

COMMENT LOG

Document Title: Mount Nansen Remediation Project - Review of Phase 1 (30% Design Phase) Cost Estimate Scope and Bases

Review Comment Dates: 10 November 2014; 15 December 2014

AMEC File No. VM00605K

Comments By: I.D. Poloni (AAM) and Kim Winnicky (Bill Slater Environmental Consulting)

Responses By: AMEC – Brian Geddes, Christine Peters

Response Dates: 21 November 2014; 18 December 2014

Comment ID	Comment (15 December 2014)	Response (18 December 2014)
<p>General Comments on 21 November Log</p>	<p>Several responses make reference to the wrong section of the report or the wrong table, can you please review and update?</p> <p>As per our discussion, there is several reference from the parties about the WT (fix. Vs. mobile), instead of the response – will be address during phase II, which should provide the response – as part of the current sow, a sensitivity (low and high bound was provided), 15% for reagent, 20% for fix vs. mobile and that during phase 2 a more detail estimate would be develop.</p>	<ul style="list-style-type: none"> • Report and table references in the 21 November responses have been corrected. • The relevant Comment Log responses have been expanded to highlight the sensitivity assessments on water treatment costs undertaken as part of the review.



Note 1 – Page numbers per commented document.

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
<p>ldpoloni, page 1 10/11/2014 3:30:33 PM</p>	<p>(AAM)</p> <ul style="list-style-type: none"> • Should separate AMP and design contingency as 2 separate line items. • AMP should be included in the costs as a real cost to the project. • What is the approximate cost for a mobile treatment - the bulk part difference should be included in this exercise? • YG wishes to note that procurement cannot be a driver to refine cost in the next design phase. The next design phase cannot proceed without further cost refinement. <p>(The document does not need to be modified but a note to be considered in the future, i.e., this approach does not permit the project to move forward, certainty on cost will need to occur prior to tender).</p> <p><u>AAM Follow-up on 21 November Response</u></p> <p>This comment was meant to address the bulk cost difference between a mobile vs. a fix WT within the sensitivity analysis, not to discuss the difference between the AECOM and AMEC estimates.</p>	<ul style="list-style-type: none"> • Separate entries for Design Contingencies (DC) and Adaptive Management Plans (AMP) have been incorporated into Table 3.2-1. The cost reconciliation and sensitivity analysis tables incorporate separate line items for DC and AMP. • The original cost estimate included AMP costs in formats that can be included, or excluded, from the total project estimate, depending on the estimating policies and/or practices of the individual parties. • The selection of fixed vs. mobile water treatment capabilities was just one of several factors that influenced the difference in treatment costs in the AECOM and AMEC estimates. It is difficult from the available cost data to partition the differences in ways that would reliably identify the proportion relating specifically to fixed vs. mobile equipment. Further, this particular difference isn't really a discretionary decision, but one that is determined by a variety of design factors (i.e., required hydraulic throughput, number and scale of treatment units, treatment efficiencies, and reagent consumption). • YG's comments about the influence of procurement methods on the near term needs for more cost certainty are acknowledged and understood and a note to that effect has been added to the text. <p><u>Response to Follow-up</u></p> <p>Acknowledged.</p>



Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
	<p>(AANDC)</p> <ul style="list-style-type: none"> • Option 4 – throw tailings at in-place MC into the pit and cover to reduce infiltration – 30% Design – dewater tailings as much as possible, temporary cover, then permanent cover to help mitigate effect of tailings ARD. These two assumptions seem fundamentally different and reasoning for the variation should be included in this report. Can AMEC’s design accommodate tailings with a high MC in the pit? • Some of the site characterization assumptions of changes, we should outline which ones and how that impacts the design. • Have the key tenets changed or evolved from the Lorax Option 4 to the AMEC design, if so what is the justification? • How does the downstream water quality in AMEC design compare to the Lorax Option 4 work? 	<ul style="list-style-type: none"> • The following summary comments have been added to Section 2.5.2: “In short, the AMEC methodology aligned with the project need to provide conditions in the backfilled pit consistent with the development, within reasonable timelines, of a stable pit cover and reclamation surface. AECOM’s concept involves relocating tailings largely at their in-place moisture content and does not explicitly define how the result can provide surfaces stable enough to sustain the specified pit cover.” • Higher tailings moisture contents can be accommodated if the assumed execution methods and performance outcomes are appropriately adjusted and integrated. Indeed, the Phase 1 design considered an end dumping option that traded off a lower relocation effort for higher and less predictable tailings settlements, and concluded that the cost reductions didn’t justify the performance compromises. That said, higher tailings moisture contents could be considered if Driving Project Criteria relating to water quality and/or the stability of pit surfaces can either be met, or adjusted. During Phase 1, AMEC made the judgement that these criteria would not be relaxed, and that meeting them would be difficult and/or uncertain with higher tailings moisture contents. • The 2013 Site Investigation supported the Phase 1 design development in various ways that influenced the cost estimate. However, it didn’t change the understanding of the general nature of the key scope elements, and doesn’t account for the primary differences between the AECOM and AMEC estimates. Those differences are grounded in the fact that the Phase 1 design was the first effort to integrate an assumed execution schedule with proven execution methods in ways that were judged to satisfy the driving project criteria. For example, it



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		<p>has always been known that a large proportion of the tailings are saturated, and while the 2013 SI program provided additional information on the distribution and specific characteristics of wet tails, that information, in itself, did not drive the increase in the relocation cost estimate. That came from the determination that tails would need to be dewatered, mixed with rock and placed over extended timelines to provide a sustainable cover surface.</p> <ul style="list-style-type: none"> • AMEC does not believe that the key tenets of Option 4 were materially altered during Phase 1; just the interpretations of the requirements necessary to address them. To clarify AMEC's interpretation of the key Option 4 tenets (which are not in all cases entirely self-evident), AMEC has added descriptions of "Driving Project Criteria" to report Section 2.3. • AMEC's predictions of downstream water quality were broadly similar to LORAX's in that they were consistent with regulatory standards that would likely apply to remedial efforts (typically CCME).
<p>ldpoloni, page 7 10/11/2014 3:35:18 PM</p>	<p>(AANDC)</p> <ul style="list-style-type: none"> • Review the Lorax key assumptions and speak to them in relation to the new work completed. <p>(AAM)</p> <ul style="list-style-type: none"> • Here are some assumptions that have significantly been modified (ex. Lorax - No PAG, AMEC - PAG rock at site), they should be identified as part of this exercise, the reason for it (upon additional SI, PAG was discovered?) as well as how they impact the costs and the rationale for it. 	<ul style="list-style-type: none"> • This commentary on the LORAX assumptions, and on the impact of key Phase 1 design assumptions are addressed in Section 2.5.2, Detailed Estimate Reconciliation, the detailed estimate reconciliation provided in Appendix 2A and in the presentation of key estimating assumptions in Table 3.2-1.

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
<p>Idpoloni, page 9 12/11/2014 3:49:19 PM</p>	<p>(AAM)</p> <ul style="list-style-type: none"> Please add a column that summarizes the reasons for each differences/variance. It would be useful to point out that there is ~ 25M\$ that have not been accounted for by AECOM as a statement in the report (i.e. if you add up all the 0s). <p>(AANDC)</p> <ul style="list-style-type: none"> Consider putting difference in this table into categories related to the key tenets and subtotal the categories and common elements. Add percentage of total variance to table. 	<ul style="list-style-type: none"> Explanations for individual variances that can be identified from the available cost data are provided in the detailed reconciliation worksheets provided in Appendix 2A and summarized in the commentary provided in Section 2.5.2, Detailed Estimate Reconciliation. The comments on missing scope items in Section 2.5.2 have been expanded and a reference to the resulting total incorporated into the text. A column with variance percentages has been added to Table 2.4.1-1. The additional resolution on variance categories is provided by way of the detailed reconciliation in Appendix 2A.
<p>Idpoloni, page 9 10/11/2014 3:38:32 PM</p>	<p>(AAM)</p> <ul style="list-style-type: none"> Is this accounted for twice (i.e., tailing relocation to open pit)? Is one item to only bring tailings to open pit and one for tailings mix? I thought all tailings will be mix, clarification in the report would be useful or a footnote at the bottom of the table. 	<ul style="list-style-type: none"> A footnote has been added to the table to explain that there has been no double counting for the movement of tailings. The line items were separated this way to facilitate a more meaningful comparison between the AECOM and AMEC figures for tailings relocation, even though the AMEC method involved mixing with rock and the AECOM method did not. The AMEC estimate developed a total blended cost for the movement of tailings and rock to the pit, and then partitioned this total between rock and tailings to facilitate the desired comparison.
<p>Idpoloni, page 10 10/11/2014 3:52:20 PM</p>	<p>(AAM)</p> <ul style="list-style-type: none"> Why is this table not filled out and completed? What do you mean by Victoria Ck sand? <p><u>AAM Follow-up on 21 November Response</u></p> <p>The reference to Victoria Creek sand is still throughout the document and in the cost table sheet. Can you please remove and reissue the report?</p>	<ul style="list-style-type: none"> In retrospect, we have concluded that the three columns in the original table are more appropriately addressed with a single comments column. The table has been revised accordingly and additional content provided in the new comments column. The Victoria Creek sand reference is no longer relevant and has been deleted. <p><u>Response to Follow-up</u></p> <p>References to Victoria Creek sand have been removed.</p>



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	(AANDC) <ul style="list-style-type: none"> When you add up all the Waste Rock in the AMEC quantities you get 654,452 cubic metres however in the Site Characterization Report it says there is only 597,700 cm - is the other 55,000 cm from the mill area? How is the differentiation made between “contaminated soil” and waste rock? How does these quantity differences relate to the cost variance in the end? 	<ul style="list-style-type: none"> The 597,700 m³ figure (Table 46 of the Site Characterization Report) is the total volume in the defined waste rock stockpiles. The 654,000 m³ figure (Table 4.14 in the Design Report) includes additional volumes from the mill and shop areas and various site roads. The differentiation between contaminated soils and rocks was approximate and was based on available borehole and/or test pit characterizations. All of these quantities contribute to the volumes addressed in the cost reconciliation portions of the review report (specifically Table 2.4.2-1 and Appendix 2B).
ldpoloni, page 11 07/11/2014 12:29:47 PM	(AANDC) <ul style="list-style-type: none"> Would it be beneficial in the explanation to either bury the contingency within each line item or address it right up front and take it out of the discussion later on (out of totals as well?) 	<ul style="list-style-type: none"> The contingencies referenced in this list are design contingencies (i.e., the proposed pit seepage collection systems), not the estimating contingencies. The latter can be incorporated per the estimating policies of the parties; however, the more common practice (reflected in the Phase 1 estimate and cost review formats) is to add contingency as a single line item rather than incorporated into each activity.
ldpoloni, page 11 10/11/2014 3:56:42 PM	(AANDC) <ul style="list-style-type: none"> This is confirmed in AECOM memo to GY dated July 4, 2011 & winter construction is assumed. 	<ul style="list-style-type: none"> A note indicating that AECOM assumed winter excavation has been added to the report.
ldpoloni, page 12 10/11/2014 3:58:30 PM	(AAM) <ul style="list-style-type: none"> Some? Can you please rephrase? 	<ul style="list-style-type: none"> Wording revised.
ldpoloni, page 13 07/11/2014 12:48:05 PM	(AANDC) <ul style="list-style-type: none"> Does Quantity along really matter in this discussion? Should the focus not be on quantity and the associated unit rate? 	<ul style="list-style-type: none"> The reconciliation exercise included a particular focus on the civil quantities because of their predominant influence on both estimates. Understanding the difference in the estimates requires an understanding of the difference in the civil material quantity derivations and volumes.
ldpoloni, page 14 10/11/2014 4:01:55 PM	(AAM) <ul style="list-style-type: none"> Can this be explained? What is meant by this? 	<ul style="list-style-type: none"> The report wording has been revised to clarify the intent here.
ldpoloni, page 14 10/11/2014 4:03:22 PM	(AANDC) <ul style="list-style-type: none"> What would be beneficial here is a table that summarizes what was included in the AECOM estimate and what AMEC’s estimate to do the same 	<ul style="list-style-type: none"> Table 2.3.1-1 has been added summarizing the Option 4 objectives and scope elements as LORAX described them pre-Phase 1. Qualitative comments noting that these basic scope descriptions did not

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
	<p>work was (i.e., what did the partners agree to at the time of selecting Option 4) ... then have another column that would total up “required items missed by AECOM (e.g., hazardous soils, design contingencies, adaptive management, contractor indirects). Then have another column that states costs associated with a change in design assumption (e.g., site maintenance between construction seasons, tailings excavation methodology, TSF reclamation, landforming, second cover) ... it would be helpful to split the contingency difference up over those sections. For a quick first look, I think the AECOM/ AMEC estimates for the same scope of work would be within or close to the error bars associated with the AECOM estimate and would help break out the reasons for the substantial difference in cost.</p> <ul style="list-style-type: none"> I also think that there should be a section on the design assumptions. Simply taking the assumptions listed in the Lorax Report for Option 4 and then commenting on whether the assumption is still valid and if not, how it has changed and why (e.g., new data, professional judgment, etc.)? 	<p>change post Phase 1 (and, therefore, don’t account for the estimate differences) have also been added. The detailed reconciliation for individual scope areas (which are grounded in the different assumptions about methods and schedules outlined in Section 2.5.2 of the review report) is provided in Appendix 2A.</p> <ul style="list-style-type: none"> We have added comments to Section 2.5.2 discussing how the costs for missing scope elements and the upper and lower bound variances applicable to the AECOM and AMEC estimates, relate to the total variance between the estimates.
<p>ldpoloni, page 15 07/11/2014 12:48:28 PM</p>	<p>(AANDC)</p> <ul style="list-style-type: none"> It would be useful to note the pre-phase 1 basis and assumptions as well, since that is what we are comparing to. 	<ul style="list-style-type: none"> Table 2.3.1-1 has been added to the reconciliation section to address this.
<p>ldpoloni, page 16 07/11/2014 12:48:35 PM</p>	<p>(AANDC)</p> <ul style="list-style-type: none"> Insert column between Key Scope Area and Basis of Phase 1 Estimate named, "Pre-Phase 1 Basis 	<ul style="list-style-type: none"> This section of the cost review (and this aligned with the agreed project scope of work) is intended to define and consider potential variations in assumptions applied in AMEC’s Phase 1 estimate. It was never intended as a continuation of the reconciliation exercise, which is addressed in Section 2 of the report (i.e., Table 3.2-1’s point of origin is the Phase 1 schedule of assumptions, not the pre-Phase 1 assumptions). Aligning the pre-Phase 1 assumptions in ways that offer useful comparisons with the proposed Phase 1 assumption adjustments is not necessarily straightforward, and in our view

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
		would not add materially to the understanding of reconciliation issues that is presented in Section 2.
ldpoloni, page 16 07/11/2014 12:48:43 PM	(AANDC) <ul style="list-style-type: none"> Insert column between Characterization of Phase 1 Assumptions and Potential Range of Assumption Adjustments named, "Lorax/AECOM Assumptions." 	<ul style="list-style-type: none"> See above.
ldpoloni, page 16 10/11/2014 4:08:27 PM	(AANDC) <ul style="list-style-type: none"> This has changed from pre-phase 1 – Lorax reports assumes no PAG waste rock. Does PAG have to go to the pit? (AAM) <ul style="list-style-type: none"> Why was this change in assumption made (additional SI, historical data)? 	<ul style="list-style-type: none"> The surface water quality modelling in Phase 1 assumed that the higher contaminant source potentials associated with PAG rock would be mitigated by placing these materials within the Open Pit containment structure. The Phase 1 tailings relocation methodology also relies on mixing rock and tailings. It makes sense to preferentially use PAG for this mixing because of the containment benefits offered by relocation to the pit. There might be some economies available by leaving the relatively small proportion of the PAG inventory not required for mixing undisturbed, provided that supplementary water quality modelling demonstrates that these exposed PAG materials will not produce unacceptable degradations in water quality.
ldpoloni, page 16 10/11/2014 4:09:05 PM	(AAM) <ul style="list-style-type: none"> Will this result in less rock going into the pit, therefore lowering the overall costs? 	<ul style="list-style-type: none"> The point of the assumption noted is to minimize the costs of mitigating potential PAG rock water quality impacts by accurately identifying those materials that need to be directed to the pit. Doing so will not reduce the Phase 1 estimate (because it assumed this differentiation could be accurately made based on pre-execution characterization data), but mitigates the risk of cost escalation that would result if uncertain material differentiations had to be addressed by conservatively directing more materials to the pit.
ldpoloni, page 17 07/11/2014 12:49:06 PM	(AANDC) <ul style="list-style-type: none"> What are the required/assumed/target in place characteristics of the tailings? 	<ul style="list-style-type: none"> The target performance characteristics of placed tailings are those consistent with the development and maintenance of a stable pit cover and surface over reasonable timelines (i.e., the "Stable Surfaces" Driving Criteria in new report Section 2.3). This target

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
		<p>performance does not take the form of a specific compaction or moisture specification because of the difficulty of drawing reliable connections between these kinds of specifications, cover outcomes and execution method requirements. Instead, professional judgements have been applied to conclude that the assumed execution methods are likely to provide tailings characteristics generally consistent with the prescribed Driving Criteria. In short, we have developed a method specification, recognizing that the quantitative performance outcomes, while practically indeterminate at this stage of project development, are likely to be acceptable.</p>
<p>ldpoloni, page 17 10/11/2014 4:17:57 PM</p>	<p>(AANDC)</p> <ul style="list-style-type: none"> But how would this affect the other design assumptions (e.g., degree of settlement, water quality, pit cover, waste rock placement, etc...)? 	<ul style="list-style-type: none"> This would depend upon the performance outcomes specified for, and applied to, the procurement process. One approach would be to specify outcomes similar to those assumed for the current estimate (e.g., ones that provide stable surfaces over reasonable timelines) with the expectation that whatever methods the contractor proposes, the key performance outcomes are likely to be consistent with those predicted. Alternately, the procurement strategy could be structured with a minimum of constraints (with a view towards identifying a lower bound cost), followed by a post procurement assessment of the likely impacts of proposed execution methods on the Driving Project Criteria.
<p>ldpoloni, page 17 10/11/2014 4:19:53 PM</p>	<p>(AAM)</p> <ul style="list-style-type: none"> Does it also relate (driver) to the placement requirement within the pit (i.e., to reduce settlement, to be able to place the material, to ensure cover performance)? 	<ul style="list-style-type: none"> Yes, in that the implicit assumption in the Phase 1 estimate is that the degree of dewatering will be sufficient to provide tailings characteristics consistent with the “Stable Surfaces” criterion. For the reasons noted above, it is difficult at this stage of project development to translate this into a specific, quantitative prediction of the required efficiency of wellpoint dewatering.



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Idpoloni, page 18 07/11/2014 12:49:29 PM	(AANDC) <ul style="list-style-type: none"> What are the requirements of downstream water quality in the end? 	<ul style="list-style-type: none"> Compliance with the agreed upon surface water quality criteria. Additional design development, and Partner consultation, was proposed for Phase 2 to identify the specific criteria that would be applied, but the Phase 1 assumption was that they would be CCME surface water quality criteria, or something comparable.
Idpoloni, page 18 07/11/2014 12:49:35 PM	(AANDC) <ul style="list-style-type: none"> What is in-place requirements of tailings? 	<ul style="list-style-type: none"> Again, for the reasons noted above, a specific tailings compaction specification has not been proposed. Rather, a method execution specification, that could be costed, and was judged likely to provide the required performance outcomes, was put forward.
Idpoloni, page 19 10/11/2014 4:22:10 PM	(AAM) <ul style="list-style-type: none"> Can you please revise the sentence? The sentence is not complete. 	<ul style="list-style-type: none"> Text revised.
Idpoloni, page 19 10/11/2014 4:23:11 PM	(AAM) <ul style="list-style-type: none"> What does this mean? Please elaborate or clarify or rephrase. 	<ul style="list-style-type: none"> Wording revised to clarify that in those circumstances where reliable predictions of dewatering efficiency are necessary, field trials or pilots are often conducted.
Idpoloni, page 20 10/11/2014 4:25:11 PM	(AAM) <ul style="list-style-type: none"> Can you please split these 2 components? 	<ul style="list-style-type: none"> Done.
Idpoloni, page 25 10/11/2014 4:30:08 PM	(AAM) <ul style="list-style-type: none"> Should the discovery of additional contaminant within Dome Creek during the 2014/15 SI be discussed here or inserted (i.e., cost of restoring Dome Creek will increase due to the level of contaminants identified during the 2014 SI program)? Is it the case, or not and should it be inserted or we don't have enough information yet to speculate? 	<ul style="list-style-type: none"> Key scope area number 1 in Table 3.2-1 notes that the upper bound sensitivity assessment increases the assumed Phase 1 sediment volumes by 100% to evaluate the potential cost impact of an increased creek bed sediment removal scope. This is an interim provision assumed in advance of the updated sediment volume estimate that forms part of the Phase 2 design development scope.
Idpoloni, page 26 10/11/2014 4:31:23 PM	(AAM) <ul style="list-style-type: none"> Isn't unrealistic that in the 60M\$ no revegetation, no AMP, no design contingencies will be required? 	<ul style="list-style-type: none"> The intent is to illustrate the potential impact that more liberal assumptions could have on the estimate. We have not quantified the probability associated with the lower and upper bound figures, but it should be understood that these probabilities are much lower than for the base estimate.

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
<p>Idpoloni, page 35 07/11/2014 12:50:20 PM</p>	<p>(AANDC)</p> <ul style="list-style-type: none"> This seems to have changed from “minimize infiltration” to “low moisture” ... how did this change come about? 	<ul style="list-style-type: none"> This isn’t a change so much as a refinement of the terminology. The pre-Phase 1 descriptions of pit conditions (Table 2.3.1-1 in the review report) referenced “dry conditions within the tailings deposits” which was sometimes misinterpreted as “dry tailings”. The intent of the revised language is to convey that the tailings will be placed in conditions consistent with the Driving Project Criteria (specifically the “Stable Surfaces and Water Quality” criteria). The current interpretation of those criteria requires that the water content of the tails be reduced, but not to levels that would render the materials “dry”.
<p>Idpoloni, page 35 07/11/2014 12:50:25 PM</p>	<p>(AANDC)</p> <ul style="list-style-type: none"> This seems to have changed from “a condition more compatible with original land use” to “stable usable backfilled pit surface”. I think the intent from the Option 4 selection was a hole vs no hole ... not a usable surface over the hole. How did this change come about? 	<ul style="list-style-type: none"> Again, this change in language was an attempt to provide more specific definition to the Driving Project Criteria. The term “condition more compatible with original land use” can be interpreted in many ways and is, therefore, difficult to connect to a specific set of assumptions about cover performance and execution methods. The phrase “stable, useable backfilled pit surface” was intended to convey that we need to place materials in conditions that provide for a permanent, reclaimable and trafficable cover over reasonable and comparatively predictable, short to intermediate timelines (i.e., that we get a reclaimed landscape with some practical utility in say five to ten years, rather than a surface that remains untrafficable and aesthetically disconnected than surrounding lands over an indefinite, indeterminate timeline).
<p>Memo to LSCFN and AAM dated 12/11/2014, re: Comments on Mount Nansen Cost Estimate Refinement, from Bill Slater Environmental Consulting</p>	<ul style="list-style-type: none"> The scope of this review may not have been broad enough. It would have been valuable to have a re-evaluation of each of the work items to determine if all were needed, and a rigorous evaluation of alternatives to the major cost items (i.e., dewatering and subsequent transportation of relatively dry tailings versus methods to handle and transport wet tailings). Further, it would have been helpful if some 	<ul style="list-style-type: none"> The basic approach to design development, both during Phase 1 and during this cost review, has been to conserve available resources of time and funding by advancing a single Design Base Case that represents the design team’s consensus on the most likely compilation of execution methods for Option 4. The selection of specific components of this Base Case has been, and will continue to be, validated as

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
	<p>of the alternative approaches that would result in cost reductions that AMEC proposes to investigate in the 60% Design Phase were evaluated and included during this cost refinement exercise.</p>	<p>the design is advanced. This basic approach was adopted as a more efficient alternative to advancing multiple variants to comparable levels of design development before committing to one alternative.</p> <ul style="list-style-type: none"> It was always understood (see report Section 3.3) that this cost review would not reflect the design development activity proposed for the 60% Design Phase. This is because of the need to reconcile project cost estimates with funding constraints before a commitment can be offered to proceed with Phase 2.
<p>1.4.3 Paragraph 2</p>	<ul style="list-style-type: none"> ... defining a consensus range for the most sensitive quantities. Please clarify which parties will participate in this consensus. 	<ul style="list-style-type: none"> The design team, and the Partners during report reviews, and the 23 October cost workshop.
<p>2.4.2 Detailed Estimate Reconciliation</p>	<ul style="list-style-type: none"> It is recommended that costs for site maintenance between construction seasons, design contingencies and adaptive management items be left in the Cost Estimate. Costs will be incurred for each of these line items. 	<ul style="list-style-type: none"> These items have been retained in the estimate.
<p>2.4.2 General method for removing tailings from the TSF</p>	<ul style="list-style-type: none"> AMEC is proposing a robust approach to dewater the tailings. Some investigation of the risk/benefit of transporting and placing wet tailings is recommended as the costs associated with dewatering, mixing tailings with PAG rock and placing alternating layers of PAG and tailings/PAG mixture is considerable. 	<ul style="list-style-type: none"> As noted in Sections 4.3 and 7.3, this would require a reconsideration of the key tenets of Option 4 (specifically the “Stable Surfaces” and “Water Quality” Driving Project Criteria) because of the impacts of wet tailings relocation on the stability and performance of the pit cover, and on downstream surface water quality.
<p>2.4.2 Water treatment</p>	<ul style="list-style-type: none"> The approximate \$5 million discrepancy between AECOM and AMEC’s estimates is largely due to AECOM proposing a smaller water treatment plant. Utilization of a smaller plant, and the cost/benefits and scheduling adaptations associated with a smaller water treatment plant should be evaluated. 	<ul style="list-style-type: none"> This evaluation is part of the Phase 2 (60% Design Development) scope that has been deferred pending completion and consideration of the cost review. Note that post Phase 1 treatability testing undertaken during the 2014 SI program suggests that a 15% reduction in the scope of the treatment capability can likely be defended. This reduction was reflected in the lower bound sensitivity assessment (Table 4.1-1 of the Cost Review). In addition, a general 20% reduction in treatment scope/cost was applied in the lower bound assessment to reflect AMEC’s

Comment ID ¹	Comment (10 November 2014)	Response (21 November 2014)
		judgement about the potential outcome of the storage vs. capacity optimization planned for Phase 2.
2.4.2 Removal of hazardous materials from site	<ul style="list-style-type: none"> AMEC states that costs associated with this item will likely be lowered in the 60% design phase. It is recommended that AAM investigate the requirements to store hazardous materials on site so that costs associated with this line item can be refined prior to the 60% design phase. 	<ul style="list-style-type: none"> This evaluation is part of the Phase 2 (60% Design Development) scope that has been deferred pending completion and consideration of the cost review.
Table 3.2-1 Item 4: Water Treatment Plant	<ul style="list-style-type: none"> Costing assumes a large, fixed treatment plant. An evaluation of treatment alternatives including scheduling adjustment that would permit use of a smaller treatment plant would be useful 	<ul style="list-style-type: none"> This evaluation is part of the Phase 2 (60% Design Development) scope that has been deferred pending completion and consideration of the cost review. Note that post Phase 1 treatability testing undertaken during the 2014 SI program suggests that a 15% reduction in the scope of the treatment capability can likely be defended. This reduction was reflected in the lower bound sensitivity assessment (Table 4.1-1 of the Cost Review). In addition, a general 20% reduction in treatment scope/cost was applied in the lower bound assessment to reflect AMEC's judgement about the potential outcome of the storage vs. capacity optimization planned for Phase 2.
Table 3.2-1 Item 6: Dewatering	<ul style="list-style-type: none"> This line item still assumes that dewatering is necessary. Alternatives to dewatering should be investigated and evaluated. 	<ul style="list-style-type: none"> See above response to comment "2.4.2 General method for removing tailings from the TSF".
Table 3.2-1 Item 8: Design Contingencies and Adaptive Management	<ul style="list-style-type: none"> As discussed during the October 23 meeting, these costs may be removed from the design cost estimate, however they must be identified in some place. 	<ul style="list-style-type: none"> The treatment of these costs is typically a function of the estimating and accounting policies of the client organizations). For the purposes of AMEC's cost review document, they have been retained as discrete line items in the estimate, cost reconciliation and sensitivity assessment.