

APPENDIX A

**SUMMARY OF MAJOR COST ITEMS FOR
TAILINGS AREA CLOSURE PLAN**

Summary of Major Cost Items for Tailings Area Closure Plan

Opinions of Probable Construction Cost

In providing opinions of probable cost, MOE understands that CH2M HILL has no control over the cost or availability of labour, equipment or materials, or over market conditions or the potential Contractor's method of pricing. CH2M HILL makes no warranty, express or implied, that the bids or the negotiated cost of the Work will not vary from the opinion of probable construction cost.

CH2M HILL has made efforts to acquire area specific rates for materials, labour, and equipment whenever possible. The suitability of said materials to the intended purposes were not verified and will need to be determined prior to any construction activities. Where a local source or supplier could not be identified, industry budgetary tools such as the R.S. Means Company Inc. costing guide were used to assign a typical value. Appropriate regional coefficients were applied where necessary to adjust the typical costs to address regional conditions.

Each specific area of interest has been examined as an independent project. Any possible synergies associated with co-execution of various areas were ignored. Prices provided include the federal Goods and Services Tax (GST).

Volumes and areas were determined using existing available information. No additional investigations were performed to confirm or refute the estimates. Some estimates such as potential water volumes were based on engineering experience from other similar projects. Probable construction costs were based on typical weather conditions and may require adjustments due to extreme conditions.

Certain construction costs such as overhead, insurance, and various construction bonds will vary based on the potential Contractor. Financial strength, experience, and previous history all play a role in determining the rates that will be applied to a particular Contractor. These sums were determined as a percentage of the total costs based on industry averages.

Several of the site remediation options involved additional pumping to the arsenic treatment plant located in the Industrial Area. The application of a varied number of options over the four main areas will result in increases and decreases of the total treated water volume. At this conceptual stage it is difficult to determine whether there will be a net increase or decrease to the volume of water to be treated. Therefore, the operation and maintenance of the arsenic treatment plant has only been considered in the Industrial Area Closure Plan. Actual operation and maintenance costs over the last decade were used to develop a weighted-average and one standard deviation was added to this value in an effort to create a conservative estimate. Wastewater treatment considerations for all other areas were limited to collection and transmission to the equalization pond (i.e. equalization/storage basin).

Finally, a 15 percent contingency was added to the final capital cost (before taxes, overhead, insurance, and bonds) and a 5 percent contingency was added to the final OMM costs (before taxes).

The net present value costs presented in the following cost breakdown are the sum of the capital cost and the net present value of the OMM costs. The annual OMM costs have been transformed to a net present value assuming an effective interest rate of 5 percent and a planning horizon of 20 years. The effective interest rate includes inflationary effects. It should be noted that OMM effort and costs will be required beyond the 20-year horizon. The 20-year period was selected based on the assumption that it is a reasonable period for budgetary planning purposes.

Cost opinions were developed based on information available at the time this report was prepared and are expected to have an accuracy on the order of +/- 25 percent. Use of this information for project budgeting purposes should include a factor for escalation if the contract will not proceed in the same calendar year.

Appendix A

Breakdown of Capital Costs of Work Packages and Operation, Maintenance, and Monitoring Costs

Work Package Identification No. and Description	Cost	Insurance	Overhead	Performance Bond	Labour and Material Bond	Remote Area Cost	Final Costs*
TA-WP#1: Site Preparation							
Temporary Roads	\$36,792	\$596	\$1,435	\$552	\$552	\$368	\$40,300
Set-up	\$44,347	\$718	\$1,730	\$665	\$665	\$443	\$48,600
Washpad	\$16,811	\$272	\$656	\$252	\$252	\$168	\$18,400
Mobile Washer	\$28,082	\$455	\$1,095	\$421	\$421	\$281	\$30,800
Surface Water Control	\$54,740	\$887	\$2,135	\$821	\$821	\$547	\$60,000
Clearing and Grubbing	\$78,005	\$1,264	\$3,042	\$1,170	\$1,170	\$780	\$85,400
Total	\$258,776	\$4,192	\$10,092	\$3,882	\$3,882	\$2,588	\$283,500
TA-WP#2: Placement of Rip Rap and Geotextile							
Geotextile (over limestone cover and face of dams walls)	\$280,105	\$4,538	\$10,924	\$4,202	\$4,202	\$2,801	\$306,800
Rip Rap at Toe of Dams	\$6,240	\$101	\$243	\$94	\$94	\$62	\$6,800
Total	\$286,345	\$4,639	\$11,167	\$4,295	\$4,295	\$2,863	\$313,600
TA-WP#3a: Installation of Engineered Cap, Ditches, and Grass Planting							
Cap Installation	\$5,316,896	\$86,134	\$207,359	\$79,753	\$79,753	\$53,169	\$5,823,100
Interceptor Ditch	\$385,180	\$6,240	\$15,022	\$5,778	\$5,778	\$3,852	\$421,800
Surface Water Quality Testing	\$7,328	\$119	\$286	\$110	\$110	\$73	\$8,000
Final Grading (includes drainage ditches)	\$111,806	\$1,811	\$4,360	\$1,677	\$1,677	\$1,118	\$122,500
Grass Planting	\$65,907	\$1,068	\$2,570	\$989	\$989	\$659	\$72,200
TA-WP#3b: Installation of Poplar Plantation and Irrigation System							
Poplar Tree Planting	\$70,050	\$1,135	\$2,732	\$1,051	\$1,051	\$700	\$76,700
Irrigation System	\$155,037	\$2,512	\$6,046	\$2,326	\$2,326	\$1,550	\$169,800
Total	\$6,112,204	\$99,018	\$238,376	\$91,683	\$91,683	\$61,122	\$6,694,100
TA-WP#4: Tailings Seepage and Groundwater Pumping and Piping System							
Seepage and Groundwater Collection Wells, Pumps, and Power Supply	\$75,979	\$1,231	\$2,963	\$1,140	\$1,140	\$760	\$83,000
Overland Piping to Equalization Pond (includes heated enclosures)	\$121,190	\$1,963	\$4,726	\$1,818	\$1,818	\$1,212	\$133,000
Total	\$197,170	\$3,194	\$7,690	\$2,958	\$2,958	\$1,972	\$216,000
Total Capital Costs	\$6,854,495	\$111,043	\$267,325	\$102,817	\$102,817	\$68,545	\$7,507,200
Operation, Maintenance, and Monitoring (Net Present Value, 20 year investment at 5%)							
Monitoring program: surface water, groundwater physical stability and biomonitoring (with 5% contingency)	\$266,169 (14,132)**	NA	\$10,381	NA	NA	\$2,662	\$279,000
Maintenance program: cap and ditches and operations and maintenance of seepage/groundwater collection system, including pump replacement (with 5% contingency)	\$240,992 (18,417)**	NA	\$9,399	NA	NA	\$2,410	\$252,800
Poplar monitoring and maintenance, including irrigation (with 5% contingency)	\$725,852 (\$55,471)**	NA	\$28,308	NA	NA	\$7,259	\$761,400
Total OMM Costs	\$1,233,013	NA	\$48,088	NA	NA	\$12,330	\$1,293,200
Grand Total	\$8,087,500	\$111,000	\$315,400	\$102,800	\$102,800	\$80,900	\$8,800,400

All capital costs include GST and a 15 percent contingency (before taxes, overhead, insurance, and bonds).

All OMM costs include GST and a 5 percent contingency (before taxes).

*Rounded to nearest \$1,000. All costs have been developed using 2004 pricing and do not include an escalation factor.

**Annual (Weighted) OMM Costs (before overhead and remote area costs).