



## Sumitomo Metal Mining Pogo LLC

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March 12, 2012  
COR-12-024  
Certified Mail #7010 2780 0002 2187 7152

Sharmon Stambaugh, Large Mine Coordinator  
State of Alaska  
Department of Natural Resources  
Office of Project Management and Permitting  
550 West 7<sup>th</sup> Avenue Suite 900  
Anchorage, Alaska 99501

Re: **Request for Amendment (Rev 2) to Plan of Operations F20129500 by Sumitomo Metal Mining Pogo LLC (Pogo) for Drystack Tailings Facility (DSTF) Expansion from 7.5 to 20 Million Tons (Mtons) Including Construction of a New Diversion Ditch.**

Dear Ms. Stambaugh:

Sumitomo Metal Mining Pogo LLC (Pogo) hereby requests an amendment to Plan of Operations F20129500 to expand Pogo's DSTF from 7.5 to 20 Mtons including construction of a new diversion ditch. The total project footprint would increase by 38.8 acre, impacting an additional 3.3 acres of wetlands. Pogo requested an amendment to our 404 Permit (POA-1996-211-M8) on October 12, 2011. Approval was obtained from the Department of the Army, US Army Engineer District, Alaska Regulatory Division (COE) on February 23, 2012.

Pogo's Waste Management Permit 2011DB0012 issued by Alaska Department of Environmental Conservation (ADEC) on February 7, 2012 approves placement of drystack and waste rock materials up to 20 Mtons.

The capacity of current DSTF is estimated to be 7.5 Mtons. Pogo estimates that the capacity of the DSTF will be reached by the end of 2013. The current end of the mine life for Pogo is 2017 and the final tonnage placed in the DSTF is estimated to be 9.8 Mt (based on the Pogo Life of Mine Plan created in January 2010). However, Pogo has the potential to extend the mine life by developing new orebodies such as East Deep and Hill 4021. The additional waste materials generated by developing these new orebodies are roughly estimated to be at least 7.8 Mtons based on the resources estimation as of end of 2010. Therefore, it is essential to expand the DSTF to secure the continued operation of Pogo mine.

Pogo hired SRK Consulting (Canada) Inc. (SRK) to conduct a preliminary DSTF study in 2011. The study includes an update of the DSTF material balance and an assessment of the structural stability of the expanded DSTF. Pogo submitted a report titled "Pogo Mine Dry Stack Tailings Facility Expansion Preliminary Study" to ADNR on May 17, 2011. A meeting was held on June 2, 2011 to discuss the Study. Pogo also discussed our Request for Proposal (RFP) for the DSTF Expansion Final Design during the June 2, 2011 meeting. A final version of the RFP was provided to ADNR on June 8, 2011.

The final DSTF expansion construction design for the new diversion ditch and haul road was prepared by SRK. A plan view of the DSTF expansion is provided in **Figure 1**. Pogo submitted the final design to ADNR for a pre-application review on November 16, 2011. Comments were received from

ADNR/MLW Dam Safety on November 22, 2011. Pogo responded to ADNR's comments on February 1, 2012. The revised drawings, specifications and design report are provided in **Appendix A**.

The DSTF expansion includes construction of about 8,840 feet of new diversion ditch about 150 vertical feet above the current diversion ditch. The new diversion ditch will tie into the existing diversion ditch as it approaches the Recycle Tailings Pond (RTP) Dam. About 4,010 feet of new haul road also needs to be constructed to provide access for the expanded DSTF.

During the COE's 15-day inter-agency review, Mr. Bob Henszey with the US Fish and Wildlife Service recommended that vegetation clearing be timed to avoid disturbing nesting migratory birds between May 1 and July 15 if practicable. Unfortunately, this is prime construction season in Alaska. In order to construct the new diversion ditch before Pogo runs out of space in the DSTF, construction needs to begin in 2012. Construction of the new diversion ditch impacts 38.8 acres of undisturbed ground that requires vegetation clearing.

Pogo proposes three phases of construction.

- Phase I: Construct North Diversion Ditch and Haul Road
- Phase II: Construct South Diversion Ditch
- Phase III: Closure of Existing Diversion Ditch

Ideally all three phases would be completed in 2012. However, ground conditions and weather will control whether or not this is achieved. This construction has to be completed before Pogo places tailings material above the existing diversion ditch. A contractor will be utilized for this work.

Placement of material on the DSTF will continue year round by Pogo in accordance with the Pogo DSTF Construction and Maintenance Plan in Appendix F of Pogo Plan of Operation.

The following information is provided in order to assist with your review:

#### Wetland Determination

Three Parameters Plus, Inc. (3PPI) conducted the field evaluation for the affected area and updated the wetland map in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* issued in September 2007. The technical report was provided to ADNR in an email from Ms. Diana Sparacino, COE as part of their 14 day review for Pogo's 404 Permit Amendment.

#### Alternatives

If the current DSTF cannot be expanded, a new DSTF would need to be constructed near the mine site. Upper West Creek was evaluated as the second best option for a DSTF during the option screening process for tailings disposal conducted in 1998, and it remains the best alternative if a new DSTF needs to be constructed.

However, this option would require an additional disturbance of about 135 acres to construct the new DSTF (which has the same design capacity as the current DSTF) as well as a 3.5 mile-long haul road from the mine site. The environmental impact of the alternative DSTF option is greater than that of proposed expansion option, thus the alternative DSTF option should not be selected.



A pre-application meeting was held with ADNR on January 27, 2012. The purpose of the meeting was to discuss what needed to be in Pogo's Plan of Operation Amendment for the DSTF expansion. A memo documenting the discussion was provided to ADNR on February 7, 2012. The following information is being provided as per this memo.

#### Decommissioning the Existing Diversion System

To mitigate the potential for the existing North and South Diversion Ditches to serve as conveyance structures for water and sediment within the footprint of the raised DSTF, Pogo proposes decommissioning the existing North and South Diversion Ditches in a manner that accounts for the nature and configuration of the existing diversion ditches.

To prevent the diversion ditches from potentially conveying either water or sediment from within the raised DSTF into sections of the ditches downstream of raised DSTF footprint, Pogo proposes installation of an anchored concrete plug in each of the existing ditches at the point immediately downstream of the location at which the limits of the raised DSTF will cross the existing ditch alignments (see **Drawings 7 and 8, Appendix A** for locations). The plug locations have been selected to enable easy identification of the plug after the DSTF has been raised and facilitate inspection of the downstream contacts of the plugs to verify continued plug performance. The plugs have been designed to cut off the transport of material or water that may accumulate on the upstream side of the plug and, as such, facilitate the containment of solids and water infiltrating into the DSTF within the identified raised DSTF limits. The plugs have been designed to resist forces exerted by tailings and waste rock materials located upstream of each plug. The anchoring details have been developed to mitigate the effects of frost jacking, and a sealant has been recommended to prevent leakage through the plug (see **Drawing 14, Appendix A** for details).

The proposed ditch decommissioning also involves breaching the side walls of the existing ditch alignments at 300-ft intervals to prevent continuous water conveyance within the existing ditches (see **Drawings 4, 7, 8, and 9, Appendix A** for locations). It should also be noted that this breaching pattern is recommended for segments that will be included within the footprint of the raised DSTF and segments of the existing ditches downstream of the raised DSTF footprint. The inclusion of multiple breaches along the existing ditch alignments reduces the amount of water and/or sediment that could potentially accumulate in the smaller ditch segments. As the DSTF is raised, complete plugging of the existing ditches with tailings and waste rock will eventually occur and the breaches will serve as the means by which infiltrated water within the existing ditches will be directed to the DSTF rock drains. The plugging of the ditches with tailings and waste rock will further limit the conveyance function of the decommissioned structures.

For breaches located on segments of the ditch within the footprint of the raised DSTF, each breach will be initiated at the existing ditch invert and excavated with a graded base to route sediment and water accumulating in the adjacent upstream segment of the ditch into the body of the DSTF (see **Drawing 4, Appendix A** for breaches details). Existing ditches and roads will also be breached where necessary for uphill extension of the rock drains within the DSTF expansion. Segments of the existing ditches that will not be incorporated into the new diversion system will also be breached to enable intercepted water to find a direct path towards contact water collection ditches located adjacent to haul roads or collection upstream of the RTP.

#### Existing RTP capacity with respect to the 20 Mton DSTF

The required volume for the RTP Dam is 25 million gallons to accommodate a 10-year, 24-hour precipitation event (corresponding precipitation is 2.8 inches) with a maximum volume of water for mill operation during this event. However, Pogo sized the RTP at 40 million gallons to minimize the probability of spillway usage of the RTP Dam. Refer to Section 8.4 of the RTP Design Report prepared by AMEC in 2004. The current RTP can hold up to 43 million gallons. Construction of the 20 Mton DSTF would increase the RTP catchment area by 38.8 acres. The additional volume of runoff into the RTP would be 38.8 acres times 2.8 inches which equals 2.95 million gallons, assuming that all of the precipitation flows into the RTP (actually some of the precipitation would infiltrate into the ground). Therefore, the required storage volume for the RTP Dam that would accommodate the 20 Mton DSTF is 27.95 million gallons, which is considerably smaller than the current RTP capacity of 43 million gallons.

#### New Diversion Ditch accommodates precipitation events

The new North and South Diversion ditch channels were designed to intercept non-contact runoff from undisturbed areas upgradient of the DSTF. They were sized to convey the 1 in 200-year, 24-hour precipitation event of 4.6 inches. This design storm event is consistent with the one used to design the segments of the existing diversion system prepared by AMEC in 2004. Refer to Section 4.4.1 of the **Dry Stack Tailings Facility Expansion Detailed Design, Appendix A.**

#### Pogo Model RCE Revisions Summary

Pogo revised the Pogo Model used to prepare the reclamation costs estimate (RCE) to incorporate DSTF expansion and address comments provided by ADNR. Refer to **Appendix B.** A summary of the estimated reclamation and closure costs are provided in **Table 1.** The following changes were discussed during a meeting with ADNR on March 8, 2012:

1. Updated labor rates using *Laborers' & Mechanics' Minimum Rates of Pay, Title 36. Public Contracts AS 36.05 & AS 36.10 Wage & Hour Administration Pamphlet No. 600* prepared by State of Alaska Department of Labor and Workforce Development Issue 23 (Revised November 1, 2011). The laborer rates categorized in class code N1201-N1206 that apply in the Alaska areas north of N63 latitude and east of W138 longitude were used. Management and technical support staff rates that were not available from the Pamphlet 600 were increased by 5.57%, which is equivalent to the average rates increase for all labor rates used in the Pogo Model.
2. Updated fuel cost using the current rack pricing for diesel fuel that includes taxes and transportation costs for delivering the fuel in 8,600 gallons cisterns to the Pogo site. The quote was obtained from Alaska West Express.
3. Updated equipment rates using Rental Rate Blue Book rates available from the "Equipment Watch" website ([www.equipmentwatch.com](http://www.equipmentwatch.com)). All monthly equipment rates were adjusted for Alaska Central region. These monthly rental rates were then divided by 200 hours to obtain hourly rental rates consistent with the Pogo Model's equipment operation basis. The hourly operating costs reduced by the fuel costs were added to the hourly rental rates and used the Pogo Model since the fuel fares are provided separately in the Pogo Model and are calculated using the updated fuel cost.
4. Maintenance costs for the water treatment were increased by 5.05% to reflect the Anchorage Consumer Price Index (CPI) increase from 2009 to 2011. In addition, reagent costs were revised to reflect current reagent rates obtained from Univar.

5. Updated camp costs. Pogo requested a quote from the ESS Support Services Worldwide, the leader of specialist food service and related facility support services to clients in remote sites, to provide camp services at the Pogo site. However, Pogo did not received the quote in time to incorporate it in Table 20 of the Pogo Model discussed at the March 8 meeting. Pogo obtained a quote for temporary camp services from Taiga Ventures for providing camp services to construction staff during the coming construction season. Rates provided in this quote were used to revise camp rates in the updated Pogo Model.
6. The one-year inflation rate or "inflation proofing" was updated using the CPI rolling average using 2009, 2010, and 2011 index values. The 2.06% inflation rate was used in the revised Pogo Model.
7. Pogo revised costs and disturbances associated with the DSTF expansion and incorporated the 20 million ton DSTF footprint in the Pogo Model RCE.
8. Pogo revised costs and disturbances associated with construction of new incinerator and addition to D-Wing at the Lower Camp and incorporated both buildings in the Pogo Model. Note the addition to D-Wing was approved by ADNR on February 29, 2012.
9. Miscellaneous equipment costs provided at the bottom of Table 17 in the Pogo Model were reviewed and revised to reflect the 2012 rates by either using the equipment rates obtained from the Equipment Watch web site where available or escalating the 2009 rates by 5.05% in accordance with the CPI.
10. Electricity, haulage, incineration of hydrocarbon soils, landfill disposal, hydroseeding and all material rates in Table 17.C of the Pogo Model were revised to incorporate the 2012 rates that were obtained from suitable vendors as identified in the Pogo Model.
11. In addition, Pogo also corrected several omissions and errors that were identified during review of the Pogo Model, including:
  - a. Revised presentation of Direct Costs and Site Management Costs for 1-year Holding Costs in the Summary of Estimated Reclamation and Closure Costs – Pogo Mine Site;
  - b. Inclusion of Monitoring costs in the Area Subtotal calculations for Phase III that were inadvertently omitted in the previous calculations; and
  - c. Removal of cost for installation of monitoring wells between DSTF and RTP in the Phase III Summary. Pogo installed these wells in 2011 and the cost for their installation has therefore been removed from the Pogo Model.

#### Updated Plan of Operation

Relevant sections of Pogo's Plan of Operations and Appendices will be updated and provided to ADNR in support of this proposed Amendment via email as separate documents.

#### Placement of Tailings Over or Beyond Current Diversion Ditches

Project Specific Stipulation #1 for Pogo Plan of Operations in the **Final Pogo Mine Plan of Operations Approval F20129500** (on page 9) states: "The placement of tailings over, or beyond, the current diversion ditches at the dry stack tailings facility is prohibited, unless specifically approved by ADNR." It is our understanding that Project Specific Stipulation #7 for Pogo Reclamation and Closure Plan (on page 10) must be completed before ADNR will allow placement over or beyond the current ditches. It states: "Permittee shall complete a dry stack tailings facility closure study approved, by ADNR, to evaluate the hydrologic, geochemical and geotechnical characteristics of the facility and proposed cover design. The study should model impacts to post-closure down-gradient water quality. The study should be submitted to ADNR by the end of 2014." Pogo plans to initiate this study in 2012 and complete it as soon as practicable.

If you have any questions please give me a call at 907-895-2897 or email me at [sally.mcleod@smpogo.com](mailto:sally.mcleod@smpogo.com).

Sincerely,

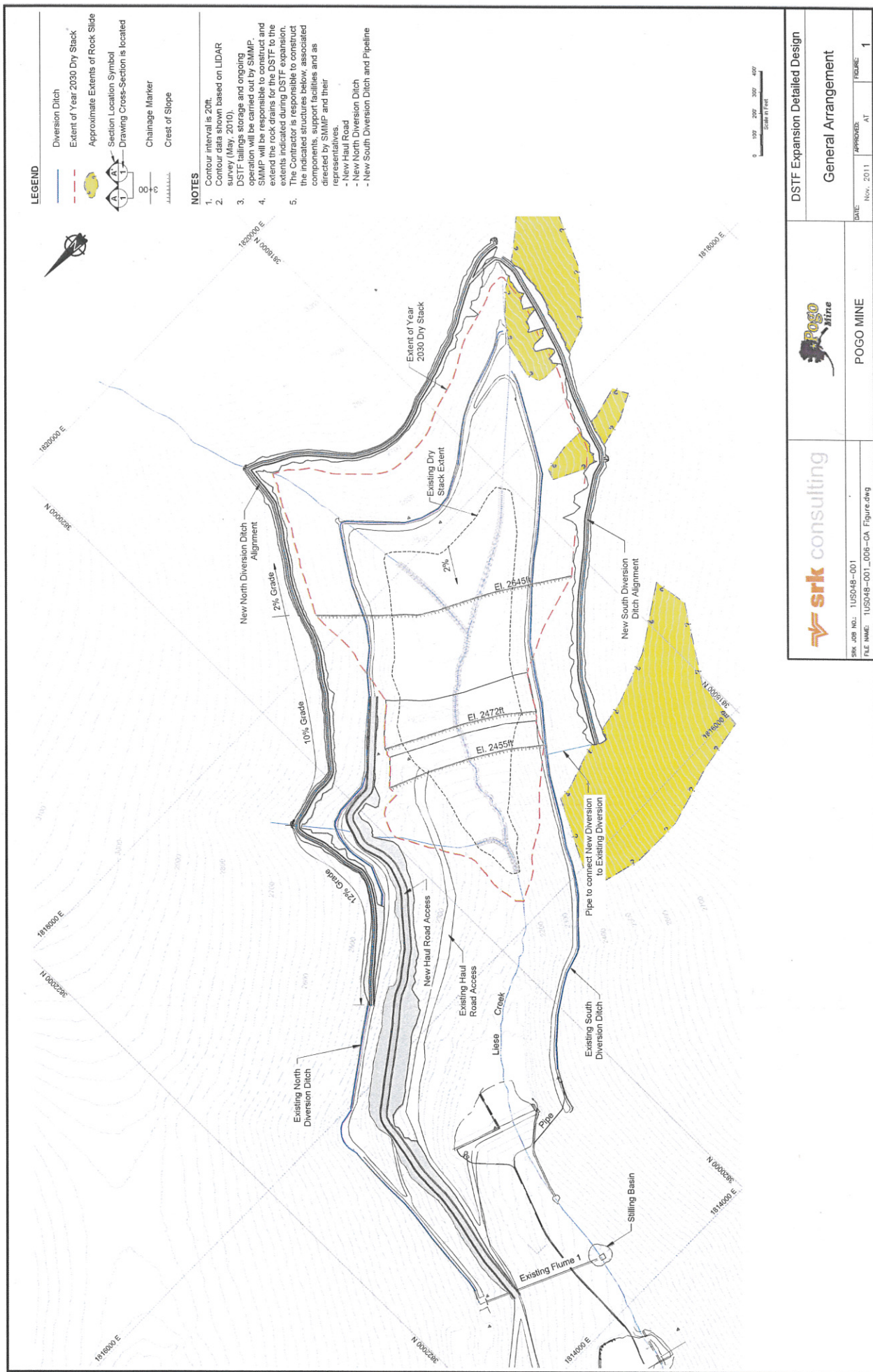


Sally McLeod, CEM, REM  
Environmental Superintendant

Attachments: Figure 1 – Plan View of DSTF Expansion  
Table 1 – Summary of Estimated Reclamation and Closure Costs Pogo Mine  
Appendix A: DSTF Expansion Design Drawings, Specs, and Design Report  
Appendix B: Updated Reclamation Cost Estimate

## Figure 1





# DSTF Expansion Detailed Design

## General Arrangement



POGO MINE



SRK JOB NO.: 1US048-001  
FILE NAME: 1US048-001\_006-CA\_Figure.dwg

DATE: Nov. 2011  
APPROVED: AT

FIGURE 1



## **Table 1**

**POGO MINE**

**Table 1: Pogo Mine DSTF Expansion Cost Model Update**

**3/12/2012**

SUMMARY OF ESTIMATED RECLAMATION AND CLOSURE COSTS-POGO MINE SITE									
	1 year holding cost	Phase I	Phase II	Phase III	Phase IV Water Treatment	Phase IV Reclamation	Phase V	Total	
Direct Cost	\$ 812,700	\$ -	\$ 952,400	\$ 10,819,000	\$ 6,298,300	\$ 3,686,000	\$ 109,500	\$ 22,677,900	
Site Management Cost	\$ 1,221,900	\$ -	\$ 27,800	\$ 2,953,800	\$ 5,374,833	\$ 2,001,700	\$ -	\$ 11,580,033	
<b>Subtotal Direct Cost</b>	<b>\$ 2,034,600</b>	<b>\$ -</b>	<b>\$ 980,200</b>	<b>\$ 13,772,800</b>	<b>\$ 11,673,133</b>	<b>\$ 5,687,700</b>	<b>\$ 109,500</b>	<b>\$ 34,257,933</b>	
<b>% of Subtotal</b>									
Indirect Costs									
Mobilization/Demobilization	\$ -	\$ -	\$ 49,010	\$ 688,640	\$ -	\$ 284,385	\$ 5,475	\$ 1,027,510	
<b>Subtotal</b>	<b>\$ 2,034,600</b>	<b>\$ -</b>	<b>\$ 1,029,210</b>	<b>\$ 14,461,440</b>	<b>\$ 11,673,133</b>	<b>\$ 5,972,085</b>	<b>\$ 114,975</b>	<b>\$ 35,285,443</b>	
Contractor Overhead and Profit	\$ 305,190	\$ -	\$ 154,382	\$ 2,169,216	\$ 1,750,970	\$ 895,813	\$ 17,248	\$ 5,292,816	
<b>Subtotal</b>	<b>\$ 2,339,790</b>	<b>\$ -</b>	<b>\$ 1,183,592</b>	<b>\$ 16,630,656</b>	<b>\$ 13,424,103</b>	<b>\$ 6,867,898</b>	<b>\$ 132,221</b>	<b>\$ 40,578,259</b>	
Performance Bond	\$ 70,194	\$ -	\$ 35,508	\$ 498,920	\$ 402,723	\$ 206,037	\$ 3,967	\$ 1,217,348	
Insurance	\$ 35,097	\$ -	\$ 17,754	\$ 249,460	\$ 201,362	\$ 103,018	\$ 1,983	\$ 608,674	
<b>Subtotal</b>	<b>\$ 2,445,081</b>	<b>\$ -</b>	<b>\$ 1,236,853</b>	<b>\$ 17,379,036</b>	<b>\$ 14,028,187</b>	<b>\$ 7,176,953</b>	<b>\$ 138,171</b>	<b>\$ 42,404,281</b>	
Contract Administration	\$ 97,803	\$ -	\$ 49,474	\$ 695,161	\$ 561,127	\$ 287,078	\$ 5,527	\$ 1,696,171	
Engineering Re-Design	\$ -	\$ -	\$ 37,106	\$ 521,371	\$ -	\$ 215,309	\$ 4,145	\$ 777,930	
Contingency	\$ 366,762	\$ -	\$ 185,528	\$ 2,606,855	\$ 2,104,228	\$ 1,076,543	\$ 20,726	\$ 6,360,642	
<b>Total Indirects</b>	<b>\$ 875,046</b>	<b>\$ -</b>	<b>\$ 528,761</b>	<b>\$ 7,429,623</b>	<b>\$ 5,020,410</b>	<b>\$ 3,068,183</b>	<b>\$ 59,069</b>	<b>\$ 16,981,092</b>	
Total Direct + Indirect	\$ 2,909,646	\$ -	\$ 1,508,961	\$ 21,202,423	\$ 16,693,543	\$ 8,755,883	\$ 168,569	\$ 51,239,025	
Inflation Proofing	\$ 59,926	\$ -	\$ 31,078	\$ 436,676	\$ 343,813	\$ 180,332	\$ 3,472	\$ 1,055,297	
<b>Total Closure Cost</b>	<b>\$ 2,969,572</b>	<b>\$ -</b>	<b>\$ 1,540,039</b>	<b>\$ 21,639,099</b>	<b>\$ 17,037,356</b>	<b>\$ 8,936,215</b>	<b>\$ 172,041</b>	<b>\$ 52,294,322</b>	
							<b>Rounded</b>	<b>\$ 52,294,000</b>	

2010/9/07 Version \$ 44,429,873  
Difference \$ 7,864,449