

COMMENT LOG

Document Title: Mount Nansen Remediation Project - Summary of 2013 Site Investigation Program (draft memo)

Document Date: November 15, 2013

AMEC File No. VM00605E

Comments By: MNRP Project Partners - AAM, AANDC, LSCFN

Responses By: AMEC – Renata Wood

Response Date: March 5, 2014

Comment / Change ID	MNRP Project Partners Comments or Change	Status / Response
Page 1: Inserted Josee.Perron 17/12/2013 9:51:00 AM	(Site Investigation Data Report and Site Characterization Report)	Updated footnote with appropriate reference
Page 1: Inserted Josee.Perron 17/12/2013 9:52:00 AM	These reports will be submitted during the month of December.	Accepted
Page 1: Deleted Josee.Perron 17/12/2013 9:50:00 AM	are	Accepted
Page 1: Inserted Josee.Perron 17/12/2013 9:50:00 AM	of	Accepted
Page 2: Inserted Josee.Perron 17/12/2013 9:50:00 AM	and 2	Updated to include all figure numbers
Page 2: Inserted Josee.Perron 17/12/2013 9:50:00 AM	and 2	Updated to include all figure numbers
Page 3: Comment [J1] Josee.Perron 17/12/2013 9:58:00 AM	In this section, it is mentioned that some samples are stored for potential future testing. The storage conditions for these samples could be included here (e.g. in recovered moisture state, bagged and placed outside, stored outside in a core box, frozen samples kept in a freezer, etc).	Have added additional details in text
Page 3: Deleted Josee.Perron 17/12/2013 9:55:00 AM	soil	Not accepted - Only soil samples were gathered from the drilling, test pits and

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		hand auger investigation, water samples were from well sampling so the term soil was retained. Water samples are discussed in a subsequent section.
Page 3: Comment [J2] Josee.Perron 17/12/2013 9:56:00 AM	See note in the table and work plan, I thought additional test pits were completed.	40 test pits were completed in total. New table listing all locations has been included
Page 3: Comment [J3] Josee.Perron 17/12/2013 9:56:00 AM	The hand augers locations are not on the map for Dome creek, can you please insert them?	Done
Page 3: Inserted Josee.Perron 17/12/2013 9:59:00 AM	13-	accepted
Page 3: Comment [J4] Josee.Perron 17/12/2013 10:06:00 AM	There is no discussion of the impact of not having instrumentation at this location and there doesn't appear to be other instrumentation in the vicinity. A brief discussion on what the impacts of not installing that well will have on the design and implementation and long term monitoring phases of the project should be included. (i.e. if it will have no impact, why was it proposed in the first place or how was the impact mitigate this field season?). The discussion could be inserted here or in the conclusion of this memo.	Added in text
Page 3: Comment [J5] Josee.Perron 17/12/2013 10:08:00 AM	It is not clear from the figure which boreholes and test pits were advanced for "roads" and which were advanced for the mill area, hopefully a detail plan for the Mill Area will help clear this up.	Have added the descriptors to the table as well as close ups of the mill area. Also inserted new table summarizing all investigation locations which lists the area being investigated
Page 3: Comment [J6] Josee.Perron 17/12/2013 9:56:00 AM	5?	Yes should have been 5
Page 3: Comment [J7]	6?	No only 4, SP1 and 2 weren't done. Only

Comment / Change ID	MNRP Project Partners Comments or Change	Status / Response
Josee.Perron 17/12/2013 9:56:00 AM		3, 4, 5, and 6 which were added and were actually grab samples
Page 4: Comment [J8] Josee.Perron 17/12/2013 10:18:00 AM	The terms shallow and deep are used for the driven mini-piezometers. It is confusing about the inferred range of depths of these instruments, since they were manually driven but are being used to measure "deep" groundwater. AMEC may wish to use different descriptors here to help clear up any perceived confusion between this bullet point and the one a couple down.	Updated text to be more clear
Page 4: Comment [J9] Josee.Perron 17/12/2013 10:09:00 AM	Why is the numbering for the mini piezometers on Dome Creek goes to 10 and there is no 4?	4 was attempted but abandoned because of refusal. Planned numbering convention was retained as location 4 was still used for seepage meter testing. This has been clarified in the text.
Page 4: Comment [J10] Josee.Perron 17/12/2013 10:19:00 AM	Are the data loggers connected to the vibrating wire piezometers yet? The report leads me to believe that data loggers were not installed by the time of report issue. When does AMEC expect to install the data loggers by? I thought that during AE last visit the remaining loggers were installed, is that correct?	They were hooked up on the day the memo was issued. Text has been updated.
Page 4: Comment [J11] Josee.Perron 17/12/2013 10:10:00 AM	Could you specify what instruments/wells were installed in which boreholes, it could be put in appendix in a table or describe here?	Updated bullets to provide clarity. Also included in investigation location table and on close up of open pit.
Page 5: Comment [J12] Josee.Perron 17/12/2013 10:14:00 AM	Samples were collected during freshet for groundwater, seep and surface water by AMEC, am I correct? If so, it should be mentioned.	Added reference to freshet memo
Page 5: Deleted Josee.Perron 17/12/2013 10:12:00 AM	al	Accepted

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Page 5: Comment [J13] Josee.Perron 17/12/2013 10:13:00 AM	Was it possible to get samples from all locations, I seem to recall that some of the wells were dry and some were frozen.	Have updated text to clarify and have provided a table summarizing all the wells that were successfully sampled.
Page 5: Comment [J14] Josee.Perron 17/12/2013 10:15:00 AM	These are a repeat of section 3.3 above?	Yes, deleted.
Page 6: Comment [J15] Josee.Perron 17/12/2013 10:23:00 AM	Was any reconnaissance done to determine how the gradation of the tailings varies within the pond? Do we know where the old spigot points were, or able to get a guess from the reconnaissance program?	Gradation of the tailings was assessed through drilling and test pitting not a simple visual reconnaissance. We did not try to locate the old spigot points during the reconnaissance. These questions have not been addressed in the final memo.
Page 6: Inserted Josee.Perron 17/12/2013 10:21:00 AM	the identificaiton	Agree, grammar editing needed, used a different word.
Page 6: Deleted Josee.Perron 17/12/2013 10:21:00 AM	identify	
Page 6: Inserted Josee.Perron 17/12/2013 10:21:00 AM	of	
Page 6: Comment [J16] Josee.Perron 17/12/2013 10:22:00 AM	The geophysics lines should be shown on the plan/figure.	Done
Page 7: Comment [J17] Josee.Perron 17/12/2013 10:24:00 AM	Survey of Dome Creek, figure shows 11 cross-sections report says 10.	Should be 11, updated
Page 7: Comment [J18] Josee.Perron 17/12/2013 10:24:00 AM	Not shown on the figure, can you please identify the location?	Done
Page 7: Comment [J19] Josee.Perron 17/12/2013 10:25:00 AM	Were any insitu bulk density testing done on the tailings? Are any moisture-density relationship (Proctor) tests proposed for the tailings (I would assume a few tests to cover the variations in gradation). Will the consolidation tests best 1-dimensional or 3-dimensional or is it known yet?	No in-situ bulk densities were planned or done because of the inaccuracy there always is with these measurements in sand. We have densities of insitu soils from Klohn reports done with a CREEL barrel which are far more reliable than what we would measure. This was also

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		asked in the data report and will be discussed there. Proctor tests were done and have been added to the list, oedometer tests were 1D, text updated
Page 7: Deleted Josee.Perron 17/12/2013 10:25:00 AM	Mine	Ooops – sorry, did a search for any other occurrences
Page 7: Inserted Josee.Perron 17/12/2013 10:25:00 AM	Site	Accepted
Page 8: Comment [J20] Josee.Perron 17/12/2013 10:28:00 AM	The report states that the 2013 program has provided the information necessary to complete the PRELIMINARY DESIGN. Furthermore, it was AANDC understanding that the 2013 program, if completed to the scope described in TAR #4 and TAR #5, would include sufficient major geotechnical and hydrogeological investigations to carry the project through to the implementation phase (design to 100%). Now that the program is complete and some data has been collected and reviewed can we re- visit this discussion and get opinions from GY - AAM and AMEC on the potential for additional site investigation works between now and the implementation phase? Unless unanticipated results are obtained, the potential SI is mainly related to potential additional monitoring (water, instrumentation datalogger collection, etc.), is that correct?	Having gone through the design process we do think that there will be a need to do some supplementary work although we are not expecting that a drill rig will be needed. It is likely that in addition to monitoring additional investigations will include: <ul style="list-style-type: none"> • Shallow auger holes to confirm conditions at tie ins between reclaimed and undisturbed areas • Assessment of sediments and areas of concern in Dome Creek downstream of the seepage collection dam • Possibly work to delineate off site borrow (this might require drilling depending on permitting requirements but we would prefer to use hand augers etc to minimize disturbance at this stage) • Visual assessment of trenches in conjunction with project partners to confirm need for reclamation or not

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		<ul style="list-style-type: none"> • Specialized laboratory testing of pit, and tailings pond water as well as tailings pore water to optimize water treatment system. • Others as required if gaps are identified in baseline data
<p>Page 9: Comment [J21] Josee.Perron 17/12/2013 10:32:00 AM</p>	<p>-Should the Dome creek stream flow through the diversion vs. through the pond, or was it the intent to show where it use to flow and where it will flow in the future? -Please provide similar information for the borehole around the pit, i.e. depth of each borehole and instrumentation/well installed, in some instance only one of the two is put forward. - The current figures should be kept, however, detail figures (zoom in of each areas) should be provided for mill area/camp area, pit/waste rock area and the tailings dam area showing all boreholes, test pits, geophysics and instrumentation for each area. It is hard to determine from the figures provided. -Which image is being used, I believe that there is a newer image, does AMEC have it?</p>	<p>- Approximate thalweg shown for reference and to identify area of thick tailings, label added to clarify - added table to close up of pit drawing - close up figures added (3, 4 and 5) - the 2012 ortho image is used because it is very similar to the 2013 and is much better quality.</p>
<p>Page 1: Comment [J22] Josee.Perron 17/12/2013 10:38:00 AM</p>	<p>The table should be updated to reflect what was done vs. what was planned, this could be done by using the status column or a new column to described the change in depth and what has been removed. We can discuss this comment if necessary.</p>	<p>Have provided a little more detail in the status column and also inserted a new table 2 which lists all off the completed investigation locations</p>
<p>Page 1: Change Josee.Perron 17/12/2013 10:39:00 AM</p>	<p>Formatted Table</p>	

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Page 1: Comment [J23] Josee.Perron 17/12/2013 10:35:00 AM	According to my note, installs were only completed in 02 to 04, can you verify, in addition, are these installs worth mentioning since they were completed poorly, will we be able to get information out of them or should we avoid mentioning them?	Yes wells were installed in 2, 3, and 4. These are not monitoring wells and as installed will function to provide measurement of water level. Two of the wells were installed within the tailings so there is no impermeable layer in which to locate a seal and since it isn't a monitoring well there isn't a concern about migration of sand into the well. In fact most of the 2009 wells installed in the tailings did not have a placed filter pack or seal. Those features were added only when installing in the insitu material below the tailings to seal off the insitu soils from the tailings. The standpipe in BH02 is also likely influenced by the water level in the tailings because there is no seal to isolate the insitu soils. The tailings water level was one of the key objectives of the program so we could confirm if there was or wasn't a perched pond so this information is useful.
Page 1: Comment [J24] Josee.Perron 17/12/2013 10:37:00 AM	SPTs were not completed due to the use of the sonic drill and it was discuss that the info would be obtained through the CPTs and geoprobe testing, is that correct?	Yes, have updated the status column to reflect this
Page 1: Formatted Josee.Perron 17/12/2013 10:39:00 AM	Left	
Page 2: Comment [J25] Josee.Perron 17/12/2013 10:39:00 AM	No install completed?	Correct, have clarified in the status column
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Page 6: Comment [J26] Josee.Perron 17/12/2013 10:40:00 AM	Why? Provide explanation.	Addressed in status column
Page 6: Comment [J27] Josee.Perron 17/12/2013 10:41:00 AM	5 additional holes were completed, should be added here with the location and on the map.	Done
Page 7: Change Josee.Perron 17/12/2013 10:42:00 AM	Formatted Table	Accepted
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Page 7: Comment [J28] Josee.Perron 17/12/2013 10:42:00 AM	According to my notes these 2 were the ones that were hand augered, can you please verify?	Yes your notes are correct, table has been corrected.
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Page 8: Comment [J29] Josee.Perron 17/12/2013 10:43:00 AM	Which one, please specify and was replace by which borehole?	My mistake, they actually did complete the test pit as a test pit after clearing the area with geophysics. I had misunderstood. The table is now correct.
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Page 9: Comment [J30] Josee.Perron 17/12/2013 10:44:00 AM	I thought we did additional test pit or grab samples for this portion of the program, it should be mentioned if it is the case, my notes has an additional 4 locations?	Yes there were 4 additional grab sample locations although they were still labelled TP-SP. The original 2 TP-SPs were not completed but a visual reconnaissance was done. Status column has been updated to reflect this.
Page 9: Change Josee.Perron 17/12/2013 10:42:00 AM	Formatted Table	
Page 9: Formatted Josee.Perron 17/12/2013 10:45:00 AM	Font: 10 pt	
Page 9: Comment [J31] Josee.Perron 17/12/2013 10:45:00 AM	TP-T-13-03 and 08 were not completed due to unsafe access according to my notes	Yes, change accepted.
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Page 10: Formatted Josee.Perron 17/12/2013 10:42:00 AM	Left	
Page 12: Inserted Josee.Perron 17/12/2013 10:46:00 AM	and condition encountered at site?	Text edited
Header and footer changes		
Page 1: Deleted Josee.Perron 17/12/2013 10:20:00 AM	Reclamation	Accepted and searched document for word reclamation to make sure it is used in the appropriate context.
Page 1: Inserted Josee.Perron 17/12/2013 10:20:00 AM	Remediation	