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

WASTE MANAGEMENT PERMIT

for

Hecla Greens Creek Mining Company

Permit No. 2014DB0003 **Date: Pending**

This draft Waste Management Permit is proposed to be issued to Hecla Greens Creek Mining Company (HGCMC), P.O. Box 32199, Juneau, Alaska 99803-2199 for disposal of wastes from the Greens Creek Mine as described in permit section 1. HGCMC is a wholly owned subsidiary of Hecla Mining Company. The Greens Creek Mine facilities are located near Hawk Inlet on northern Admiralty Island, in the Tongass National Forest, approximately 18 miles southwest of Juneau, Alaska. The mine site is situated partly within the Admiralty Island National Monument and completely within the municipal boundary for the City and Borough of Juneau. The land is comprised of federal and patented mining claims. This permit is authorized under the provisions of Alaska Statutes (AS) 46.03, and the Alaska Administrative Code (AAC), 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 **pending**, and expires after **pending**. This permit may be terminated or modified according to AS 46.03.120. This permit succeeds Waste Management Permit No. 0211-BA001.

This permit is subject to the conditions and stipulations contained in sections 1 through 6, and it incorporates by reference *Hecla Greens Creek General Plan of Operations Appendix 1 Integrated Monitoring Plan* June 2014 (*IMP*), *Hecla Greens Creek General Plan of Operations Appendix 3 Tailings Disposal Facility Management Plan* June 2014 (*tailings facility SOPs*), *Hecla Greens Creek General Plan of Operations Appendix 7 Integrated Waste Management and Disposal Plan* June 2014 (*solid waste management plan*), *Hecla Greens Creek General Plan of Operations Appendix 11 Waste Rock Management Plan* June 2014 (*waste rock management plan*), and *Hecla Greens Creek General Plan of Operations Appendix 14 Reclamation and Closure Plan* June 2014 (*reclamation and closure plan*). Changes to the documents incorporated herein must be approved by the Alaska Department of Environmental Conservation (Department or DEC) if they affect this permit. All changes approved by the Department will become part of this permit.

After completing reclamation activities and terminating active wastewater treatment, the Department requires the permittee to conduct post-closure maintenance and monitoring for a minimum of 30 years. 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

Wade Strickland
Program Manager

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1 PERMIT COVERAGE & ADOPTED REFERENCES

1.1 COVERAGE

Greens Creek Mine ore is mined via underground methods. Waste rock removed from the mine is disposed of in waste rock site 23 and the Tailings Disposal Facility (TDF). At the mill, the ore is ground and processed by flotation producing concentrates containing primarily lead and zinc with smaller portions of silver and gold. Flotation concentrates are thickened, filter pressed, and then trucked to the Hawk Inlet terminal for shipment off-site. Tailings from the flotation process are thickened and filter-pressed. The mill generates approximately 1,800 dry tons of filter-pressed tailings per day, or approximately 650,000 tons of tailings annually. Approximately half of the tailings are backfilled into the underground mine. The remainder of the dry tailings are covered and transported to the TDF, which is located in the upper reaches of the Tributary Creek drainage.

1.1.1 This permit covers disposal of waste or monitoring at the following sites. This permit does not authorize the discharge of wastewater to surface water. Surface water discharges from the Greens Creek Mine are authorized under Alaska Pollutant Discharge Elimination System Permit (APDES) AK0043206.

1.1.1.1 <u>Tailings Disposal Facility (TDF)</u>

The TDF consists of a drystack tailings pile and runoff surge pond situated adjacent to one another. In 2003, an Environmental Impact Statement (EIS) for expansion of the TDF was finalized by the U.S. Forest Service and followed by approval to expand the TDF to a footprint of approximately 62 acres. On August 30, 2013, an EIS for another expansion of the TDF was completed. Afterward, the U.S. Forest Service approved plans to expand the TDF footprint southward by about 18 acres. The projected total area of the TDF is about 80 acres, and it serves as the final disposal site for tailings, waste rock, and other solid waste as allowed in section 2.1.

1.1.1.2 <u>Site 23</u>

Site 23, in addition to the TDF and the underground workings, is one of three active areas that receive waste rock. Its ultimate footprint is 11 acres and has an estimated capacity of 1.2 million cubic yards. At closure or before, all Site 23 waste rock will be relocated to the TDF for final co-disposal.

1.1.1.3 <u>Underground Mine Workings</u>

Waste rock, tailings, and other wastes as specified in section 2.1 may be disposed underground in the mine workings.

1.1.1.4 <u>Inactive Waste Rock Disposal Sites</u>

The following sites contain but no longer receive waste rock. Removal of all waste rock from these sites for final disposal underground or in the TDF is either underway or forthcoming. All waste rock in Sites 1350, C, D, and E will eventually be removed and either placed underground or in the TDF for final disposal.

1.1.1.4.1 **Site 1350** has a footprint of about 5 acres and is no longer open for disposal of waste rock. This site originally stored about 100,000 cubic

yards of waste rock. Its waste rock is being relocated to Site 23 for temporary storage and final disposal underground is ongoing.

1.1.1.4.2 **Site C** has a footprint of about two acres and is no longer open for disposal of waste rock. This site stores about 48,000 cubic yards of waste rock, which will be relocated for final co-disposal in the TDF or permanent disposal underground.

1.1.1.4.3 **Site D** has a footprint of about seven acres and is no longer open for disposal of waste rock. This site stores about 300,000 cubic yards of waste rock that will be relocated for final co-disposal in the TDF or permanent disposal underground.

1.1.1.4.4 **Site E** has a footprint of about nine acres and is no longer open for disposal of waste rock. This site stores about 365,000 cubic yards of waste rock that is actively being relocated for final co-disposal in the TDF.

1.1.1.5 Pond 7

Pond 7 is a settling pond that collects storm water, TDF runoff, TDF underflow, and mine water before it is treated and discharged. It is located hydrologically and topologically downgradient and southwest of the TDF. The Pond 7 containment structure is classified as a Class 3 low hazard potential dam.

1.1.1.6 Fresh Water Monitoring Sites

The Fresh Water Monitoring Program (FWMP) contained in *Hecla Greens Creek General Plan of Operations Appendix 1 Integrated Monitoring Plan* designates locations for monitoring the mine's impacts on fresh water quality.

1.1.2 This permit also contains geochemical monitoring requirements for waste rock, construction rock, and tailings to characterize metal leaching and acid rock drainage potential; geotechnical monitoring to evaluate stability of disposal sites; biological monitoring to assess any potential impacts on the fresh water aquatic ecosystem, and stipulations on chemical storage and containment.

1.1.3 The Department may set or modify permit conditions based on monitoring results or changes in facility processes according to permit amendment or modification procedures.

1.2 ADOPTED REFERENCES

1.2.1 In addition to the stipulations in this permit, the permittee shall adhere to the applicable requirements of 18 AAC 15 Administrative Procedures,18 AAC 60 Solid Waste Management Regulations, 18 AAC 70 Alaska Water Quality Standards (WQS), and 18 AAC 72 Wastewater Disposal. The permittee shall also adhere to Department-approved plans authorized under the permit. When the terms of this permit differ from the terms of Department-approved project documents adopted by reference in this section, the most recent term with written Department approval is controlling. If there is doubt as to which conflicting term is newer, this permit shall control. The Department-approved plans adopted by reference in this section must be updated incorporating any changes necessary to be consistent with

the terms of this permit, and these plans may be revised provided that written Department approval is received. Department-approved plans adopted by reference into this permit include the following documents:

1.2.1.1 *Hecla Greens Creek General Plan of Operations Appendix 1 Integrated Monitoring Plan* June 2014 (*IMP*),

1.2.1.2 *Hecla Greens Creek General Plan of Operations Appendix 3 Tailings Disposal Facility Management Plan* June 2014 (*tailings facility SOPs*),

1.2.1.3 *Hecla Greens Creek General Plan of Operations Appendix 7 Integrated Waste Management and Disposal Plan* June 2014 (*solid waste management plan*),

1.2.1.4 *Hecla Greens Creek General Plan of Operations Appendix 11 Waste Rock Management Plan* June 2014 (*waste rock management plan*), and

1.2.1.5 *Hecla Greens Creek General Plan of Operations Appendix 14 Reclamation and Closure Plan* June 2014 (*reclamation and closure plan*).

2 SPECIFIC CONDITIONS

2.1 ACTIVE WASTE DISPOSAL FACILITIES

2.1.1 All Active Waste Disposal Facilities - Waste disposal is permitted in three areas (TDF, Site 23, and underground mine workings) listed in section 2.1 provided that the conditions of this permit are satisfied.

2.1.1.1 Limitations

2.1.1.1.1 Except as otherwise authorized in an APDES permit, the permittee shall control and treat onsite surface water, groundwater and seepage as necessary to prevent offsite water quality exceedances.

2.1.1.1.2 The permittee shall ensure that all wastes are deposited in a manner that will not damage or otherwise jeopardize the integrity of containment.

2.1.1.1.3 Activities at the site that will cause a greater amount of waste material to be treated and disposed than considered in this section of the permit are prohibited without the prior approval by the Department. This condition excludes mining and milling rates which are not considered in this section.

2.1.1.1.4 The following materials shall not be disposed onsite, unless approved in writing by the Department:

2.1.1.1.4.1. Laboratory wastes other than wash waters, neutralized acids and neutralized bases; however disposal or recycling of refinery slag, fire assay crucibles and cupels is permitted;

2.1.1.1.4.2. Discarded, unused chemical not associated with the beneficiation process; however chemicals that have been added through the beneficiation process may be disposed in the TDF or underground workings;

2.1.1.1.4.3. Contaminated soils, spill boom, liners used for the containment of spilled hazardous materials, chemicals used in the cleanup of spills or

other spill cleanup wastes other than chemicals used in the beneficiation process,

2.1.1.1.4.4. Uncombusted household waste;

2.1.1.1.4.5. Sewage solids that are untreated or have less than 10% solids by weight;

2.1.1.1.4.6. Asbestos waste;

2.1.1.1.4.7. Acute hazardous wastes, as defined by 18 AAC 60.990(157), including radioactive material, explosives, strong acids and untreated pathogenic waste; however, this prohibition does not preclude disposal of natural minerals found in mine rock or residual wastes included as byproducts of the beneficiation;

2.1.1.1.4.8. Fuels, oil, transformers, paint, or associated equipment and packing material; and

2.1.1.1.4.9. Glycol and solvents.

2.1.2 TDF – The primary function of the TDF is for disposal of drystack tailings. It must be designed, operated, and reclaimed as waste containment facility preventing any discharge of solids or liquids according to the *tailings facility SOPs* and *reclamation and closure plan*. The following conditions under section 2.1.2 apply to the TDF and its appurtenances.

2.1.2.1 The following inert wastes may be disposed in the TDF:

2.1.2.1.1 Settled solids from sumps, ditches, settling ponds, and degritting basins;

2.1.2.1.2 Incinerator ash and residue;

2.1.2.1.3 Ash from burning scrap wood;

2.1.2.1.4 Iron (drill steel, balls, empty cans, etc.);

2.1.2.1.5 Empty plastic and glass containers;

2.1.2.1.6 Inert, non-putrescible, domestic waste;

2.1.2.1.7 Construction debris;

2.1.2.1.8 Non-terne plated used oil filters that have been gravity hot-drained; and

2.1.2.1.9 Such other material as would otherwise be disposed of in an inert solid waste landfill without special handling.

2.1.2.2 Sewage solids may be disposed in the TDF provided that they

2.1.2.2.1 Contain no less than 10% solids by weight,

2.1.2.2.2 Are treated with lime so that a pH of 12 is maintained in the solids after one hour of contact before disposal, and

2.1.2.2.3 Are covered with at least six inches of cover material on the day of disposal.

2.1.2.3 Co-disposal of Class 4 waste rock in the TDF is prohibited.

2.1.2.4 Class 1 and Class 2/Class 3 waste rock from underground, Site 23, Site D, Site E, or construction rock may be co-disposed with tailings in the TDF.

2.1.2.5 The permittee shall ensure that wastes are deposited into the TDF in a manner that will not damage or otherwise jeopardize the integrity of the containment of the TDF.

2.1.2.6 Pond 7, an appurtenance of the TDF, must be operated in conformance with the current *Certificate of Approval to Operate a Dam* issued by Alaska Department of Natural Resources (ADNR), Division of Mining, Land and Water, Dam Safety and Construction Unit.

2.1.2.7 Water quality in FWMP monitoring stations associated with the TDF must not exceed WQS. If a WQS is exceeded for a given parameter, then corrective action as designated in section 2.5.3 must be implemented.

2.1.3 Site 23 – Site 23 must be designed, operated, and reclaimed as a waste containment facility preventing any discharge of solids or liquids according to the *waste rock management plan* and *reclamation and closure plan*. The following conditions under section 2.1.3 apply to Site 23 and its appurtenances.

2.1.3.1 Only Class1 and Class 2/Class 3[1] waste rock may be disposed at Site 23.

2.1.3.2 Waste rock that is neither Class 1 nor Class2/Class 3 may be temporarily stored at Site 23 provided that it is placed on an impermeable liner, containment and drainage controls prevent release of leachate and runoff, and written Department approval is received.

2.1.3.3 Surface water in the TDF monitoring stations, as designated in the *IMP*, must not exceed WQS. If there is an exceedance of a WQS, then corrective action as designated in section 2.5.3 must be implemented.

2.1.3.4 The permittee shall ensure that all wastes are deposited in a manner that will not damage or otherwise jeopardize the integrity of Site 23 containment.

2.1.4 Underground Mine Workings – The underground mine workings must be operated and reclaimed as a waste containment facility preventing any discharge of solids or liquids according to the *solid waste management plan*, *waste rock management plan*, and *reclamation and closure plan*. The following conditions under section 2.1.4 apply to the waste disposal in the mine.

2.1.4.1 The following wastes may only be disposed in the underground mine:

2.1.4.1.1 Class 4 waste rock, and

2.1.4.1.2 Tires.

2.1.4.2 The following inert wastes may be disposed in the underground mine:

2.1.4.2.1 Settled solids from sumps, ditches, settling ponds, and degritting basins;

[1] Waste rock is classified based on acid generation potential ranging from Class 1 waste rock (least acid generation potential) to Class 4 waste rock (greatest acid generation potential).

2.1.4.2.2 Incinerator ash and residue;

2.1.4.2.3 Ash from burning scrap wood;

2.1.4.2.4 Iron (drill steel, balls, empty cans, etc.);

2.1.4.2.5 Empty plastic and glass containers;

2.1.4.2.6 Inert, non-putrescible, domestic waste;

2.1.4.2.7 Construction debris;

2.1.4.2.8 Non-terne plated used oil filters that have been gravity hot-drained; and

2.1.4.2.9 Such other material as would otherwise be disposed of in an inert solid waste landfill without special handling.

2.2 SITE CONSTRUCTION, MAINTENANCE, & OPERATION

2.2.1 General

2.2.1.1 Changes that may have a significant impact on mine closure, reclamation, or water quality; information on engineering changes to the mill; new waste treatment processes; changes to solid waste disposal facilities, changes to ground and surface water interception, conveyance or monitoring systems; and the addition of new waste streams that discharge to TDF including Pond 7, Site 23, or underground workings must be submitted to the Department and approval must be obtained prior to any such changes or discharges.

2.2.1.2 The permittee shall develop the site in accordance with Department-approved plans and amendments thereof, which are submitted by the applicant as required by this permit and referenced in section 1.2.1. Pollution prevention concepts shall be incorporated into operations plans for the project.

2.2.1.3 The permittee shall design, operate, and reclaim surface disposal facilities to minimize run-on of storm water.

2.2.2 Secondary Containment

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

2.2.2.2 The permittee shall provide and maintain secondary containment for all chemical mix tanks containing hazardous or toxic materials and new piping associated with that tankage. Secondary containment is considered to be 110% of the largest tank within a containment area 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. To prevent such discharges, facilities shall be maintained in good working condition at all times by the permittee.

2.2.3 Notification

2.2.3.1 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. Safety Data Sheets on new chemicals must be forwarded to the Department at

time of notification and maintained onsite. Introduction of new chemicals into the process requires written Department approval.

2.2.3.2 Under 18 AAC 72.600, the permittee shall submit engineering plans to the Department at least 60 days before construction or modification of an applicable system, and receive Department approval of any changes that will significantly modify the quality or quantity of waste stream, the operation of a waste treatment component, or the disposal facilities.

2.2.3.3 With respect to any Department approved change as described in section 2.2.3.2, the permittee must submit to the Department within 90 days after completing construction of a significant modification to an existing process component:

2.2.3.3.1 As-built drawings of the process component(s) that show any changes of those aspects that would affect performance of that process component as required in 18 AAC 72.600,

2.2.3.3.2 A summary of the quality control activities that were carried out during construction, and

2.2.3.3.3 The revised operating plans that reflect modifications made during construction.

2.2.4 Fuel and Hazardous Substances

2.2.4.1 The permittee shall design and install all process piping and chemical mix tanks to allow for routine inspections for leaks. New process piping installed outside of the mill building must not be buried unless secondary containment is used that provides the ability to inspect for leaks.

2.2.4.2 The permittee shall maintain fuel handling and storage facilities in a manner that will minimize the discharge of hazardous substances.

2.3 MONITORING

2.3.1 The *IMP* dated June 2014, submitted by Hecla Greens Creek Mining Company (HGCMC) and approved by the Department, is incorporated into this permit. Future Department-approved changes to project monitoring will be included as modifications to the *IMP* and do not require re-issuance or modification of this permit. The *IMP* shall contain monitoring procedures to include the following and must be updated, as needed to conform to the permit, within 90 days of permit issuance.

2.3.1.1 Visually monitor the facilities for signs of damage or potential damage from settlement, ponding, leakage, instability, frost action, erosion, thawing of the waste, or operations at the site. Visual monitoring shall be at least weekly and documented monthly.

2.3.1.2 Monitor surface and groundwater near the site to ensure that WQS are not exceeded and that sample results are statistically valid.

2.3.1.3 Water chemistry analytical methods employed must be sensitive enough to determine compliance with for all applicable WQS. The minimum level of

quantification (ML) for a given parameter's measurement must be less than or equal to the most stringent applicable WQS for that substance.

2.3.1.4 Monitor fresh water quality as designated in the FWMP.

2.3.1.5 Conduct biological monitoring in Greens Creek and Tributary Creek in accordance with the FWMP to document the continued health of the aquatic communities. The permittee shall measure:

2.3.1.5.1 The abundance and condition of juvenile fish;

2.3.1.5.2 Whole body concentrations of cadmium, copper, mercury, lead, selenium, silver, and zinc in juvenile fish tissue;

2.3.1.5.3 Periphyton biomass, estimated by chlorophyll-a concentrations; and

2.3.1.5.4 Abundance and community structure of benthic invertebrates.

2.3.1.6 Geochemical monitoring of Greens Creek Mine overburden, construction rock, waste rock, and tailings is required to ensure that there is low potential for production of leachate that is acidic or contains levels of metals that would contaminate surface or groundwater.

2.3.1.7 Monitor the geotechnical stability of the TDF and Site 23.

2.3.1.8 Monitor amounts and geochemistry, including numerical classification where applicable, of waste rock and tailings disposed.

2.3.1.9 Water flow and management monitoring is required to account for process water discharged to the Pond 7, process water recycled to the mill, storm water entering Pond 7, flow under the TDF into Pond 7, water levels in piezometers, and meteorology.

2.3.1.10 Signs of stress to wildlife associated with facility activities must be monitored.

2.3.2 The permittee must develop a quality assurance project plan (QAPP) for all sampling required by this permit. The QAPP may be contained in the *IMP*. The QAPP, or the QAPP portion of the *IMP*, must be completed within 60 days of the effective date of this permit and made available upon request. Any changes made to the existing QAPP shall be completed according to section 2.3.2.3.

2.3.2.1 The QAPP must be designed to assist in planning for the collection and analysis of water samples in support of the permit and in explaining data anomalies when they occur and the QAPP must be formatted as specified in the most recent edition of Elements of a Tier 2 Water Quality QAPP by DEC, Division of Water, Water Quality Standards, Assessment, and Restoration Program, Quality Assurance Section.

2.3.2.2 Throughout all sample collection and analysis activities, the permittee must use chain-of-custody procedures described in the most recent edition of Elements of a Tier 2 QAPP by DEC, Division of Water, Water Quality Standards, Assessment, and Restoration Program, Quality Assurance Section.

2.3.2.3 The permittee must amend the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP.

2.3.2.4 A copy or copies of the QAPP must be kept onsite and made available to the Department upon request.

2.3.3 The permittee must monitor Pond 7 in conformance with current *Certificate of Approval to Operate a Dam* issued by ADNR, Division of Mining, Land and Water, Dam Safety and Construction Unit.

2.3.4 Samples taken as required by section 2.3 shall be analyzed in conformance with the most recent *IMP* and QAPP submitted by HGCMC, as approved by the Department.

2.3.5 Maintenance of inspection and sampling logs and procedures for processing, consolidating, and reporting inspection and sampling data shall be in conformance with the *IMP* and QAPP submitted by HGCMC, as approved by the Department.

2.3.6 Groundwater and surface water monitoring and corrective action monitoring shall be in accordance with section 2.5, 18 AAC 60 Solid Waste Management Regulations, and the *IMP* and QAPP submitted by HGCMC, as approved by the Department.

2.3.7 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.

2.3.8 If the permittee monitors any influent, effluent, receiving water, or solid waste characteristic, with the exception of monitoring associated with a wastewater discharge permit, or more frequently than required, the permittee shall notify the Department that the additional monitoring has occurred in the quarterly report for the period when the monitoring has occurred. The results of such monitoring shall be available for inspection by the Department at the project site, or other location proposed by the permittee and agreed upon by the department. The permittee shall provide copies of the results to the Department upon request.

2.4 REPORTING

2.4.1 When a statistically significant increase in the concentration of a constituent above a WQS is discovered at a groundwater or surface water monitoring location, or if noncompliance with a requirement set out in sections 2.1 or 2.2 is discovered, the permittee shall verbally notify the Department no later than the end of the next working day after discovery, and shall conduct corrective actions according to section 2.5.3.

2.4.2 The permittee shall provide the Department with quarterly monitoring reports summarizing inspection and monitoring results required in section 2.3. Reports shall satisfy the following conditions.

2.4.2.1 <u>Due Dates</u> - Reports for the first three calendar quarters are due within 60 days after the quarter ends, and the report for the fourth calendar quarter shall be submitted by March 1st of the following year.

2.4.2.2 <u>Form</u> – Reports shall be provided in electronic form using commercially available software or according to other electronic reporting requirements approved by the Department. Paper copies of the reports are not required unless specifically requested.

2.4.2.3 <u>Content</u> - Reports shall contain a narrative portion discussing data and

information collected during the preceding quarter.

2.4.2.4 Graphing - Reports shall present water quality data in graphical form indicating trends as well as the margin of compliance with limits.

2.4.2.4.1 Graphs of concentration measurement versus time must include the past five years of data, if available, and may contain all historic data.

2.4.2.4.2 The graphs must also include the parameter, units, and applicable permit limit or WQS.

2.4.2.4.3 Multiple stations, identified using symbols in a legend, may be included in the same graph.

2.4.2.4.4 Scales shall be proportioned to display the limit or WQS, as indicated by a highlighted line, near the top of the graph or when data exceeds the limit, the maximum value shall be near the top of the graph.

2.4.2.4.5 Formatting shall allow addition of new data to each graph's cumulative data when producing the next quarterly report.

2.4.2.4.6 For graphical purposes, non-detect values shall be plotted at one half the method detection limit (MDL), and values between the ML and MDL shall be plotted at the value of the qualified measurement.

2.4.3 Annual Report - In addition to satisfying the requirements of section 2.4.2, the fourth calendar quarter report serves as the annual report. The annual report shall:

2.4.3.1 Be submitted to the Department by April 15th of the following year;

2.4.3.2 Contain an electronic copy (preferably Excel) of the water quality data for the reporting year, including the past five years' data, if available, and may contain all historic data in spreadsheet form. When a value is less than the ML, it must be identified as less than the ML, and the ML must be provided. Non-detect values must be identified as less than the MDL or non-detect and the MDL must be provided in the electronic water quality data spreadsheets;

2.4.3.3 Address the adequacy of the financial responsibility including, but not limited to, significant changes in reclamation activity costs, concurrent reclamation, expansion or other changes to the operation of the facility;

2.4.3.4 Be presented at an annual meeting with the Department and open to the public; and

2.4.3.5 Be submitted to the Department at least two weeks prior to the annual meeting.

2.4.4 The permittee shall provide the Department with copies of any amendments to the plan of operations, including the *reclamation and closure plan*, when they affect the waste disposal operations authorized by the permit.

2.4.5 All records and information and reports 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 a minimum of five years. Upon request from the Department,

the permittee shall submit certified copies of such records.

2.4.6 Any onsite wildlife casualties associated with facility activities shall be reported within one working day of discovery to the Department.

2.4.7 All printed reports submitted under the requirements of this permit shall be sent to:

Dept. of Environmental Conservation
Division of Water, Compliance Program
555 Cordova St.
Anchorage, AK 99501

2.4.8 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 under AS 46.03.790.

2.5 CORRECTIVE ACTIONS

2.5.1 The permittee shall comply with 18 AAC 60.815 if the visual monitoring program in section 2.3.1.1 discovers damage or potential damage to the waste disposal-related facility that could lead to water quality violations.

2.5.2 When a statistically significant increase in a constituent concentration above the background water quality in any of the water sampling locations is discovered, the permittee shall comply with 18 AAC 60.820-860. Statistical significance shall be determined using one of the methods outlined in 18 AAC 60.830(h). The permittee shall comply with the notification requirements in 18 AAC 60.850(c) upon determining a statistically significant increase in a constituent concentration.

2.5.3 For a single constituent, when a statistically significant increase in concentration is discovered at a water monitoring station or if noncompliance with a requirement set out in sections 2.1 or 2.2 is discovered, the permittee shall:

2.5.3.1 Orally notify the Department no later than the end of the next working day;

2.5.3.2 Determine the extent of the exceedance or noncompliance;

2.5.3.3 In consultation with the Department and documented in writing, implement a plan to restore compliance and determine the cause of the exceedance or noncompliance;

2.5.3.4 Submit to the Department, within seven working days after an exceedance or noncompliance is verified by the permittee, a plan for corrective actions to prevent adverse environmental impacts and avoid future exceedances of a similar nature; and

2.5.3.5 Implement the corrective action plan as approved by the Department.

2.6 SUSPENSION OF OPERATIONS

2.6.1 Suspension of operations is defined as a suspension of mining and milling/processing activities for more than 90 days but less than three years. The length of time for the period of suspension may be extended beyond three years by written authorization from the Department. The permittee shall submit a conceptual suspension of operations plan to the Department within 90 days of permit issuance.

2.6.2 The permittee must notify the Department within three days of suspending operations. The notice shall provide the nature of and reason for the suspension and its anticipated duration.

2.6.3 No later than ten days after operations have been suspended, the permittee shall submit a detailed suspension of operations plan that replaces the suspension of operations conceptual plan required by section 2.6.1 with current information and specific details. The suspension plan shall address the following:

2.6.3.1 Explanation of what would reasonably result in resuming or permanently terminating mining or milling/processing activities;

2.6.3.2 Reclamation or construction activities during the period of temporary suspension;

2.6.3.3 Procedures, methods, and schedule to be implemented for the treatment, disposal, or storage of process water;

2.6.3.4 The control of surface and groundwater drainage to and from the facility and the surrounding area;

2.6.3.5 The control of erosion from the drystack, waste rock disposal areas, mill and camp site, and any other disturbed areas within the facility boundary;

2.6.3.6 The secure storage of chemicals during the period of suspended operations; and

2.6.3.7 Procedures for maintaining and monitoring the Pond 7 dam and site-wide water balance.

2.6.4 The Department shall have 15 days to review and approve or request modifications to the suspension plan.

2.6.5 Once a suspension of operations plan has been approved, it becomes enforceable under the conditions of this permit and full implementation of the approved suspension plan is required. The plan can be amended by submitting a revised plan to the Department for approval.

2.6.6 During suspension of operations, the permittee shall:

2.6.6.1 Continue pollution control activities associated with waste disposal and management, including but not limited to dust control, maintenance of the drainage diversion structures, maintenance of all discharge and leakage control structures and processes, and maintenance of the Pond 7 dam as specified by the current *Certificate of Approval to Operate a Dam* and the suspension plan.

2.6.6.2 Continue monitoring and reporting activities of all active portions of the site as specified by this permit or the suspension plan.

2.6.6.3 Continue reclamation and corrective action requirements under the *reclamation and closure plan* in light of the nature of the closure.

2.6.7 Written Department approval is required before resuming operations after a period of temporary closure.

2.7 TERMINATION OF MINING & MILLING

2.7.1 Termination of mining and milling/processing activities is defined as the permanent cessation of those activities. Updated reclamation and monitoring plans must be submitted for approval within 90 days after initiating termination of mining and milling/processing. The updated plans must address current conditions at the facility. Updates and changes to those plans must be approved in writing by the Department.

2.7.2 Termination of mining and milling at the site must be implemented and completed according to the conditions of this permit and with the *reclamation and closure plan* approved by the Department and incorporated by reference into this permit.

2.7.3 Closure of the waste disposal facilities will be complete when the following criteria are met:

2.7.3.1 Department-approved covers are installed on the 1350 portal area, 920 portal area including the mill site, Sites C, D, and E, Site 23, TDF, and drainage channels are constructed and stable;

2.7.3.2 A stable vegetative cover is established on the waste rock, re-contoured areas, and other infrastructure or other facilities as prescribed in *reclamation and closure plan* approved by the Department and incorporated by reference into this permit; and

2.7.3.3 The Department determines that active water treatment is no longer required for any water discharged from the facility.

2.7.4 Closure must be achieved before terminating any care and maintenance activities required by section 2.6.6 and the approved suspension plan if a period of suspended operations immediately preceded termination of mining and milling.

2.7.5 The permittee shall maintain the facility correcting any erosion or settlement of the TDF, waste rock disposal sites, and drainage channels 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.

2.7.6 Disposal of demolition debris onsite may be approved during closure activities according to a plan approved by the Department.

2.7.7 Post-closure monitoring of ground and surface water quality and visual monitoring for settlement, seeps, and erosion is required in years 1, 2, 5, 10, 15, 20, and 30 after satisfying the criteria in section 2.7.3. Post-closure monitoring shall be performed according the reclamation and closure plan approved by the Department. This schedule and the parameters monitored may be modified by the Department based on the monitoring results received.

2.8 FACILITY AUDIT

A periodic third-party environmental audit shall be completed during the final year of the permit term or sooner if final closure starts during the permit term. However, the field inspection portion of the audit shall be conducted during the snow free season the year before permit expiration. The audit will include all aspects of this Waste Management Permit. The environmental audit is required to verify HGCMC's compliance with applicable environmental laws associated with this permit. The third party contractor

should be mutually agreed on by the state and HGCMC, but in the event that agreement cannot be reached, the state retains the final contractor selection decision. Costs for the third-party contractor shall be borne by HGCMC. The intent of the audit is to evaluate whether both HGCMC management and DEC permit administration provide reasonable assurances that the facility and environmental controls are functioning as intended. The environmental audit shall include an evaluation of the adequacy of the approved financial assurance.

3 GENERAL CONDITIONS

3.1 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.

3.2 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, Alaska.

3.3 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.

3.4 AVAILABILITY

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

3.5 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.

3.6 CULTURAL OR PALEONTOLOGCAL 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, ADNR (907-465-4563), is to be notified promptly.

3.7 APPLICATIONS FOR RENEWAL

In accordance with 18 AAC 15.100(d), an application for renewal or amendment of this permit <u>must</u> be made no later than 30 days before the expiration date of the permit or the planned effective date of the amendment.

3.8 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.

3.9 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 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.

3.10 TOXIC POLLUTANTS

If during the life of this permit a new or revised toxic pollutant (including oil, grease, or solvents) concentration standard is established in accordance with 18 AAC 70 for a pollutant managed at this facility and that standard is more stringent than previously, then upon the effective date of the new rule, this permit automatically adopts the new toxic pollutant concentration standard and applies it to management of facility wastes.

3.11 POLLUTION PREVENTION

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:

1st waste source reduction,

2nd recycling of waste,

3rd waste treatment, and

4th waste disposal.

4 FINANCIAL RESPONSIBILITY

4.1 PROOF OF FINANCIAL RESPONSIBILITY

Under AS 46.03.100(f), 18 AAC 15.090, and 18 AAC 60.265, the Department has authority and responsibility to require proof of financial responsibility for closure of the facility and post-closure monitoring.

4.1.1 The permittee shall provide the Department with proof of financial responsibility for reclamation and closure of the facilities and post-closure monitoring. The proof of financial responsibility shall cover costs incurred for reclamation and closure and post-closure monitoring of all mine facilities, including the mill area, 1350 portal area, 920 portal area, underground workings, Site C, Site D, Site E, Site 23, TDF, and related facilities, shall cover the activities set out in section 4, and shall be in the amount shown in section 4. An overview of the areas covered by the financial responsibility for reclamation and closure is shown in figure 6.1.

4.1.2 The Department will review and modify if necessary, the financial responsibility requirements including adjustments for concurrent reclamation, 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 2.4.3.3.

4.1.3 The proof of financial responsibility may be in the form of a trust fund, surety bond, letter of credit, insurance, or another Department-approved mechanism.

4.1.4 Approved proof of financial responsibility must remain available through the post-closure period and may not be released in its entirety 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 has assumed responsibility for permit compliance, reclamation and closure activities, and post-closure monitoring.

4.1.5 The permittee must provide acceptable proof of financial responsibility within 60 days of the permit's effective date. The Department will accept or reject the financial surety as expeditiously as possible but in no event later than 30 days after its receipt.

4.1.6 If the permittee is unable to provide acceptable proof of financial responsibility to the Department, as 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.

4.1.7 If the permittee fails to comply with the terms and conditions of this permit and if the Department concludes that such failure may prevent, inhibit or delay satisfactory reclamation and closure or post-closure monitoring of the facility, then the Department may exercise its rights, under an approved mechanism, to access financial responsibility funds and use them for reclamation and closure and post-closure activities.

4.1.8 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.

4.2 AMOUNT OF FINANCIAL RESPONSIBILITY

The total proof of financial responsibility for the life of this permit, unless modified, shall be **$65,392,347**. A detailed breakdown of the financial responsibility cost estimate can be found in the *reclamation and closure plan*. The Greens Creek Mine financial responsibility is based on the following.

Years *(after permit issuance)*	**Reclamation[1]** *(years 1-4 earthwork and water treatment)*	**Long Term Care and Water Treatment[2]** *(years 5-100 plus the principal for another 100 years)*	**Annual Cash Flows[3]**	**Net Present Value[4]** *(3.97% estimated real rate of return)*	**Inflation[5]** *(2.31% average of the last 5 years of the Anchorage CPI)*
0				$58,335,980	
1	$5,922,414		$5,922,414		$59,683,541
2	$15,990,460		$15,990,460		$61,062,231
3	$13,918,395		$13,918,395		$62,472,769
4	$13,542,169		$13,542,169		$63,915,890
5		$14,148,963	$14,148,963		$65,392,347

Notes:

1. This column represents the present values for reclamation costs that are scheduled during the first four years after the termination of mining and milling. Amounts include both direct and indirect costs that are detailed in the *reclamation and closure plan*.

2. This column represents the present value cost for long term care and water treatment beginning on the fifth year after termination of mining and milling. Costs include the net present value for water treatment during years 5 through 100 and the net present value for water treatment from years 101 to 200 including water treatment plant replacement and maintenance. The total includes both direct and indirect costs that are detailed in the *reclamation and closure plan*.

3. This column represents a schedule of annual present value costs required for reclamation, long term care and water treatment.

4. This amount represents the net present value assuming a real rate of return of 3.97%.

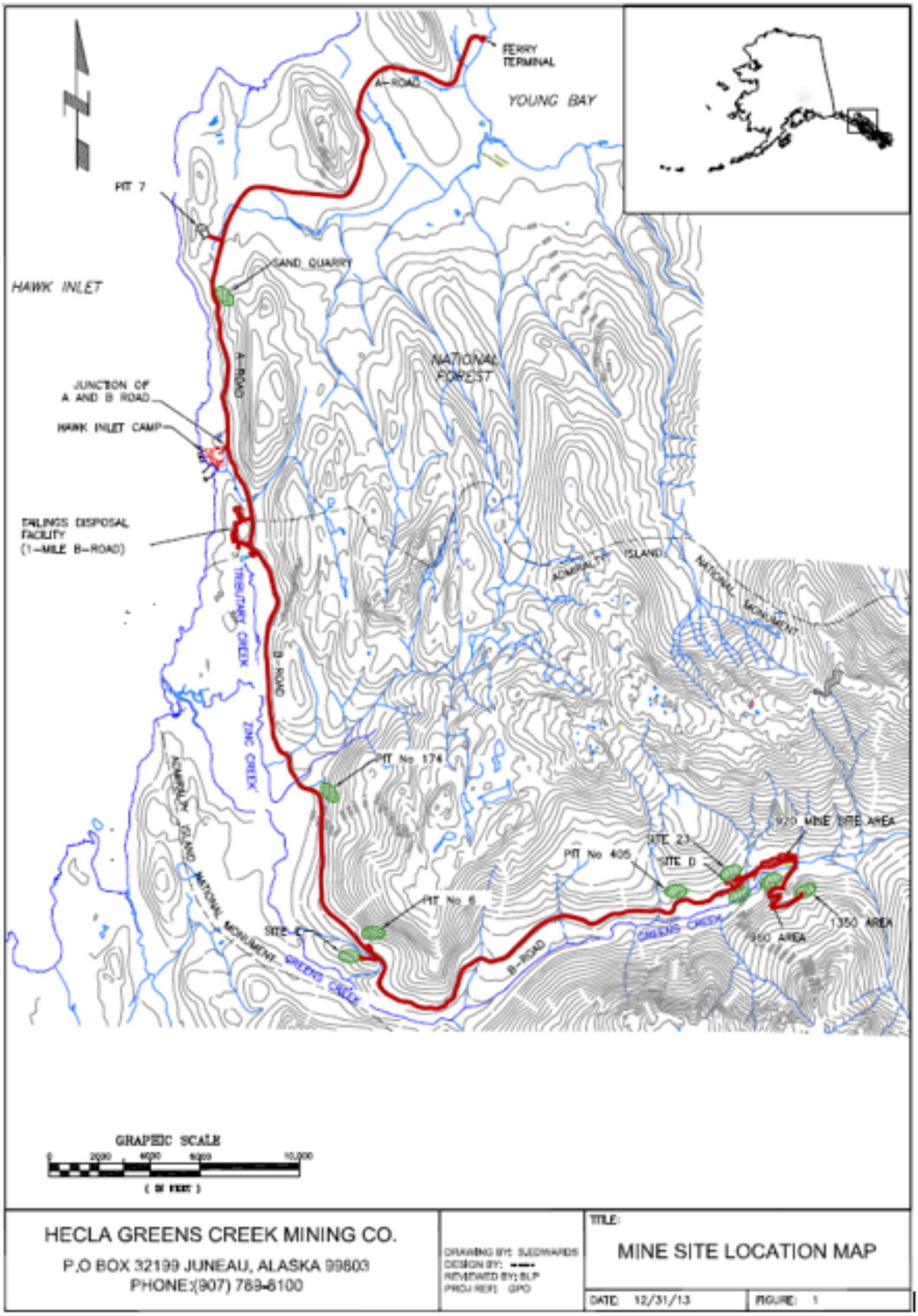
5. This column represents the net present value adjusted by adding five years of inflation covering inflation incurred during the permit term. The cost at year five is the final required financial responsibility amount.

5 GLOSSARY OF TERMS

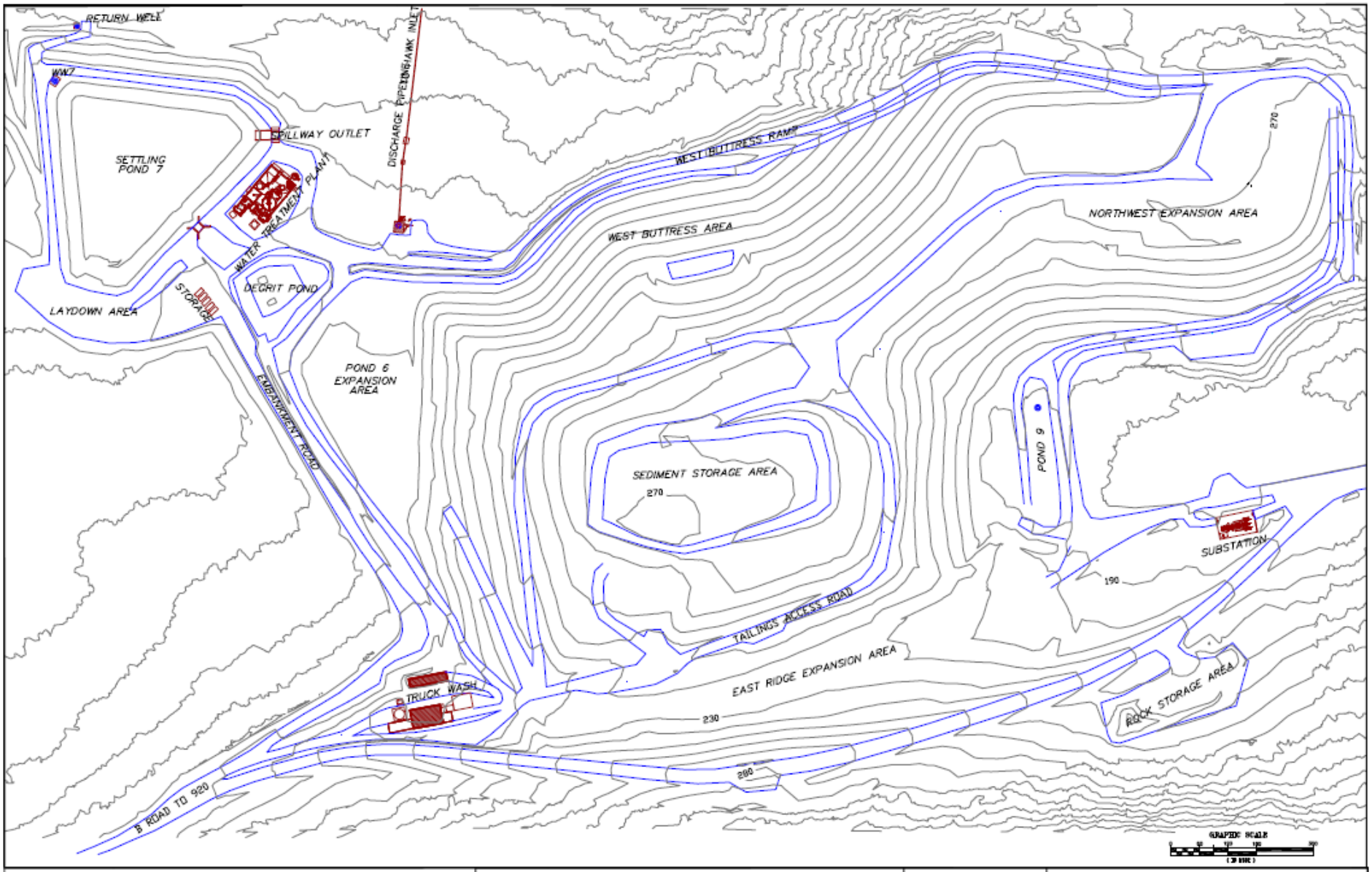
AAC	Alaska Administrative Code
ADNR	Alaska Department of Natural Resources
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statutes
FWMP	Fresh Water Monitoring Program
GPO	General Plan of Operations – comprised of several appendices. This permit references and adopts GPO appendices 1, 3, 7, 11, and 14.
HGCMC	Hecla Greens Creek Mining Co.
MDL	Method Detection Limit
ML	Minimum Level of Quantification
Permittee	Hecla Greens Creek Mining Co.
QAPP	Quality Assurance Project Plan
TDF	Tailings Disposal Facility
WQS	Alaska Water Quality Standards

6 Figures

6.1 MINE FACILITY LOCATIONS



6.2 CURRENT TAILINGS DISPOSAL FACILITY



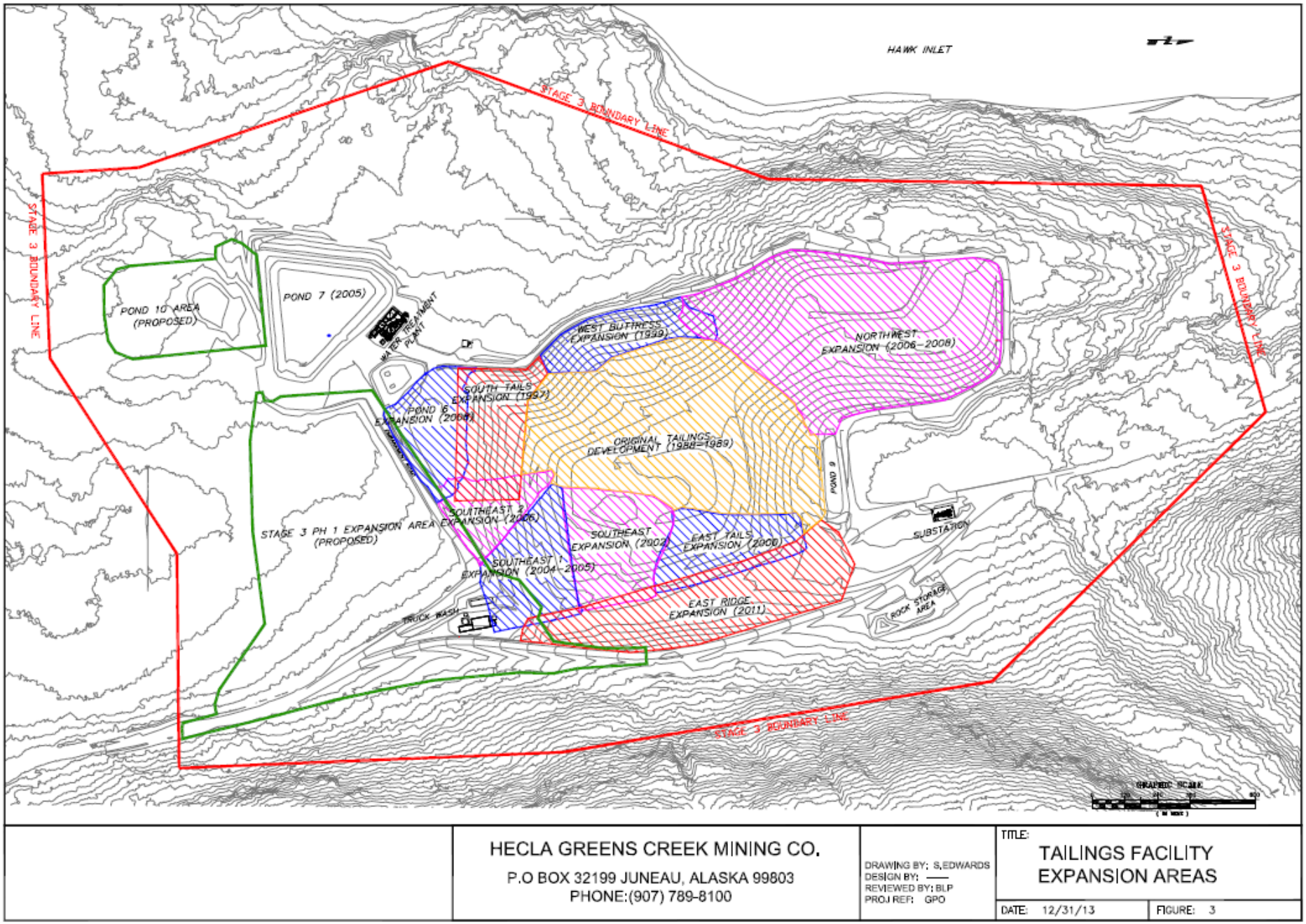
HECLA GREENS CREEK MINING CO.
P.O BOX 32199 JUNEAU, ALASKA 99803
PHONE:(907) 789-8100

DRAWING BY: S.EDWARDS
DESIGN BY: —
REVIEWED BY: BLP
PROJ REF: GPO

TITLE:
TAILINGS FACILITY AS-BUILT
- 2013 -

DATE: 12/31/13
FIGURE: 2

6.3 TAILINGS DISPOSAL FACILITY EXPANSION PLANS



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DRAWING BY: S.EDWARDS
DESIGN BY: ——
REVIEWED BY: BLP
PROJ REF: GPO

TITLE: TAILINGS FACILITY EXPANSION AREAS

DATE: 12/31/13 FIGURE: 3