage, leachate or runoff do not cause down-gradient groundwater or surface water quality exceedances.

1.12 PERMANENT CLOSURE

- 1.12.1 Within 90 days of the decision that permanent cessation of the mill process at Rock Creek or mining at Big Hurrah Pit will occur, updated reclamation and monitoring plans must be submitted to the Department for approval. The updated plans must address current conditions at the facility.
- 1.12.2 Permanent closure of the site must be implemented and completed in accordance with the conditions of this permit and with the Plan of Operations and Reclamation Plan approved by the Department and ADNR.
- 1.12.3 Permanent closure of the waste disposal facilities will be complete when the following criteria are met:
 - 1.12.3.1 A Department-approved soil cover system is installed on the TSF and drainage channels are constructed and stable;
 - 1.12.3.2 The potentially acid generating development rock at Big Hurrah is disposed of in accordance with a Department approved Reclamation and Closure Plan;
 - 1.12.3.3 A vegetative cover as prescribed in the Reclamation Plan or most recent ADEC and ADNR approved Reclamation Plan.
 - 1.12.3.4 Active water treatment is not required and any water discharged from the mine site or facilities meets water quality criteria contained in the Alaska Water Quality Standards (18 AAC 70).
- 1.12.4 Permanent closure must be achieved prior to the cessation of any care and maintenance activities required by Section 1.11.5 and the approved temporary closure plan if a period of temporary closure immediately preceded commencement of permanent closure.
- 1.12.5 The permittee shall maintain the facility, correcting any erosion or settlement of the TSF that may impair water quality or otherwise threaten the environment, up until the time that this permit, or any successor permit, is transferred to another entity or terminated by the Department.
- 1.12.6 Post-closure monitoring of the groundwater and visual monitoring for settlement and erosion shall occur according to the sampling schedule set out in the current Monitoring Plan approved by the Department. This schedule and the parameters

monitored may be modified by the Department, after consultation with the permittee, based on the monitoring results received.

1.13 PROOF OF FINANCIAL RESPONSIBILITY

- 1.13.1 The permittee shall provide the Department with proof of financial responsibility for closure of the facility and post-closure monitoring. The proof of financial responsibility shall cover costs incurred for closure and post-closure monitoring of the facility, shall cover the activities set out in Section 3, and shall be in the amount shown in Section 3. The area covered by the financial responsibility required in this section is shown on the map attached as Section 5. The financial responsibility amount shown in Section 3 shall be in place prior to any placement of waste into the TSF or mining at Big Hurrah Pit.
- 1.13.2 Annually, or during the renewal, modification or amendment of this permit, the Department, in consultation with ADNR, will review and modify if appropriate, the financial responsibility requirements including adjustments for inflation, concurrent reclamation and expansion or other changes to the operation of the facility. The permittee shall address the adequacy of the financial responsibility in the annual report required in Section 1.9.1.
- 1.13.3 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.
- 1.13.4 Approved proof of financial responsibility must remain available through the post-closure period, up to 30 years, and may not be released until the Department certifies in writing that closure of the facility and the required post-closure monitoring have been successfully concluded, or that another entity will assume responsibility for permit compliance and/or post-closure monitoring.
- 1.13.5 It shall be the responsibility of the permittee to provide acceptable proof of financial responsibility. The Department will accept or reject said Offer of Proof as expeditiously as possible, but in no event later than 30 days after its receipt.
- 1.13.6 If the permittee is unable to provide proof of financial responsibility, which is acceptable to the Department and is approved by the Department in writing within the time period stated above, this permit will expire automatically at that time, notwithstanding any other approvals to the contrary, unless the Department's failure to act is responsible for the delay in accepting or rejecting this proof.
- 1.13.7 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 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.

1.14 FACILITY AUDIT

1.14.1 The permittee shall conduct periodic audits for the purpose of reviewing performance under this permit and approvals, and the agencies' regulatory oversight of such performance, and to aid in updating the Reclamation Plan and Cost Estimate – Rock Creek Mine Project and evaluating the bond amount. The first audit shall occur in 2010 or prior to final closure (of either the Rock Creek Site or the Big Hurrah Site) if final closure occurs prior to 2010. Subsequent environmental audits shall occur every five years. Audits shall be timed so that the auditor's site visit occurs during the snow-free season, far enough in advance of the deadline for the permittee's submittal of an updated Reclamation Plan and Cost Estimate and so that the results of the audit can be taken into account in that update. In January of the audit year, the parties shall confer to discuss the minimum qualifications of and process for selecting an independent, third-party auditor, and the minimum requirements for the scope of the audit. The third party contractor and the scope of the audit should be mutually agreed upon by ADEC, ADNR, and the permittee, but in the event that agreement cannot be reached, the agencies retain the final contractor selection and scope of audit decisions. The purpose of the audit will be to determine whether the permittee's environmental management systems and the regulatory controls in place provide reasonable assurances that environmental objectives in the current Plan of Operations and relevant permits and approvals are being met and that the systems and controls are functioning as intended. The audit results will be used by the permittee and the agencies to assist in updating, renewing, or issuing approvals and permits, in updating policies, plans, and procedures, in determining compliance with permits and approvals, and in evaluating the adequacy of the financial assurance.

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; however, the agencies retain the final decision authority for the scope of subsequent audits. Identification of such issues or objectives may be accomplished through a joint permittee/agency meeting prior to the audit.

1.14.2 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.

2 GENERAL PERMIT CONDITIONS

2.1 ACCESS AND INSPECTION

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

2.2 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, Fairbanks Office, Fairbanks, Alaska.

2.3 CIVIL AND CRIMINAL LIABILITY

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

2.4 AVAILABILITY

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

2.5 ADVERSE IMPACT

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 noncomplying activity. The permittee shall cleanup and restore all areas adversely impacted by the noncompliance.

2.6 CULTURAL OR PALEONTOLOGICAL RESOURCES

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.

2.7 APPLICATIONS FOR RENEWAL

In accordance with 18 AAC 15.100(d), an application 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.

2.8 OTHER LEGAL OBLIGATIONS

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.

2.9 TRANSFER OF OWNERSHIP

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 the ADEC Division of Water. 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.

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.

2.10 POLLUTION PREVENTION

In order to prevent and minimize present and future pollution, when making management decisions that effect 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

3 FINANCIAL RESPONSIBILITY FOR THE ROCK CREEK AND BIG HURRAH MINES CLOSURE, MAINTENANCE AND POST-CLOSURE MONITORING COSTS

Solid waste regulations (18 AAC 60) allow the Department to require proof of financial responsibility for closure of the facility and post-closure monitoring. The total proof of financial responsibility for the life of this permit, unless modified sooner, shall be \$X,XXX,XXX. The total financial responsibility includes financial responsibility required by Alaska Department of Environmental Conservation under 18 AAC 60 and the Alaska Department of Natural Resources under Title 11 of the Alaska Administrative Code. The permittee can apply to have the amount of the financial responsibility adjusted during the life of the permit, if for example concurrent reclamation has been completed. The total financial responsibility is based on the following:

CLOSURE MAINTENANCE ITEM	FINANCIAL RESPONSIBILITY
Direct Costs	
Equipment Capital	\$
Equipment Operation and Maintenance	\$
Manpower	\$
Manpower Support	\$
Revegetation Requirements	\$
Materials, Supplies and Other	\$
Direct Cost Subtotal	\$
Administration Costs	
Engineering Redesign (X% of Direct Costs)	\$
Contractor Profit (X% of Direct Costs)	\$
Contractor Overhead (X% of Direct Costs)	\$
Reclamation Management (X% of Direct Costs)	\$
State Contract Administration (X% of Direct Costs)	\$
Contingency (X% of Direct Costs)	\$
	\$
	\$
	\$
Administration Cost Subtotal	\$
Total Direct and Administrative Costs	\$
	\$
Inflation (5 years at X% per year)	\$
30-year Post Closure Monitoring ¹	\$
	\$
TOTAL FINANCIAL RESPONSIBILITY REQUIRED:	\$²

Note: Alaska Gold Company has submitted a reclamation cost estimate of \$4,445,183.00. ADEC is still reviewing this proposed financial responsibility amount and seeks public input regarding the reclamation cost estimate contained on the following website: www.dnr.state.ak.us/mlw/mining/largemine/

¹ Post closure monitoring costs are based on monitoring costing \$XX,XXX per event in years 1, 2, 5, 10, 20 and 30 after closure with X% annual inflation.

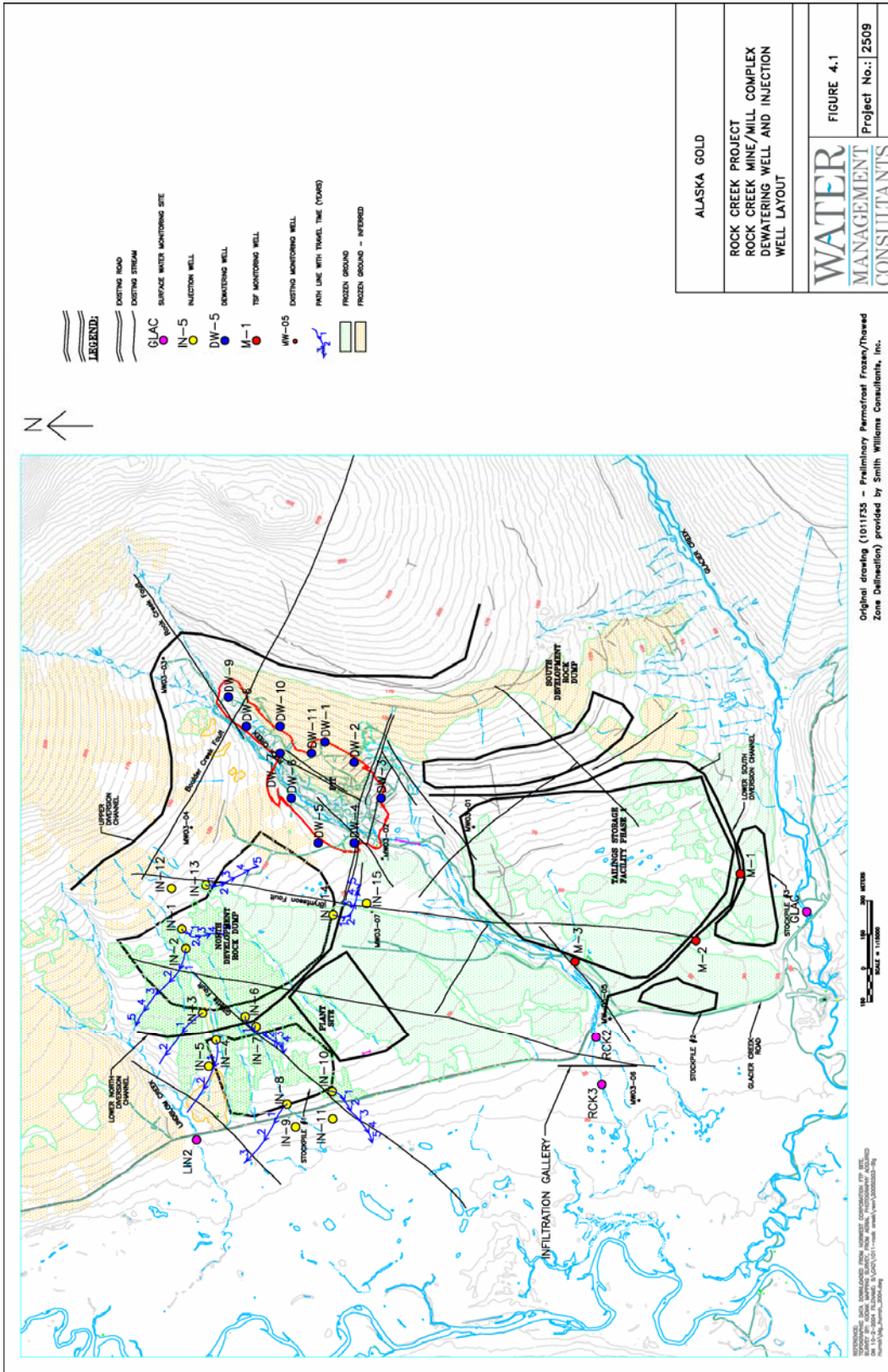
² The financial responsibility will be reevaluated and adjusted as allowed in Section 1.13.2 or as requested by the permittee.

4 GLOSSARY OF TERMS

AAC	Alaska Administrative Code
ABA	Acid Base Accounting
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AGC	Alaska Gold Company (the permittee)
AP	Acid Potential: calculated from ABA
CFR	Code of Federal Regulations
NP	Neutralization Potential: calculated from ABA
NP/AP ratio	Neutralization Potential to Acid Potential Ratio
PAG	Potentially Acid Generating
QAPP	Quality Assurance Project Plan
SPCC	Spill Prevention Control and Countermeasure
TSF	Tailings Storage Facility
WAD CN	Weak Acid Dissociable Cyanide
WQS	Alaska Water Quality Standards (18 AAC 70)

5 FACILITY MAPS

5.1 ROCK CREEK MINE MILL COMPLEX AREA MAP



5.2 BIG HURRAH MINE AREA MAP

