

KENNECOTT GREENS CREEK MINING COMPANY

GENERAL PLAN OF OPERATIONS

**APPENDIX 14
ATTACHMENT A.1**

**RECLAMATION PLAN
COST ESTIMATE REVISION**

**PLAN REVIEW
FOR THE TAILINGS EXPANSION
PROJECT**

Date:

Original Submitted July 31, 2001
Public and Regulatory Review
Finalized Submitted November 15, 2001
Revised for Tailings Expansion Oct 22, 2003

1.0 Reclamation Plan Revision – October 2003

1.1 Purpose and Need

Kennecott Greens Creek Mining Company (KGCMC) initiated a tailings expansion project in January 2001 with the United States Forest Service (USFS) and the State of Alaska Department of Environmental Conservation (ADEC). This project triggered a National Environmental Policy Act (NEPA) review and an Environmental Impact Statement (EIS) to analyze the potential environmental effects of the project. As part of the tailings expansion, a reclamation review was requested to update the current General Plan of Operations (GPO) Appendix 14 - Reclamation Plan (the Plan) and the costs associated with the potential tailings expansion area and to revise the Plan's cost estimates to Year 2003 values. The request was made in a joint letter dated Oct 16, 2003 from the State of Alaska Department of Natural Resources (ADNR), USFS and ADEC. KGCMC is responding to the 15 issues in the request letter to initiate further discussions in order to finalize reclamation cost estimate revisions.

The following narrative and attached spreadsheets address the requests to the extent that continued discussion can progress toward completion of updating the cost estimates. A complete Plan revision was not required at this time, due to the limited range of issues pertaining directly toward the tailings expansion project and associated water systems closure. Issues in the letter for the Plan include:

- Updating the closure costs for the tailings expansion, including the larger area disturbances and extended outfall pipeline use.
- Updating the wage rates in the Administration Element to Year 2003 values.
- Updating and clarifying the Davis Bacon wages used in the Plan.
- Clarifying total closure plan time range including the holding year, actual closure activity and the post closure years.
- Updating materials and equipment costs to Year 2003 values.
- Updating indirect costs using draft USFS reclamation costing guidelines.
- Updating the Plan for inflation.

KGCMC has organized responses in the order they appear in the request letter and have summarized the issues in a spreadsheet format (Figure 1) for ease of reconciling the 15 issues brought forth by the regulatory agencies.

Figure 1 – Summarized Regulatory Agency requests

Item	Request and associated location in ADNR letter, dated 10/16/03
1	Were Administration labor rates adjusted for contractor profit, AK Workmens Comp, FICA and SS. Page 1, 3rd pp, 1st sentence.
2	Adjust and add labor justifications to the 1 year of holding costs for same reasons as Item #1. Page 1, 3rd pp, 2nd sentence
3	Create line item detail for Admin Side of the 1 Year Holding Costs. Page 2, 1st pp, last sentence.
4	Discrepancies exist in the total amount of years covered in the closure plan. Page 2, 2nd pp, 2nd sentence.
5	Indirect Costs percentage is under average and under newly recommended percentages by USFS guidelines. Page 2, last pp, 2nd sentence.
6	Need to update all labor rates used to current Davis Bacon wage rates plus agreed to burdens/extra's. And add 10% Contractors Profit to wages. Page 3 , 2nd pp, 2nd sentence
7	Need to update all professional rates used in Nov 2001 Plan to Oct. 2003 revised costs and add 10% Contractors Profit to wages. Page 3, 3 pp, 2nd sentence.
8	Same issue for Administration Element Personnel labor rates - update to current wage rates. Page 3, 4th pp.
9	Overtime inclusion - add 10% to all wage rates or justify straight time only schedule. Page 4, 1st pp, last sentence.
10	Inflation- Cooperating agencies will require inflation in the Plan update. Page 4, 2nd pp.
11	Future Costs and inflation during closure timelines. Page 4, 3rd pp, last sentence.
12	Confirm Tailings Expansion Costs presented to the agencies in Feb 2002 for water treatment unit costs given reduced flows. Page 4, 5th pp, 1st sentence.
13	Clarify Sludge disposal costs. Page 4, 5th pp, last sentence.
14	The new Plan narrative must reflect NPDES sampling throughout the 30 years. Page 4, 6th pp, 1st sentence.
15	Maint and Inspection of the pipeline NPDES, for an extended period - 50 + years post closure to reflect water quality trends in discharge waters. Page 5, 1st pp.

KGCMC addresses each issue item (*italicized below*) to best reflect the current reclamation project understanding and adjusts the cost estimates in a summary manner to update the Plan. Wages, water systems and manpower loading are detailed in an attempt to further define the effects of the tailings expansion project.

1.2 KGCMC Issue Responses

Item #1 – Were Administration Element labor rates adjusted for Contractor profit, Alaska unemployment, Workman’s Compensation, FICA and Social Security?

KGCMC revised the Administration Element – Personnel Section to update the wage rates of the personnel in this section. Additional costs were added to raise the base wages of each category, to extend the Water Treatment personnel for 3 additional years and extend monitoring needs for 2 years to cover a full 30 years Post –Closure.

KGCMC also re-evaluated the manpower loading for this section and reduced management support by 1 year to reflect more appropriate project management needs after the capping installations are completed. The Plan still has a full year of project management after the caps are in place. Also, KGCMC added a contractor profit to the wages and eliminated an Alaska salary extra of 20% that was not required in the USFS guideline.

It was also found that the Holding Year costs utilized a water treatment unit cost that included operating labor, which essentially doubled the manpower that is needed in the Holding Year to maintain the site water systems. (Labor was also supplied in the Personnel Section for a crew of 2). This duplication of labor in the Holding Year cost represents the salary of 2 personnel and it was decided instead of eliminating these costs to keep an approximate equivalent lump sum amount in the Holding Year costs for the Hawk Inlet Water Treatment costs to keep the same relative agreed to amount in the Holding Year.

A spreadsheet for the Administration Element – Personnel Section was revised to reflect the updates and is attached to this document. The personnel revisions account for an approximate addition to the Plan of \$414,000.

In the Administration Element, camp costs and transportation were also re-evaluated and reduced to reflect the draft USFS guidelines for cost contingencies and expected personnel costs for camp and transportation needs. The main adjustment reduced the camp costs by approximately \$250,000, as the Year 11-32 time frame had previously included camp stay for 365 days per year, but the manpower levels for those years were not daily, but weekly during the late post closure years, when site monitoring is the only planned tasks along with sampling. An updated spreadsheet for this item is attached.

No changes were made to the Administration Element- Cap Maintenance section as all associated costs were accounted for in the current Plan version. KGCMC considered making changes to reflect the actual incurred maintenance costs of the soil cover on Site 23, but in the 3 years the cover has been in place, there has been no needed repairs for erosion or other damages. As expected, the cover is a robust installation. KGCMC made no adjustments to the maintenance estimates in the revised Plan, but notes that approximately \$160,000 was estimated in Years 1-2 after closure.

Overall, the cost additions totaled \$287,754 to the Administration Element. All cost details in spreadsheets are attached at the end of this narrative section. A spreadsheet showing summary level cost comparisons of the October 2003 revisions to the November 2001 Plan costs are also included.

Item #2 – Adjust Holding Year costs to reflect the labor adjustments in the Administration Element.

KGCMC revised costs (from Item #1) were used to update the Holding Year cost estimate. The resultant Holding Year costs were reduced by approximately \$18,000, because of the change in labor, water treatment unit costs, camp costs and site coverage. KGCMC maintained the overall Holding Year costs by adding a lump sum amount as noted in Item #1.

KGCMC revised the Administration Element to account for the labor updates and also changed the water treatment unit cost to reflect removal of a labor component to further clarify unit cost issues concerning reduced flows during the post closure years. The resultant water treatment unit cost used in the Administration Element-Power and Water Operational Costs section was lowered by about half (with removal of the labor component) and the manpower was re-allocated to the Personnel section of the Administration Element. This results in the unit cost for water treatment to be less dependent on the fixed costs of labor as flows are reduced (also see Item #12).

Item #3 – Create columns in the Administration and Maintenance/Monitoring Elements to detail the Holding Year costs.

All spreadsheets from the November 2001 Plan were revised to reflect the Holding Year and are attached to this document. All changes are highlighted in the spreadsheets.

Item #4 – Discrepancies in the amount of years in the overall Plan exist, need to clarify.

All spreadsheets in the Administration and Maintenance/Monitoring Elements were revised to have columns for Holding Year (1 year), Closure (2 years) and Post Closure years (30 years) for a total of 33 years after shutdown. Additional time periods were added for maintenance of the outfall pipeline for up to 50 years (see Item #15)

Item #5 – Indirect Cost percentage for the Plan is under the draft USFS guidelines for reclamation costing.

KGCMC included many indirect costs into the actual physical reclamation activities (direct costs) and in particular, the indirect cost of Engineering Re-design is pointed out as a deficiency. The agencies note KGCMC as having no re-design costs in the Plan, but this interpretation is incorrect.

KGCMC has in the Plan, a total of 2035 hours for geotechnical, surveying and consulting work embedded in the direct costs for QA/QC, engineering and consulting services. In the Water System Element – Pit 5 Industrial Wastewater section, 650 of those hours are dedicated to continued evaluation of the closure systems and was specifically put into the direct costs to give the regulatory agencies a sufficient amount to continue design needs of the project in case of a company default.

Also, in the Maintenance and Monitoring Element, each year of closure sampling has additional professional service costs added to the Plan totaling \$160,000 over the 32 year closure period. All these cost estimates are included into the reclamation tasks (direct costs) of the Plan.

KGCMC did not specifically label “Engineering Re-design” line items into the Plan, but as indicated above feels that the engineering costs to sufficiently cover the need is appropriately considered.

A list of guidelines addressing engineering re-design issues in the draft USFS reclamation guidelines points to level of engineering completeness associated with the need for this indirect cost addition. Compared to that list, KGCMC has satisfied roughly all of the engineering requirements through the annual reporting system that accounts for this issue.

In the draft USFS guidelines, Step 6 – Estimation of Indirect Costs, the criteria in the engineering re-design section has 7 items listed:

1. Preparation of maps and quantities.
2. Survey of topsoil and waste stockpiles.
3. Sampling and analysis of rock, tails, ground and surface waters.
4. Sampling and analysis of topsoil, waste piles to determine special treatment needs.
5. Evaluation of structures for removal/demo.
6. Evaluation of storm-water facilities and process solutions/impoundments for treatment.
7. Assessment of previously reclaimed areas to determine if standards have been met.

Through the current reclamation planning, annual reporting systems, GPO requirements, and continuously updated field reports and inspections, KGCMC feels that all the criteria above are regularly updated to the agencies with as-builds, geotechnical and geochemistry reports, annual reports, soil cover performance reports, other permit requirements (EPA/NPDES) and weekly site inspections by the regulatory agencies. The need for ground confirmation will be of limited nature for engineering re-design aspects for this project. Other requirements are already mandated in the ADEC WMP for continued geochemistry work and KGCMC also has an approved method from the United States Army Corp of Engineers (USCOE) for wetland mitigation.

Thus, given the embedded “indirect” costs in the direct costs, the high level of regulatory involvement and present site analysis, KGCMC recommends lowering the requirement to 0-1%. For this estimate revision, KGCMC has added 1% of direct costs to the Overall Element Summary as a line item for discussion with the agency.

KGCMC also reduced the Agency Administration percentage to 5% from 8% included as a line item in the overall Cost Estimate Summary sheet, as recommended.

KGCMC did not revise the amount of Freight (includes overall move/demove) because of no price increase indications and the lack of any physical task or equipment increase in the Plan.

KGCMC did not revise the fuel prices in the revised Plan, even though diesel unit costs have gone down approximately 5% historically for the property since 2001.

Item 6 – Need to update Davis Bacon wage rates to Year 2003 determinations and detail 10% contractor profit.

KGCMC evaluated all used Davis Bacon wage rates and added costs in a summary manner to the Plan. Wage rate determinations were used from a web search (<http://www.access.gpo.gov/davisbacon>) on October 13, 2003. The updated Davis Bacon wages and fringe determinations were compared to the current Plan wages and a labor adjustment was made to the Plan. Total Plan cost estimates increased by approximately \$200,000 for this item. Calculation details are provided on an attached spreadsheet. Also, a detail wage breakdown is included on the spreadsheet to provide clarification of additional overall wage cost estimates, including contractor profit, Alaska unemployment, Workman’s Compensation, FICA and Social Security. The Davis Bacon base wage rate plus fringes had a total of 30% added to the wage to account for the additional items in the revision. The previous wage calculation had a 27% addition to the base Davis Bacon wage and fringe determination.

As detailed on the spreadsheets, wage increases for this revision added a summary cost estimate (\$200,000) and accounted for increases to the Truck Driver and Power Equipment Operator. The Steel Worker category also increased in wages, but continued to be under the applied wage for that discipline in the Plan so no additional cost estimate was added to the Plan for this category. Demolition and decontamination crew wages were also evaluated.

Item #7 – Update professional services hourly rates in the Plan to Year 2003 values.

No cost adjustments were added to the Plan for this item, as historical costs do not indicate service rate increases. In fact, with the downturn in the mining industry, many professional service rates have decreased, as competition for services became extremely severe.

Item #8 – Update Administration Element – Personnel section salaries to reflect Year 2003 values.

KGCMC completed this cost adjustment as a part of Item #1 issues. All salary personnel had merit raises included in the 2003 revisions of the Plan.

Item #9 – Overtime inclusion – guidelines want to add 10% to labor costs.

KGCMC did not include overtime costs into the revised cost estimates for a variety of reasons. It was felt that with adjustments to increase boat and plane overall costs, maintaining a straight time work schedule would be possible to complete the reclamation tasks. Sufficient transportation costs are included in the Plan and as noted on the revised spreadsheet to accommodate a 40 hour work week. The unit costs for transportation and number of trips reflect a reduction in personnel as reclamation progresses and as the personnel are reduced, the size of the vessel can also be adapted to fit the smaller need. It is felt that the end result cost estimate for transportation can accommodate a straight time schedule, possible even 2 shifts a day at 8 hours/shift. This decision will be for the awarded contractor, but KGCMC feels adequate hours and transportation costs are in the Plan.

A 10% percent overtime inclusion as suggested in the draft USFS guidelines represents an approximate increase of \$400,000 to the labor component of the Plan and is not justified at this time. KGCMC would also see a need to reduce the overall time schedule for project completion if overtime was used.

Item #10 – Inflation requirements in the guidelines.

KGCMC wishes to discuss, with the agencies, the draft USFS guidelines for inflation calculation and can offer an alternative for consideration.

The calculations in the draft USFS guidelines use too many years to reasonably determine inflation effects for a plan with a 5 year mandatory update and yearly regulatory reviews. In the guidelines (page 46), up to 8 years is used in the inflation adjustment factor, which is 3 years longer than the Plan revision period. This inflation adjustment suggestion seems excessive and unwarranted. KGCMC opts to provide an alternative to address the real inflation annually.

KGCMC suggests the use of an interest re-investment format from an interest earning account to adjust the Plan cost estimates to cover the amount for real inflation annually. This method requires no adjustment to the Plan cost estimates at this time. This option would re-invest the interest annually from an account in the amount of a determined real inflation amount, with the remaining interest returning to the company. KGCMC prefers this option and is prepared to implement if approved.

KGCMC reviewed the Construction Cost Indexes recommended in the draft USFS guidelines and found that construction indexes vary widely. For instance, labor rate indicators show ranges from +2.6 to 4.6 % for construction and building costs indexes,

while the material cost index shows a negative price range effect for of –0.2 to –2.0% the past year. The overall effect is about a wash for inflation effects, yet the costs of the Plan have only increased. Materials, equipment and freight cost estimates were not adjusted in the Plan revision.

Also, KGCMC does not see any room for efficiency gains to be added into the inflationary cost side. For instance, KGCMC has made huge strides since 1996 in the operation of the mine to effectively cut operating unit costs every year. Productivity gains abound in our industry and as better technology becomes available, KGCMC expects to lower the overall reclamation costs.

For example, within the tailings expansion project, two areas for reclamation material borrow and storage become available to the company. Increased storage/borrow area will lessen the dependency on the current Site 23 backslope material source and will reduce the predicted truck hauls for reclamation materials needed at the tails area. Considering that the Plan has over 18,000 hours of truck haulage, this improvement could significantly affect the cost estimate in this area of the Plan. Also, the additional material sources add the distinct possibility of onsite reclamation material processing (screening) to reduce the unit costs for the imported capillary drain materials for the engineered soil cover installations. A reduction of 2- 3 \$/CY of this material would be expected and could represent cost saving in the range of \$500,000. At this time, KGCMC is not revising the Plan for any of these efficiency gains, as it would require a complete Attachment “A” revision, which is not a required scope of work for this revision (the revision is meant to address the tailings expansion project). But it does point out the fact that the 5 year required updates and an enforceable regulatory procedure of investigating major changes to the operating plan through the annual report lessens the need for inflation proofing the Plan, to a large extent.

Another pertinent issue is that KGCMC plans construction activities over a period of 4 years to complete the first phase of tailings area expansion to satisfy the current mine plan requirements, so site disturbances will not all occur next year but over a few years. Despite this construction schedule, KGCMC has included the entire 13 acre pile expansion acreage into the revised cost estimates, so over the next few years, there is an overage within the cost estimate for capping the tails pile.

Item #11 – Inflationary discussion for different closure periods.

A discussion on this subject is appropriate and should be initiated with the regulatory agencies as discussed in Item #10.

Item #12 – Confirm tailings expansion and water treatment unit costs used.

As mentioned in Item #1, the Administration Element had water treatment costs in the Plan and they were all inclusive water treatment costs. The regulatory request letter wanted to confirm the unit costs in reduced flow conditions during the post closure years. The best way for KGCMC to detail this issue was to remove the labor costs, which dominated the

water treatment unit costs, from the water costs in the Power and Water Operational section. When this was done, the water treatment unit costs were cut in half for the project. Then, when the labor costs were being re-allocated to the Personnel section of the Administration Element, it was found that manpower levels were already accounted for in the water treatment operations and, in essence, the labor component was duplicated in the Plan for the water treatment operations. Realizing this, adjustments were made to the costs for water treatment and personnel to reflect the correct manpower loading. This correction significantly affected the Holding Year costs, but KGCMC did not reduce the Holding Year costs accordingly. Reflecting an agreement with the regulatory agencies to a cost estimate for the Holding Year in 2001, KGCMC kept a lump sum amount (\$150,000) in the Hawk Inlet water treatment costs to maintain the amount for that year at approximately \$750,000.

Overall water treatment costs and personnel were also adjusted to reflect a 3 year addition to the length of active water treatment and are detailed in the Administration Element – Power and Water Operations spreadsheet. This added cost was in response to concerns over the length of post closure water treatment. However, it must be noted that the tailings expansion EIS indicates continued use of the marine outfall line with no significant environmental impacts. The continued usage of the outfall line will minimize water treatment costs during the post closure period and therefore, the additional 3 years of water treatment may not ever be used. KGCMC has left the additional costs in the Plan and considers the additional value supportive of a conservative cost estimate.

Item #13 – Clarify sludge disposal costs for water treatment post closure.

KGCMC unit costs in the Plan include the costs of sludge disposal. The sludge disposal during the main reclamation closure activities will continue to have the tailings area for burial. As the cap is placed in the first year and water flow reductions are seen (as the cover isolates large quantities of runoff from the treated water stream), sludge generation from water treatment is significantly reduced. As water quality improves, because the installation of the soil cover restricts further pile oxidation, the need for water treatment will diminish and continued use of the outfall line will occur without requiring water treatment as predicted in the water quality modeling studies in the EIS. The need for sludge disposal will also be eliminated at that point because there will be no more active water treatment. If a continuous disposal area were found to be required for water treatment, a small landfill the size of a standard backyard would be sufficient for a very long period at the low rates of sludge generation.

Separately, KGCMC included sufficient cost estimates in the Site General Element – Miscellaneous – Industrial Waste Disposal task sheets to accommodate all anticipated waste disposal needs for the project. This cost estimates represent a lump sum value of over \$110,000 for this issue and accounts for all waste stream disposal needs as required. Also, included in this section are cost estimates for metal and scrap shipping, container demurrage, shipping, specialty cleanup equipment, light vehicles, move/demove (over and above the Freight percentage) of waste stream control items, in the range of \$265,000. KGCMC feels that any waste disposal stream has adequate cost estimation in the Plan.

These cost estimates could also be considered as “indirect” costs, but are in the Plan as direct costs.

Item #14 – The revised Plan must reflect NPDES outfall sampling for the extended use of the pipeline for 30 years.

KGCMC added costs to reflect the extended period of the outfall line use and additional NPDES sampling. The costs were added to the Administration Element-Power and Water Operations section as lump sums in the Years 2-10, in addition to the unit costs for the expected flow rates in the Plan. Also, the cost estimates for maintaining the pipelines for Years 11- 32, and Years 33-50 (See Item #15 below) were added. The cost estimate revisions are noted on the Administration and Maintenance/Monitoring spreadsheets for these items.

Item #15 – Maintenance and inspection of the pipeline for the extended period of 50 years.

As indicated in Item #14 above and on the attached spreadsheets, maintenance inspection and sampling of the outfall pipeline is scheduled on a regular basis (every 3 years) for the Years 11-50. Up through the sixth year, inspection/ maintenance of the lines are included in the Maintenance and Monitoring Element with Years 6-10 included into the Administration- Water treatment costs. The cost estimate was formatted in this manner to match the time frames of water treatment systems. All costs are included to maintain the outfall pipeline through 50 years post closure.

1.3 Summary

In response to the requests from the agencies, KGCMC submits a revised summary cost estimate with spreadsheet details for the purposes of satisfying regulatory requirements for the EIS and WMP reviews. An item of discussion remains with the inflationary adjustment methodology and KGCMC expects further interaction with the agencies to conclude this issue. Responses to all other issues were provided in an ordered sequence matching the letter from the agencies on October 16, 2003 and are also open to discussion. KGCMC submits this cost estimate revision as Attachment A.1 to the Plan.

KGCMC appreciates the opportunity presented to address the concerns prompted by the tailings expansion project. If you have any questions concerning the KGCMC responses, please contact us.

1.4 Attached Spreadsheets

- Overall Summary Cost Estimate Revision
- Tailings Element – Expansion Cost Estimate Revision
- Davis Bacon Wages - Cost Estimate Revision
- Engineering hours - Indirect Cost Estimate Revision
- Administration Element Summary Cost Estimate Revision

Summary – Estimated Cost Totals Revision

Task Cost Estimate Revision

Power and Water Cost Estimate Revision

Transportation and Camp Cost Estimate Revision

Personnel Cost Estimate Revision

- Maintenance and Monitoring Element Summary Cost Estimate Revision

Summary Table Cost Estimate Revision

Holding Year, Years 1-2, Years 1-5 after Closure Cost Estimate Revision

Years 7-9 Cost Estimate Revision

Year 12 and 15 Cost Estimate Revision

Year 19, 23, 27, 30 and 32 Cost Estimate Revision

Monitoring Schedule - Estimate Revision

KENNECOTT GREENS CREEK MINING COMPANY
Reclamation Cost Estimate
October 2003 Revision

Summary by Element

	November 2001	Revised October 2003	
	Est. Cost \$	Est. Cost \$	Labor Revision for Davis Bacon updates for 5 Task Elements
Roads	\$629,888	No changes- see labor revision	
Production Rock Sites	\$3,985,618	No changes- see labor revision	
Tailings	\$3,044,477	\$4,463,751	
Site General	\$3,177,196	No changes- see labor revision	
Water Systems	\$381,326	No changes- see labor revision	\$200,000
Maintenance / Monitoring	\$1,564,834	\$1,607,893	
Administration	\$7,031,881	\$7,319,636	
Subtotal Direct Costs	\$19,815,220	\$21,765,308	
Regulatory Agency Oversight @8% in 2001	\$1,585,300	\$1,088,265	At 5% in 2003
Freight @ 5% of Direct Costs	\$990,761	No changes	
Contingency at 10% of Direct Costs	\$1,981,522	\$2,176,531	
Engineering Re-design 1%	0	\$217,653	
Estimated Reclamation Cost	\$24,372,803	\$26,238,518	

Option 1: Oct 2003 Revision -Totals

\$26,238,518

KGCMC Inflation Alternative - Interest bearing account for inflation

Interest accrues yearly for entire future of account, no cost adjustment added in Oct 03 revision

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Element Summary

Element Tailings Area

Area	Task	Quantity	Unit	Unit Price	October 2003 Revision	November 2001 Reclamation Plan	Oct 03 to Nov 01 Variance \$
					Estimated Cost \$	Cost Estimate \$	
Remove Structures (covered in Site General)				\$ -	\$ -	-	-
Remove Piping (covered in Water Systems)				\$ -	\$ -	-	-
Contouring (completed during placement)				\$ -	\$ -	-	-
1st Capillary Break	43	Acres		\$ 20,444	\$ 879,078	\$ 613,310	\$ 265,768
Barrier Layer	43	Acres		\$ 36,138	\$ 1,553,926	\$ 1,084,135	\$ 469,792
2nd Capillary Break	43	Acres		\$ 20,444	\$ 879,078	\$ 613,310	\$ 265,768
Growth Layer	43	Acres		\$ 16,770	\$ 721,105	\$ 503,096	\$ 218,008
Seed and Plant	43	Acres		\$ 952	\$ 40,945	\$ 28,566	\$ 12,379
Engineering, Instrumentation and Monitoring	43	Acres		\$ 6,735	\$ 289,619	\$ 202,060	\$ 87,559

Note;

The Nov 2001 plan Tailings Placement footprint encompasses approx. 30 acres of area for consideration in the reclamation cost estimation. The current footprint is planned to remain unchanged through the year '04 In the Year 2004, Phase I Construction will take place over a 4 year period expanding the pile to approx. 43 acres of reclaimable area for soil covering. In addition. A lump sum of \$100,000 is added to the Oct 2003 revised cost estimate for expansion of the subdrain systems to the outfall line during post closure

For the October 2003 revised cost estimate, the established unit costs are utilized from the Nov 2001 Reclamation Plan for calculating a straight per acre expansion of needed soil cover application. In the October revision, revised labor wages are accounted for in the Oct 2003 Addendum for the overall labor hours and workforce using updated Davis Bacon Wages. Only the Tailings Summary Sheets are included in the revision for the tailings area and a complete task update will be done as required by the State of Alaska WMP.

October 2003 Subtotal for increased acreage of pile \$=	\$ 4,363,751	\$ 3,044,477	\$ 1,319,273
Additioanl lump sum for Pond 7 subdrain tie-ins to the outfall post closure \$=	\$ 100,000	0	\$ 100,000
Total	\$ 4,463,751	\$ 3,044,477	\$ 1,419,273

Estimated Rate of Production
Estimated Unit Cost

Acres	43	30	13
\$/Acre	101,483	101,483	0

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Davis Bacon Wage Determination Revisions

Element Hours Summary for Major Reclamation Project Work

This cost revision is at the request of ADNR for the new Waste Disposal Permit Financial Assurance update - Oct 16, 2003

Overall labor costs for the KGCMC reclamation Plan are dominated by only a few labor categories.

In this cost estimate revision, wage rates are updated from the Davis Bacon wage rates used in the Nov 2001 Reclamation cost estimates and are calculated from the US Gov't - Davis Bacon website. The values used were printed out on Oct 13,2003.

To avoid a complete task sheet revision, KGCMC has completed an analysis of the updated Davis Bacon wages compared to the wages used in the November 2001 Reclamation Plan estimates. Also, in the 2001 Plan contractor profit for labor wages was included into the wages used in the Plan. In this revision, KGCMC will itemize the base wages, fringes, burdens, contractor profit and extra's to detail the wage determination as requested by ADNR.

In the 2001 Plan, a general 27% extra charge was applied to the base wages and fringes as a compromise to address extra wage additions such as Alaska unemployment, Workmans Comp, FICA's, Social Security, contractor profit. In this revision, KGCMC has increased the the additional amount of the wages to 30% and itemized the additions in an attempt to clarify the wage details.

Reclamation Elements	Total Manhours	Manhours>>>				
		*Labor	Steel	Demo crew (3)	Decon crew (3)	Eng/Consulting
Roads	7267	7267				
Prod Rock Sites	26797	25973				824
Tailings	18000	17340				660
Site General	22644	5634	11839	3195	1976	
Water Systems	3676	3026				650
Totals- hrs	78384	59240	11839	3195	1976	2134

*Labor includes Truck drivers at 24,007 hrs, Power Ops at 27,465 hrs

From Davis Bacon Wage Rates -printed 10/2003

Wage Category	Applied Wage in 2001 Plan \$/hr	In October 2003 >>>		Subtotal Wage \$/hr	All other Fringes + Cont. Profit	Revised DB Total Wage Rate \$/hr	Variance of 2001 Plan Wages to '03 Wages-\$/hr	Resultant cost of wage increase by category and hours (hrs x wage variance) \$
		DB Wage	Fringes					
Equipment Op	49.00	31.71	10.01	41.72	30.0%	54.24	5.24	\$143,807
Truck driver	49.00	29.67	9.57	39.24	30.0%	51.01	2.01	\$48,302
Steel Workers	57.00	27.5	13.6	41.10	30.0%	53.43	-3.57	-\$42,265
Demo Crew- 2-3 per crew	45.00	24.49	11.50	35.99	1.3	46.79	1.79	\$5,709
Decon Crew - 2-3 per crew	36.67	24.3	8.11	32.41	1.3	42.13	5.47	\$10,804

Total Labor adjustment for all labor hours for Davis Bacon updates=

\$166,357

Rounded to in Plan \$=

\$200,000

Wage Rate Calculations Detail

		ie Steel worker \$/hr	Accumulative
DB Base Rate	Set in DB Tables	27.50	27.5
DB Fringes	Set in DB Tables	13.60	41.10
AK Unemployment	2.8%	1.16	42.26
Workman Compensatio	2.5%	1.03	43.29
FICA	7.0%	2.88	46.17
FICA tax	7.6%	3.12	49.29
Contractor Profit	10.0%	4.11	53.43

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Engineering Hours and Costs

This cost revision is at the request of ADNR for the new Waste Disposal Permit Financial Assurance update - Oct 16, 2003

Engineering re-design is a line item request on the indirect costs associated with the Draft USFS reclamation cost estimating guidelines KGCMC included engineering cost estimates for QA/QC within the direct costs for the Area Elements in Sections 8.2 and 8.3. These professional level costs can be used in any capacity by the USFS under a default scenario and therefore could be utilized for engineering re-design assignments as necessary. These costs were provided to supplement all engineering needs for the project

In addition, in Section 8.5, Water Systems, Pit 5 Industrial Waste Water task sheet, an engineering sum for an accumulated 650 hours was included for use in any re-design scenario or continued research and development a best technology engineering. KGCMC has accounted for over 2035 hours of Consulting, Geotechnical, Surveying services in the direct costs of the project estimates as shown below. Plus over \$80,000 of compaction testwork representing about 100 days of testing capacity for the project.

Given these cost estimates included in the Plan, and the level of completed engineering and ongoing engineering work. KGCMC submits an addition of 1% of direct costs to the October 2003 Revision on the cost estimate summary. This issue is also discussed in the Narrative.

Engineering Hours by Area

										Rate	Total Cost
Discipline	1350	960	C	23	D	E	Tails	Pit 5 Indus WW	Hour Totals	\$/hour	Estimates \$
Consultant			2	40	20	20	120	500	702	85	\$59,670
Survey	6	2	22	200	80	120	300		730	60	\$43,800
Geotechnical	14	8	2	150	85	14	180	150	603	72	\$43,416
subtotals hrs	20	10	26	390	185	154	600	650	2035		\$146,886
Compaction- day rate			2	18	8	11	60		99	\$815	\$80,685
										Total Cost Estimate=	\$227,571

Costs from Hours

	Consultant	Survey	Geotech	Compaction	Total \$
Prod. Rock Sites	\$6,970	\$25,800	\$19,656	\$31,785	\$84,211
Tails	\$10,200	\$18,000	\$12,960	\$48,900	\$90,060
Pit 5 WW	\$42,500		\$10,800		\$53,300
Total Costs Est \$	\$59,670	\$43,800	\$43,416	\$80,685	\$227,571

In addition to the above direct Engineering Costs, in Section 8.6 Maintenance and Monitoring has Professional Service cost estimates for the extended monitoring period which adds to the kettle of services at the regulators disposal. These costs are shown below:

	Holding Year	Closure Closure Year 1-2	Post Closure Work Years>>>>				Over 32 Yrs Estimated
			Year 1 -5	Year 7 & 9	Year 12 & 15	Yr 19,23,27,30,32	Cost
Professional Serv.	\$10,000	\$20,000	\$50,000	\$20,000	\$20,000	\$40,000	\$160,000

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

Oct 2003 Revision

Element Summary

Element Administration

<u>Area</u>	<u>Task</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit</u> <u>Price</u>	<u>Estimated</u> <u>Cost</u>
Administration	All	33	Year	\$ 221,807	\$ 7,319,636

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Task Summary Estimate Costs

Administration

All

Description: Summary of Administration Cost Estimates
for 33 year period

Category	Unit Price	Unit	Oct 2003 Plan	Nov 01 Plan	Variance of 2003 Costs to 2001 Costs \$
			Estimated Cost \$	Estimated Cost \$	
Labor					
Personnel			\$ 3,106,150	\$2,691,746	\$ 414,404
Labor Subtotal			\$ 3,106,150	\$2,691,746	\$ 414,404
Maintenance of Engineered Covers					
Tailings			\$ 180,000	\$180,000	\$ -
Site 23			\$ 108,000	\$108,000	\$ -
Site D			\$ 48,000	\$48,000	\$ -
Site E			\$ 66,000	\$66,000	\$ -
Site C			\$ 12,000	\$12,000	\$ -
Maintenance of Engineered Covers Subtotal			\$ 414,000	\$414,000	\$ -
Power and Water Operational Costs					
920 Mine Site Power			\$ 108,131	\$67,069	\$ 41,062
920 Mine Site Water			\$ 157,680	\$210,240	\$ (52,560)
Hawk Inlet/Tails Power			\$ 69,806	\$44,621	\$ 25,185
Hawk Inlet/Tails Water			\$ 767,340	\$420,480	\$ 346,860
Power and Water Operational Costs Subtotal			\$ 1,102,958	\$742,410	\$ 360,548
Transportation & Camp Support					
Airplane			\$ 408,500	\$190,000	\$ 218,500
Boat Transportation			\$ 308,000	\$176,000	\$ 132,000
Camp Support			\$ 1,502,566	\$1,749,263	\$ (246,697)
Transportation & Camp Support Subtotal			\$ 2,219,066	\$2,115,263	\$ 103,803
Fuel (Heavy Equipment Diesel)					
Subtotal - Heavy Equip Fuel Usage Est \$			\$ 477,462.76	\$ 477,462.76	\$ -
					\$ -
Subtotal			\$ 7,319,636	\$ 6,440,882	\$ 878,754
Holding Year			included	\$591,000	
Total			\$ 7,319,636	\$ 7,031,882	\$ 287,754
Variance of 2003 to 2001			\$ 287,754		
Estimated Unit Cost					
	Years			33	
	\$/Yr		\$	221,807	

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Task Cost Estimates accumulated by Year

Description:

Accumulated Yearly Costs for Administrative Element

includes:

- Planned Personnel for KGCMC Personnel to manage the reclamation projects
outside of major reclamation work forces for Services and Sampling
- Maintenance of Engineered Covers - small repairs to caps if needed
- Water Treatment and Power Usage Estimates
- Transportation and Camp Cost Estimates

Category	Holding Year	Costs \$						Total 33 yr Estimated Cost
		Year 1	Year 2	Years 3 - 5	Years 6 -10	Years 11-32	Years 33-50	
# of Work Years in Period>>>	1	1	1	3	5	22	17	33
Labor								
Personnel Costs per Work Year	\$154,055	\$518,539	\$483,539	\$483,539	\$128,638	\$25,728	\$0	
SubTotal Costs for Work Periods \$	\$154,055	\$518,539	\$483,539	\$740,815.52	\$643,192	\$566,009		\$3,106,150
Maintenance of Engineered Cover/Period								
Tailings	\$0	\$36,000	\$36,000	\$108,000	\$0	\$0	\$0	\$ 180,000
Site 23	\$0	\$21,600	\$21,600	\$64,800	\$0	\$0	\$0	\$ 108,000
Site D	\$0	\$9,600	\$9,600	\$28,800	\$0	\$0	\$0	\$ 48,000
Site E	\$0	\$13,200	\$13,200	\$39,600	\$0	\$0	\$0	\$ 66,000
Site C	\$0	\$2,400	\$2,400	\$7,200	\$0	\$0	\$0	\$ 12,000
SubTotal Costs for Work Periods \$	\$0	\$82,800	\$82,800	\$248,400	\$0	\$0		\$414,000
Power and Water Operational Costs (includes Fuel costs)								
920 Mine Site Power	\$41,063	\$41,063	\$13,688	\$4,106	\$0	\$0	\$0	\$ 108,131
920 Mine Site Water	\$52,560	\$52,560	\$52,560	\$0	\$0	\$0	\$0	\$ 157,680
Hawk Inlet/Tails Power	\$17,794	\$17,794	\$8,213	\$4,106	\$2,738	\$0	\$0	\$ 69,806
Hawk Inlet/Tails Water	\$255,120	\$105,120	\$26,280	\$26,280	\$20,396	\$110,000	\$90,000	\$ 767,340
SubTotal Costs for Work Periods \$	\$366,536	\$216,536	\$100,740	\$103,478	\$115,668	\$110,000	\$90,000	\$1,102,958
Transportation & Camp Support								
Airplane	\$25,000	\$13,000	\$13,000	\$13,000	\$6,500	\$13,000	\$0	\$ 408,500
Boat Transportation	\$12,000	\$52,000	\$52,000	\$24,000	\$24,000	\$0	\$0	\$ 308,000
Camp Support	\$15,549	\$621,960	\$505,343	\$77,745	\$15,549	\$2,215	\$0	\$ 1,502,566
SubTotal Costs for Work Periods \$	\$52,549	\$686,960	\$570,343	\$344,235	\$230,245	\$334,734		\$2,219,066
Fuel (Heavy Equipment Diesel) from Appendix A.C								
SubTotal Costs for Work Periods \$	Onsite	\$190,985	\$143,239	\$71,619	\$47,746	\$23,873	\$0	\$477,463
Percentage distribution of Fuel estimate	0%	40%	30%	15%	10%	5%	0%	100%

Subtotal

\$7,319,636

G&A Expense

Total

\$ 7,319,636

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 revision

Post Closure Power and Water Treatment Cost Estimates

Area	Power (kW)	Water (gpm)	Holding Year	Closure Years>>		Post Closure Years>>>				Yearly Ave	Total for all Periods
				Year 1	Year 2	Year 3 - 5	Year 6 -10	Year 11-32	Year 33-50		
# of Yrs in Period>>>			1	1	1	3	5	22	18		
920 Mine Site											
Power											
Holding Yr	750		\$41,063							\$41,063	\$41,063
Year 1	750			\$41,063						\$41,063	\$41,063
Year 2	250				\$13,688					\$13,688	\$13,688
Year 3-5	75					\$4,106				\$4,106	\$12,319
Year 6-10	0						\$0			\$0	\$0
Year 11-32	0							\$0		\$0	\$0
Sub-total for Period			\$41,063	\$41,063	\$13,688	\$12,319	\$0	\$0			\$108,131
Water											
Holding Yr		100	\$52,560							\$52,560	\$52,560
Year 1		100		\$52,560						\$52,560	\$52,560
Year 2		100			\$52,560					\$52,560	\$52,560
Year 3-5		0				\$0				\$0	\$0
Year 6-10		0					\$0			\$0	\$0
Year 11-32		0						\$0		\$0	\$0
Sub-total for Period			\$52,560	\$52,560	\$52,560	\$0	\$0	\$0			\$157,680
Hawk Inlet / Tailings Impoundment											
Power											
Holding Yr	325		\$17,794							\$17,794	\$17,794
Year 1	325			\$17,794						\$17,794	\$17,794
Year 2	150				\$8,213					\$8,213	\$8,213
Year 3-5	75					\$4,106				\$4,106	\$12,319
Year 6-10	50						\$2,738			\$2,738	\$13,688
Year 11-32	0							\$0		\$0	\$0
Sub-total for Period			\$17,794	\$17,794	\$8,213	\$12,319	\$13,688	\$0			\$69,806
Water											
Holding Yr		200	\$255,120							\$255,120	\$255,120
Year 1		200		\$105,120						\$105,120	\$105,120
Year 2		50			\$26,280					\$26,280	\$26,280
Year 3-5		50				\$26,280				\$26,280	\$78,840
Year 6-10		35					\$20,396			\$20,396	\$101,980
Year 11-32		0						\$110,000		\$110,000	\$110,000
Year 32-50		Outfall line Maintenance							\$90,000	\$90,000	\$90,000
Sub-total for Period			\$255,120	\$105,120	\$26,280	\$78,840	\$101,980	\$110,000	\$90,000		\$767,340
Total Costs for all Work Years \$			\$366,536	\$216,536	\$100,740	\$103,478	\$115,668	\$110,000	\$90,000		\$1,102,958

Unit Cost for Power and Water treatment

- Power costs are based on "all-in" of \$0.15/kWh based on high speed remote 3406 gen-set operation estimates from Caterpillar and assumed site loads, including fuel usage and manpower
- Water costs in the Nov 2001 Plan were based on KGCMC "all-in" historic actuals of \$0.002/gpm and included manpower, reagents, lab supplies, sludge disposal and maintenance for estimated flowrates for both storm and wastewater treatment. For this Oct 2003 update, the USFS and the State of Alaska have requested clarification of the unit rates used for varying flows based on the treatment plant estimates. To help clarify the unit costs for water treatment, all operating labor costs are re-allocated to the Administration Element. By taking operating labor out of the water treatment unit costs, KGCMC removes the highest fixed cost component of the unit cost so the remaining unit cost value can be reflective of a flow rate cost estimate. Operating labor costs were added to the Administration Element Personnel costs for an additional 3 years of treatment and a new unit cost containing all aspects of water treatment except labor is used on this worksheet. Approximately half of the Nov 2001 Plan water treatment unit costs were for labor, so the new unit cost used in this worksheet is 0.001 \$/gallon of treated water.
- In the Years 3-10, water treatment unit costs minus labor are used. It is expected that unit costs will continue to decline with the continued use of the outfall line and pile drain downs. The water quality will be sufficient for direct discharge out the outfall line to the marine environment without continued treatment. KGCMC will still leave dollars available in years 3-10 for water treatment needs as necessary, which keeps the treatment cost estimates conservative through year 10. It is expected that water quality will be sufficient through the post closure years for discharge to the marine environment as indicated in the EIS water modeling documents. In Years 6-10, amounts for maint, NPDES and Marine sampling are added at \$2000/yr.
- Maintenance inspection and upkeep along with continued NPDES 002 and Marine sampling needs are cost estimated through a 3 year schedule, for Years 11 up to Year 50 as per the USFS requests (includes permitting costs)
- A lump sum of \$150,000 was added to the Holding Year HI/Tailings Water for any extra setup needed, cleanup, ditch repairs, lab supplies, safety supplies, extra labor and professional services. Also to keep the Holding Cost Year similar to the amount agreed to in 2001.

Unit Cost Value | Time frame

0.15	
0.001	Years 1-2
\$/gallon	
0.001	Years 3-10
\$/gallon	
\$15,000	every 3 years

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Closure Transportation and Camp Support Cost Estimates

Area	# of Years in Period>>>	Holding Year 1	Closure Years>>>>		Post Closure Years>>>>			Yearly Ave	Period Totals \$	Comments
			Year 1	Year 2	Year 3 - 5	Year 6 -10	Year 11-32			
			1	1	3	5	22			
Boat transportation	Number of trips/year	Cost/trip \$/trip	Cost \$ per Year							
Boat										
Holding year	12	1000	\$12,000					\$12,000	\$12,000	Minimal Boat trips - mostly fly in small crew
Year 1	52	1000		\$52,000				\$52,000	\$52,000	One Boat trip per week for crew/equip
Year 2	52	1000			\$52,000			\$52,000	\$52,000	One Boat trip per week for crew/equip
Year 3-5	24	1000				\$24,000		\$24,000	\$24,000	Reduced Trips - 2 per month
Year 6-10	24	1000					\$24,000	\$24,000	\$24,000	
Year 11-32	0						\$0	\$0	\$0	
Sub-total for Period			\$12,000	\$52,000	\$52,000	\$72,000	\$120,000	\$0	\$308,000	
Plane transportation										
Holding year	100	250	\$25,000					\$25,000	\$25,000	One plane trip per week
Year 1	52	250		\$13,000				\$13,000	\$13,000	One plane trip per week
Year 2	52	250			\$13,000			\$13,000	\$13,000	One plane trip per week
Year 3-5	52	250				\$13,000		\$13,000	\$39,000	One plane trip per week
Year 6-10	52	125					\$6,500	\$6,500	\$32,500	One plane trip per week for crews
Year 11-32	104	125					\$13,000	\$13,000	\$260,000	One plane trip per month for monitoring crew
Sub-total for Period			\$25,000	\$13,000	\$13,000	\$39,000	\$32,500	\$286,000	\$408,500	
Camp Support	# of Personnel per day	Cost per day per person								
Holding year	2	21.3	\$15,549					\$15,549	\$15,549	Two in camp at any one time
Year 1	80	21.3		\$621,960				\$621,960	\$621,960	Based on 2001 camp costs/day/person
Year 2	65	21.3			\$505,343			\$505,343	\$505,343	Contractor crews significantly reduced
Year 3-5	10	21.3				\$77,745		\$77,745	\$233,235	Monitoring Team only
Year 6-10	2	21.3					\$15,549	\$15,549	\$77,745	Monitoring Team only
Year 11-32	2	21.3					\$2,215	\$2,215	\$44,304	Monitoring Team only
Sub-total for Period			\$15,549	\$621,960	\$505,343	\$233,235	\$77,745	\$48,734	\$1,487,017	
Totals			\$52,549	\$686,960	\$570,343	\$344,235	\$230,245	\$334,734	\$2,219,066	

Requested Items for Oct 2003 revision

- 1) Added Holding Costs Column and rows in worksheet.
- 2) Added sufficient transportation to maintain a straight time rotation during the Holding Year. 12 large boat trips at \$1000, which could be utilized as 48 plane trips or some other multiple of smaller boat transport.
- 3) Added 2 more years for maintaining the cost estimates for monitoring crews in Years 11- 32 as per a USFS request
- 4) Clarified time frame estimates into Holding year, Closure Years and Post Closure Years columns as requested by the USFS.
- 5) Schedules will be cost estimated using straight time schedules. Schedules can utilize 7 day weeks starting mid week to maintain 40 hour payweeks, or utilize increased island trips. If overtime schedules are utilized, KGCMC will have to adjust the reclamation project enddates to reflect accelerated manhour usage.
- 6) Reduced camp estimates for Years 11-32 to reflect the number of expected days for the inspection crews for once a week inspection. Camp facilities will be non existent or very minimal for the weekly inspections.
- 7) Plane costs reduced for smaller crews in Years 6 - 32 in conjunction with boat trips cost totals provide sufficient transportation coverage.

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

KGCMC Post Closure Personnel Estimates

Personnel represent disciplines needed outside of the major reclamation workforce to maintain project support, water, power, sampling and monitoring systems

Type	# Employees	Base Rate	Unit	Days/ Week	Straight Hrs/Day	Burden Rate	Contractor Profit	\$Per Employee	Total Yearly Costs	Total Costs \$ for Period	Comments
------	-------------	-----------	------	------------	------------------	-------------	-------------------	----------------	--------------------	---------------------------	----------

Holding Year

Holding crew	2	\$25.50	hr	5	8	1.32	0.10	\$77,028	\$154,055	\$154,055	Sampling and Environ, Water Ops, Maint
										\$154,055	=Subtotal

YEAR 1 6.5

Hourly - Tech 5	2	\$25.50	hr	5	8	1.32	0.10	\$77,028	\$154,055	\$154,055	Maint, Warehse, Water, Proj Support, Power
Enviro Techs	2	\$21.30	hr	5	8	1.32	0.10	\$64,319	\$128,638	\$128,638	Sampling and Enviro Techs, Water
Admin Support	0.5	\$49,296	yr			1.32	0.10	\$70,000	\$35,000	\$35,000	Payroll, Secretary, clerk
Supervisor	1	\$59,072	yr			1.32	0.10	\$83,882	\$83,882	\$83,882	1 site wide Supervisor
Proj Manager	1	\$82,368	yr			1.32	0.10	\$116,963	\$116,963	\$116,963	Proj Manager/Engr as needed
										\$518,539	\$518,539 =Subtotal

YEAR 2 - 3 6

Hourly - Tech 5	2	\$25.50	hr	5	8	1.32	0.10	\$77,028	\$154,055	\$308,111	Elect/Mech, Water, Project Support
Enviro Techs	2	\$21.30	hr	5	8	1.32	0.10	\$64,319	\$128,638	\$257,277	Sampling and Enviro Techs, Water
Supervisor	1	\$59,072	yr			1.32	0.10	\$83,882	\$83,882	\$167,764	1 site wide Supervisor
Project Mgr	1	\$82,368	yr			1.32	0.10	\$116,963	\$116,963	\$233,925	Proj Manager/Engr as needed
										\$483,539	\$967,077 =Subtotal

YEAR 4 - 10

Enviro Techs	2	\$21.30	hr	5	8	1.32	0.10	\$64,319	\$128,638	\$900,469	Sampling and Enviro Techs, Water, Power
										\$128,638	\$900,469 =Subtotal

YEARS 11 - 32 2

Enviro Techs	2	\$21.30	hr	1	8	1.32	0.10	\$12,864	\$25,728	\$566,009	Monitoring Staff - one day per week
										\$25,728	\$566,009 =Subtotal

Total Costs \$ for Years 1 - 33 Years

\$3,106,150 =Total Costs - Personnel Oct 2003

Requested Items for Oct 2003 revision

Costs for Administration Personnel:

- 1) Raised all Staff wages and Salaries to reflect merit increase for position staff approx 4% for staff.
- 2) For the extended Water Treatment period of 3 years, added estimated costs for Enviro - Water Operations for years 4 - 10.
- 3) Reduced Management support after Year 3 (one year after cap installations)
- 4) Added Holding Year row.
- 5) Added Contractor Profit of 10%, removed Alaska Salary
- 6) Added 2 additional years of monitoring for 32 total years of coverage including 2 of active reclamation projects

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Element Summary

Element Maintenance and Monitoring

Area	Holding Year	During Closure Year 1-2	Post Closure Work Years>>>>				Over 32 Yrs Estimated Cost
			Year 1 -5	Year 7 & 9	Year 12 & 15	Yr 19,23,27,30,32	
Fresh Water	\$101,024	\$101,024	\$101,024	\$41,324	\$34,324	\$28,024	\$ 1,099,608
Storm Water/Erosion Controls	\$840	\$840	\$840	\$35	\$35	\$35	\$ 7,035
NPDES	\$9,100	\$9,100	\$9,100	Costs for these years in Administration Element			\$ 72,800
Marine Sampling	\$12,745	\$12,745	\$12,745	\$12,745	Costs for these yrs in Administration Element		\$ 127,450
Vegetation/Wetlands	\$600	\$600	\$600	\$300	\$300	\$0	\$ 6,000
Professional Services	\$20,000	\$20,000	\$20,000	\$15,000	\$15,000	\$15,000	\$ 295,000
	\$0						
Totals Per Year of Work	\$144,309	\$144,309	\$144,309	\$69,404	\$49,659	\$43,059	
Number of Work Years in Period	1	2	5	2	2	5	17
Totals of all Work Years in Period	\$144,309	\$288,618	\$721,545	\$138,808	\$99,318	\$215,295	

Oct 2003 - Revised Total of all Years combined \$1,607,893

Nov 2001 Cost Estimate= \$1,564,834

Variance of Oct 2003 Revised Costs Est. to Nov 2001 Cost Estimate= \$43,059

- 1) October 2003 update consists of adding column for a year of Holding Costs and additional sampling for 32 years post closure
- 2) No cost increases associated with sample analysis have been incurred since the Nov 2001 Plan. In reality, testing labs/equipment upgrades have increased efficiencies to potentially lower unit costs per sample.
- 3) Revised cost estimates are in response to 2003 WMP requests and the associated the Tailings FEIS.

- indicates changes in October 2003 Revised Cost Estimate to the Nov 2001 Plan.

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Element Maintenance and Monitoring Summary table

Area	Unit Price per sample	Holding Year	Cost per Work Year (\$/year indicated)					Over 33 Yrs
			During Closure	Post Closure Work Years>>>>				Estimated Cost
			Year 1-2	Year 1 -5	Year 7 & 9	Year 12 & 15	Yr 19,23,27,30,32	
FRESHWATER								
Suite P	\$450.00	\$27,000	\$27,000	\$27,000	\$9,000	\$9,000	\$2,700	\$235,800
TIEMP-Internal Sites- Suite H	\$450.00	\$36,000	\$36,000	\$36,000	\$9,000	\$4,500	\$4,500	\$297,000
Suite Q	\$450.00	\$21,600	\$21,600	\$21,600	\$14,400	\$14,400	\$14,400	\$266,400
Suite R	\$756.00	\$3,024	\$3,024	\$3,024	\$3,024	\$3,024	\$3,024	\$45,360
QA/QC	\$500.00	\$12,500	\$12,500	\$12,500	\$5,000	\$2,500	\$2,500	\$112,500
Shipping	\$75.00	\$900	\$900	\$900	\$900	\$900	\$900	\$13,500
STORMWATER								
Sites	\$35.00	\$840	\$840	\$840	\$35	\$35	\$35	\$6,160
NPDES								
Tailings	\$175.00	\$9,100.00	\$9,100	\$9,100	Costs in these years in Administration Element			\$63,700
Hawk Inlet	\$175.00	\$0.00	\$0	\$0	\$0	\$0	\$0	
MARINE SAMPLING								
All Sites	\$4,245.00	\$4,245.00	\$4,245	\$4,245	\$4,245	Costs for these yrs in Admin Element		\$38,205
SEDIMENT / ORGANISM								
Contractor	\$5,800.00	\$5,800.00	\$5,800	\$5,800	\$5,800	\$0	\$0	\$52,200
Lab Cost	\$2,700.00	\$2,700.00	\$2,700	\$2,700	\$2,700	\$0	\$0	\$24,300
VEGETATION								
Site-wide	\$300	\$600	\$600	\$600	\$300	\$300	\$0	\$5,400
PROFESSIONAL SERVICES								
		\$20,000	\$20,000	\$20,000	\$15,000	\$15,000	\$15,000	\$260,000
Totals per Work Year								
		\$144,309	\$144,309	\$144,309	\$69,404	\$49,659	\$43,059	
Number of Work Years in Period		1	2	5	2	2	5	16
Totals of all Work Years in Period		\$144,309	\$288,618	\$721,545	\$138,808	\$99,318	\$215,295	\$1,607,893
Holding Costs for 1 year								

Total for all Years Combined with Holding Costs \$1,607,893

For the Oct 2003 Reclamation Plan Cost update associated with the Tailings FEIS and the 2003 WMP.

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 revision

Task Cost Estimate

Monitoring Cost Estimates for Reclamation Plan - GPO - Appendix 14 - Attachment A

Water sampling criteria as per the ADEC Waste Permit, and GPO - App 14 - Sec 2

Sampling per Year indicated

Holding Year

Years 1-2 during Major Closure Work

Years 1- 5 after closure

FRESHWATER

	QTY	TEST	Unit Cost	TOTAL
Suite P	60		\$450	\$27,000
Internals-Suite H	80		\$450	\$36,000
Suite Q	48		\$450	\$21,600
Suite R	4		\$756	\$3,024
QA/QC	25		\$500	\$12,500
Shipping	12	Months	\$75	\$900
Freshwater Total				\$101,024

STORMWATER

Sites	24	Year	\$35.00	\$840 12 Sites, 2 times / year
Stormwater Total				\$840

NPDES

Tailings	52	Year	\$175	\$9,100
Hawk Inlet	0	Year	\$175	\$0 By passed to NPDES002
NPDES Total				\$9,100

MARINE SAMPLING

WATER				
All Sites	1	Year	\$4,245	\$4,245
SEDIMENT / ORGANISM				
Contractor	1	Year	\$5,800	\$5,800
Lab Cost	1	Year	\$2,700	\$2,700
Marine Subtotal				\$12,745

VEGETATION

Site-wide	2		\$300	\$600 Semi annual - Visual Inspections includes Wetlands inspections and erosion inspections
Vegetation Subtotal				\$600

PROFESSIONAL SERVICES

1	Year	10,000	\$10,000 Site Inspection & Closure reports
2	vehicles	5,000	\$10,000 Site transport-small motorized
Professional Services Subtotal			\$20,000

TOTAL COSTS PER YEAR \$144,309

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Task Cost Estimate

Monitoring Cost Estimates for Reclamation Plan - GPO - Appendix 14 - Attachment A
Water sampling criteria as per the ADEC Waste Permit, and GPO - App 14 - Sec 2

Sampling per Year indicated

Years 7 and 9

FRESHWATER

	QTY	TEST	COST	TOTAL
Suite P	20		\$450	\$9,000
Internals-Suite H	20		\$450	\$9,000
Suite Q	32		\$450	\$14,400
Suite R	4		\$756	\$3,024
QA/QC	10		\$500	\$5,000
Shipping	12	Months	\$75	\$900
Freshwater Total				\$41,324

STORMWATER

Sites	1	Year	\$35.00	\$35 Visual
Stormwater Total				\$35

NPDES

Tailings	0	Year	\$175	\$0
Hawk Inlet	0	Year	\$175	\$0
NPDES Total				\$0

MARINE SAMPLING

WATER				
All Sites	1	Year	\$4,245	\$4,245
SEDIMENT / ORGANISM				
Contractor	1	Year	\$5,800	\$5,800
Lab Cost	1	Year	\$2,700	\$2,700
Marine Subtotal				\$12,745

VEGETATION

Site-wide	1		\$300	\$300 Visual
Vegetation Subtotal				\$300

PROFESSIONAL SERVICES

1	Year	10,000	10,000.00
1	vehicles	5,000	5,000.00
Professional Services Subtotal			\$15,000

TOTAL COSTS PER YEAR \$69,404

NPDES Sampling will be included into Water Treatment costs for years 6-10 as determinations to continue with Water treatment take place. During continued long term use of the NPDES 002 outfall line. Pipeline Inspections every 3 years will have enough costs entrained to sample both NPDES outfall and Marine Sampling needs for 50 from closure, or as needed.

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Task Cost Estimate

Monitoring Cost Estimates for Reclamation Plan - GPO - Appendix 14 - Attachment A
Water sampling criteria as per the ADEC Waste Permit, and GPO - App 14 - Sec 2

Sampling per Year indicated

Year 12 and 15

FRESHWATER

	QTY	TEST	COST	TOTAL
Suite P	20		\$450	\$9,000
Internals-Suite H	10		\$450	\$4,500
Suite Q	32		\$450	\$14,400
Suite R	4		\$756	\$3,024
QA/QC	5		\$500	\$2,500
Shipping	12	Months	\$75	\$900
Freshwater Total				\$34,324

STORMWATER

Sites	1	Year	\$35.00	\$35
Stormwater Total				\$35

NPDES

Tailings	0	Year	\$175	\$0
Hawk Inlet	0	Year	\$175	\$0
NPDES Total				\$0

MARINE SAMPLING

WATER				
All Sites	0	Year	\$4,245	\$0
SEDIMENT / ORGANISM				
Contractor	0	Year	\$5,800	\$0
Lab Cost	0	Year	\$2,700	\$0
Marine Subtotal				\$0

VEGETATION

Site-wide	1		\$300	\$300
Vegetation Subtotal				\$300

PROFESSIONAL SERVICES

1	Year	10,000	10,000.00
1	vehicles	5,000	5,000.00
Professional Services Subtotal			\$15,000

TOTAL COSTS PER YEAR \$49,659

NPDES Sampling will be included into Water Treatment costs for years 6-10 as determinations to continue with Water treatment take place.
During continued long term use of the NPDES 002 outfall line. Pipeline Inspections every 3 years will have enough costs entrained to sample both NPDES outfall and Marine Sampling needs for 50 from Closure.

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Task Cost Estimate

Monitoring Cost Estimates for Reclamation Plan - GPO - Appendix 14 - Attachment A
Water sampling criteria as per the ADEC Waste Permit, and GPO - App 14 - Sec 2

Sampling per Year indicated

Year 19, 23, 27 and 30 and 32

FRESHWATER

	QTY	TEST	COST	TOTAL
Suite P	6		\$450	\$2,700
Internals-Suite H	10		\$450	\$4,500
Suite Q	32		\$450	\$14,400
Suite R	4		\$756	\$3,024
QA/QC	5		\$500	\$2,500
Shipping	12	Months	\$75	\$900
Freshwater Total				\$28,024

STORMWATER

Sites	1	Year	\$35.00	\$35
Stormwater Total				\$35

NPDES

Tailings	0	Year	\$175	\$0
Hawk Inlet	0	Year	\$175	\$0
NPDES Total				\$0

MARINE SAMPLING

WATER				
All Sites	0	Year	\$4,245	\$0
SEDIMENT / ORGANISM				
Contractor	0	Year	\$5,800	\$0
Lab Cost	0	Year	\$2,700	\$0
Marine Subtotal				\$0

VEGETATION

Site-wide	0		\$300	\$0
Vegetation Subtotal				\$0

PROFESSIONAL SERVICES

1	Year	10,000	10,000.00
1	vehicles	5,000	5,000.00
Professional Services Subtotal			\$15,000

TOTAL COSTS PER YEAR \$43,059

NPDES Sampling will be included into Water Treatment costs for years 6-10 as determinations to continue with Water treatment take place. During continued long term use of the NPDES 002 outfall line. Pipeline Inspections every 3 years will have enough costs entrained to sample both NPDES outfall and Marine Sampling needs for 50 from Closure.

**Kennecott Greens Creek Mining Company
Closure Cost and Schedule Estimates**

KENNECOTT GREENS CREEK MINING COMPANY

Closure Cost Estimate

October 2003 Revision

Monitoring and Maintenance Element Schedule Estimates

Based on GPO - Appendix 14 Section 2 monitoring requirements

		Years>>>>>	Holding Year	Closure Projects		Post Closure Monitoring																
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Site #	Site Description			Each site cell has the number of Suites required in this order P,Q, R.																		
				>>>>> than 6 years, Estimated for costing only. Performance Based																		
6	Greens Creek - Middle		10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1		4,2,1		4,2,1			4,2,1			4,2,1		
9	Tributary Creek - Lower		0,0,1	0,0,1	0,0,1	0,0,1	0,0,1	0,0,1	0,0,1	0,0,1		0,0,1		0,0,1			0,0,1			0,0,1		
13	East Mine Drainage- Upper		0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0		0,2,0		0,2,0			0,2,0			0,2,0		
27	Monitoring Well MW-1S		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
28	Monitoring Well MW-1D		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
29	Monitoring Well MW-3S		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
30	Monitoring Well MW-3D		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
32	Monitoring Well MW-5		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
34	Seepage Control		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
46	Bruin Creek - Lower		10,2,0	10,2,0	10,2,0	10,2,0	10,2,0	10,2,0	10,2,0	10,2,0		4,2,0		4,2,0			4,2,0			4,2,0		
48	Greens Creek - Upper		10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1		4,2,1		4,2,1			4,2,1			4,2,1		
49	Bruin Creek - Upper		10,2,0	10,2,0	10,2,0	10,2,0	10,2,0	10,2,0	10,2,0	10,2,0		4,2,0		4,2,0			4,2,0			4,2,0		
54	Greens Creek - Lower		10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1	10,2,1		4,2,1		4,2,1			4,2,1			4,2,1		
56	Monitoring Well MW - D-00-1		0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0		0,2,0		0,2,0			0,2,0			0,2,0		
57	Monitoring Well MW - 23-00-3		0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0	0,8,0		0,2,0		0,2,0			0,2,0			0,2,0		
58	Monitoring Well MW -T-00-1c		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
59	Monitoring Well MW-T-00-1A		0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0	0,2,0		0,2,0		0,2,0			0,2,0			0,2,0		
Total P, Q, R Suites to be taken			50,48,4	50,48,4	50,48,4	50,48,4	50,48,4	50,48,4	50,48,4	50,48,4		20,32,4		20,32,4			20,32,4			20,32,4		
Internal Monitoring Sites Suite H			80,0,0	80,0,0	80,0,0	80,0,0	80,0,0	80,0,0	80,0,0	80,0,0		20,0,0		20,0,0			10,0,0			10,0,0		
			Number of planned inspections per year for each area of concern. Normally inspections will be consolidated																			
Vegetative & Wetlands Inspections			1	1	1	2	2	2	2	2		1		1			1			1		
Wildlife Surveys			1	1		1	1	1	1	1		1		1								
Mass Stability Inspections			1	1	2	2	2	2	2	2		1		1								
Erosion/Stormwater inspections			2	2	2	2	2	2	2	2		1		1			1			1		
NPDES			52	52	52	52	52	52	52	52	Costs included in additional Water Treatment (Stage 2 expansion- 3 years for \$200,000) and maintaining the outfall line are continued sam											
Marine			1	1	1	1	1	1	1	1		1		1								
Cost Schedule			\$144,309	\$144,309	\$144,309	\$144,309	\$144,309	\$144,309	\$144,309	\$144,309		\$69,404		\$69,404			\$49,659			\$49,659		
32 year total=			\$1,463,584																			

1) Added Holding Year Column - this cost was previously added to the Nov 2001 Plan cost estimates.

2) Added one more year of sampling in the Year 32 to the sampling schedule.

3) All NPDES sampling is moved to the Administration Element past Year 7 for ease of tracking overall water treatment costs associated with the Oct 2003 _ Tailings Expansion EIS conclusions to utilize the outfall line through the closure period if needed.

**Kennecott Greens Creek Mining Company
Closure Cost and Schedule Estimates**

KENNECOTT GREENS CREEK M
Closure Cost Estimate
October 2003 Revision
Monitoring and Maintenance Element
Based on GPO - Appendix 14 Section

Site #	Site Description	Years>>>>>	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
6	Greens Creek - Middle			2,1,0				2,1,0				2,1,0			2,1,0		2,1,0
9	Tributary Creek - Lower			0,0,1				0,0,1				0,0,1			0,0,1		0,0,1
13	East Mine Drainage- Upper			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
27	Monitoring Well MW-1S			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
28	Monitoring Well MW-1D			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
29	Monitoring Well MW-3S			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
30	Monitoring Well MW-3D			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
32	Monitoring Well MW-5			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
34	Seepage Control			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
46	Bruin Creek - Lower			1,1,1,				1,1,1,				1,1,1,			1,1,1,		1,1,1,
48	Greens Creek - Upper			1,1,1				1,1,1				1,1,1			1,1,1		1,1,1
49	Bruin Creek - Upper			1,1,0				1,1,0				1,1,0			1,1,0		1,1,0
54	Greens Creek - Lower			1,1,1				1,1,1				1,1,1			1,1,1		1,1,1
56	Monitoring Well MW - D-00-1			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
57	Monitoring Well MW - 23-00-3			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
58	Monitoring Well MW -T-00-1c			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
59	Monitoring Well MW-T-00-1A			0,1,0				0,1,0				0,1,0			0,1,0		0,1,0
	Total P, Q, R Suites to be taken			6,16,4				6,16,4				6,16,4			6,16,4		6,16,4
	Internal Monitoring Sites Suite H			10,0,0				10,0,0				10,0,0			10,0,0		10,0,0
	Vegetative & Wetlands Inspections																
	Wildlife Surveys																
	Mass Stability Inspections																
	Erosion/Stormwater inspections			1				1				1			1		1
	NPDES			Sampling for NPDES and Marine the duration of the 32 years on a 3 year schedule with outfall line inspections.													
	Marine																
	Cost Schedule			\$43,059				\$43,059				\$43,059			\$43,059		\$43,059
	32 year total=																\$1,463,584

- 1) Added Holding Year Column - this cost was pr
- 2) Added one more year of sampling in t
- 3) All NPDES sampling is moved to the Administ