Natural Resources Canada Ressources naturelles Canada

December 4, 2013

David Pearson and Philip Byer
Marathon Joint Review Panel Secretariat
16 Elgin Street, 22nd Floor
Ottawa, ON K1A 0H3

Sent via email to MarathonMine.Review@ceaa-acee.gc.ca

Re: Participation of Natural Resources Canada in the Public Review and Comment Period on Additional Information for the proposed Marathon Platinum Group Metals and Copper Mine Project

Thank you for your November 19 letter inviting Natural Resources Canada (NRCan) to provide comments on the supplemental information submitted by the proponent, Stillwater Canada Inc. in relation to the review of the Marathon Platinum Group Metals and Copper (PG-Cu) Mine project.

In its letter, the Joint Review Panel (JRP) requested that NRCan review the responses to supplementary information requests, and provide comments in writing to the JRP on the sufficiency and technical merit of the Environmental Impact Statement (EIS), along with the supplemental information, as measured against the EIS Guidelines.

NRCan is participating as a federal authority in the JRP's assessment of this project, providing specialist and expert information and knowledge within the meaning of s. 20 of the *Canadian Environmental Assessment Act, 2012*. NRCan also has a regulatory role for the Project, as it may issue a licence, pursuant to section 7(1)(a) of the *Explosives Act*, for manufacture and storage of explosives at the Marathon PGM-Cu mine site.

NRCan has considered the adequacy of the technical merit of the responses to the supplemental information requests (SIRs) as measured against the EIS Guidelines and the JRP requests. With respect to IRs that relate to expertise the department is providing, NRCan is of the view that the proponent responses to SIRs #3, #4 and #6 are sufficient and respond adequately to the panel's IRs. Please refer to the tables following this letter for additional information.

If you have questions or require clarification on our comments please feel free to contact Kate Cavallaro at (613) 996-0055 or Kathleen.Cavallaro@nrcan.gc.ca.

Sincerely,

Original Signed by

John Clarke
Director
Environmental Assessment Division

cc:
Mark Pearson
David McNabb
Linda Richard

NRCAN'S SUFFICIENCY REVIEW OF STILLWATER INC.'S RESPONSE TO PANEL SUPPLEMENTAL INFORMATION REQUESTS FOR THE MARATHON PGM-CU MINE PROJECT

The following tables provide NRCan's sufficiency review of Stillwater Inc.'s (the proponent) response to panel supplementary information requests #3, #4 and #6 related to NRCan's mandate and the expertise for the proposed Marathon PGM-Cu Mine project.

SIR 3: Acid Base Accounting

IR Number	Document Reference	Panel Supplemental Information Request	Proponent Response	NRCan Sufficiency Review
SIR 3 Related to 9.4.1	573	1. Consider and respond to Natural Resources Canada's opinion regarding the need to: a. Establish the PAG and non-PAG materials classification boundary based on carbonate NP; b. Use a Carb-NPR of 2 or higher to account for weathering related carbonate minerals dissolution and loss irrespective of the acid generation process; and c. Apply a total sulphide cut off boundary of ~ 0.1% sulphur for PAG (Type 2) and non-PAG (Type 1) classification of mine rock. 2. Recalculate the quantities of PAG and non-PAG rock, per	1.a and b. As presented in the response to IR 9.4.1, all samples, with the exception of one outlier, that had total sulphur contents less than 0.3%S also had NP/AP (or NPR based on the modified Sobek method) ratios greater than 2. And the use of 0.3%S provided a measure that would ensure that the Type 1 rock would have an NPR greater than 2. NRCan suggested to the JRP that a more conservative approach would be to have the criteria based on the Carb-NPR of 2 to account for some loss of dissolved carbonate during neutralization. SCI has discussed this matter with NRCan and agrees to use the carbonate NP and specifically a Carb-NPR of 2 to distinguish Type 1, (non-potentially acid generating) from Type 2 rock. This is consistent with guidance by MEND (Price, 2009). The use of the Carb-NP/AP ratio means that we need a measure of the Carb-NP and sulphur content in order to calculate the Carb-NP/AP ratio rather than just a measure of sulphur alone. As discussed below, this is practically achievable and can be managed during the mining operation. The proposed approach for the identification of Type 2 rock will be to measure the sulphur and carbon contents on the blast-hole samples that will be used for assays and grade control during mining. The carbon	NRCan is satisfied with the response provided by the proponent.

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		1a, b and c above. 3. Assess the effects of the recalculated estimates of PAG / non-PAG quantities on the existing mine plan, particularly on the design, location and management strategies for both temporary PAG rock stock piles, ore stock piles, MRSA, and any potentially impacted infrastructure.	content can be measured on the same induction furnace equipment (eg. Leco) that is used to measure sulphur, and therefore can be completed in a timely manner during the mining operation. The data show that all carbon in the rock represents carbonate. Therefore a carbon/sulphur ratio will determine the Carb-NP/AP ratio so that rock will be classified as Type 2 if the Carb-NP/AP ratio is less than 2. The sulphur content of 0.3%S will also be considered as a threshold value for Type 1 rock to ensure that the Type 1 rock will have minimal metal leaching at neutral pH. 1.c. The cut-off of 0.3%S for Type 1 rock that was proposed in the EIS is not intended to identify materials that have a potential for acid generation. The classification of the material as Type 1 or Type 2 will be addressed with the Carb-NPR, as agreed to with NRCan and noted above. The sulphur content is, however, relevant to manage the risk of metal leaching. Other than sulphate, the sulphur content has little to no effect on leaching rates below a sulphur content of 1%S. Therefore the use of 0.3%S to minimize metal leaching in Type 1 rock is considered to be conservative and reasonable. In a meeting with the technical reviewer at NRCan (29 August 2013 prior to the issuance of the SIRs by the JRP on 30 August), it was clarified that NRCan was suggesting a cut-off of 0.1%S if sulphur was the only criterion to be used to identify Type 1 rock because there was a correlation between sulphur content and the Carb-NPR values. However, with the use of the Carb-NPR value of 2 to identify Type 1 rock, there is no justification to have a sulphur cut-off value of 0.1%S and a cut-off of 0.3%S is reasonable for the reasons stated above. This was discussed with NRCan at the meeting. It is also relevant that the sulphide-sulphur content is approximately 86% of the total-sulphur content. A total sulphur of 0.3%S represents a	

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			sulphide content of 0.26%S. Therefore there is a level of conservatism already inherent in the proposed total sulphur cut-off value. Total sulphur, not sulphide sulphur, will be measured during the mining operation. 2. The statistics for the acid base accounting (ABA) data base on mine rock were assessed and the updated block model was run to determine the quantities of Type 1 and Type 2 rock. The data suggest that if the Carb-NP/AP criterion of 2 is used (and a sulphur content greater than 0.3%S is considered for metal leaching), the total amount of Type 2 rock will be on the order of 15 Mt (million tonnes). This is well within the 20 Mt of Type 2 rock that was conservatively assumed for the EIS and can be appropriately managed in the manner described in the EIS. 3. The mine plan in the EIS had allowance for the management, including temporary storage and relocation, of up to 20 Mt of Type 2 rock during mining. As noted above, the updated estimate of Type 2 rock is approximately 15 Mt. This is 25% less less than the quantity initially assumed and assessed in the EIS. Therefore, the management of Type 2 rock will be consistent with that proposed in the EIS with no material changes required as a result of the proposed classification of Type 1 and Type 2 rock. The amount of Type 1 rock for storage in the MRSA has also been updated. The updated inventory of Type 1 rock in the MRSA is less than the original quantity proposed in the EIS. The MRSA is designed to contain all Type 1 rock without any need to adjust the mine plan or mine rock management plans compared to those proposed in the EIS.	

SIR 4: COPC Loading Rates and Water Quality

IR Number	Document Reference	Panel IR	Proponent Response	NRCan Additional Information Request
SIR 4 related to IR 9.8	572	1. Provide the methodology used to obtain the specific and total surface areas for various particle size fractions of the humidity cell test samples given in Table 9.8-1 and for the modeled waste rock particle size distribution given in Table 9.8-2. 2. Provide an explanation for the reported differences between the respective values of specific and total surface areas given as 1,179,260 m2/tonne and 15,3330 m2 in Table 9.8-1 and the corresponding 31,059 m2/tonne and 331 m2 in Table 9.8-2 for the very fine, silt and clay size fractions of diameter 0.001 mm. 3. Consider and respond to Natural Resources Canada's	The responses to items 1, 2 and 3, below, were reviewed with NRCan at a meeting on 29 August 2013 in Ottawa prior to the Panel issuing this SIR. **1.** The specific surface area (A_s) is calculated as m_2/kg with the following equation; A_s = 6/(density x diameter) (Eq 1) taken from Nicholson (1994) in which "density" is the particle density (2800 kg/m_3) and "diameter" is the particle diameter (m). The measured particle diameter distributions for the humidity cell samples are presented in Table 9.8-2 below. The particle size distribution for the blast rock is presented in Table 9.8-3 below. The original modelled grain size distribution presented in the response to IR 9.8 has been supplemented by adding the humidity cell grain size distribution for the less than 4.76 mm size fraction in the Blast Rock particle size distribution and that distribution is shown as highlighted values in Table 9.8-3. The calculated geometric mean of the particle diameters for each grain size interval is also shown in the tables for clarity. **2.** The apparent differences in the surface areas are related to the selection of the midpoint of the particle diameter in any grain size interval. The geometric mean of the upper and lower particle size of the interval is used to calculate the specific surface area of the	NRCan is satisfied with the response provided. Uncertainty may still exist with respect to the particle size correction factor. In order to clarify uncertainty related to particle size related correction factor of 0.01, NRCan recommend to SCI that the particle size distribution related correction should be revisited by obtaining actual particle size distribution of blast rock fragments, specifically those of finer fractions below 10 mm, and by undertaking field lysimeter tests for mine rock and process solids at ambient temperature and environmental conditions <u>during the early stages of mine development and operation</u>. The actual field data would then be used for prediction of drainage water quality from mine rock storage area (MRSA) and process solid management facility (PSMF) for the development of their long term management strategy.

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		opinion regarding the need to: a) Remove the additional correction factor of 0.01 pertaining to the very fine particle size fractions applied to obtain the field COPC mass loading of waste rock in the MRSA; b) Recalculate waste rock COPC loads by multiplying by an additional factor of 2 to account for the difference in the temperature correction factor of 0.17 in EcoMetrix (2010) and the MEND (2006) recommended value of 0.31; and c) Apply the temperature correction factor of 2 to type 1 and 2 process solids drainage water quality predictions. 4. Recalculate COPC loads as suggested by Natural Resources Canada. Using these new estimates, assess the impact on the water quality of MRSA and process solids management facility (PSMF) drainages, the receiving basins and ultimately that of	particles in the interval. In the original Table 9.8-1 (response to IR 9.8), the upper and lower grain sizes were 0.002 and 0.001 mm, respectively, giving a geometric mean of 0.0014 mm and a surface area of 1,179,260 m_2/tonne. In the original Table 9.8-2, the upper and lower grain sizes in the interval were 4.76 and 0.001 mm, respectively, giving a geometric mean of 0.069 mm and a specific surface area of 31,059 m_2/tonne. Table 9.8-2 has been revised to reflect the inclusion of the grain size distribution for the humidity cell material in the Blast Rock grain size distribution for material less than 4.76 mm in size. The grain size intervals are consistent between Tables 9.8-1 and 9.8-2 and show the same specific surface areas for the corresponding grain size intervals. **3a.** It is not appropriate to remove the adjustment factor for the particle size distribution differences between that expected in the Blast rock and that measured in the humidity cells. NRCan comment 3 relates to the adjustment factor that was applied to account for the differences in particle sizes between the rock in the humidity cell tests and the rock that will be present in the stockpile. NRCan suggested that the unit mass loading (or leaching) rate in the humidity cell should be applied directly to the rock in the stockpile because both contain a similar fraction of particles that are 0.001 mm in diameter. NRCan presented mathematical equations to illustrate the relationship between the loading rates for the humidity cells to those in the mine rock stockpile. This is illustrated with the use of fractions f1, the fraction of 0.001 mm size material in the humidity cell samples, and f2, the fraction of 0.001 mm size material in the blast rock that will represent the mine rock stockpile. The value of f1 is 1% as measured in the grain size analysis. NRCan assigned	

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		Hare Lake / Creek and Pic River.	a value of 1% to f2 however this is not the appropriate value. The 1.1% in the blast rock represents the fraction of material that has a grain diameter less than 4.76 mm, similar to material in the HC sample that has a maximum grain size of 4.5 mm. Therefore the value of f2 should be close to 1% of f1 or about .01% and not 1%. Using this correct value for f2 gives an adjustment factor of 0.01 for the humidity cell loading rate to derive the mine rock stockpile loading rate in the NRCan calculation. Using the appropriate value of 0.01% for f2, it can be shown that the adjustment factor of 0.01 used to account for grain size differences between the humidity cells and the expected blast rock is appropriate. The leaching rates that are measured in humidity cell tests are surface controlled as is the case with most reactions between solids and water. Although the rates are expressed as mass of COPC released per unit time per mass of sample tested (mg/kg/wk), a more appropriate measure is a rate per unit surface area of the rock expressed as mass of COPC released per unit time per surface area of rock (mg/m2/wk). This was shown in Tables 4.3 and 4.7 in EcoMetrix (2012) to summarize loading rates that can be applied to rock with known surface areas. The leaching rates are proportional to the surface area of the rock and as shown in the response to IR 9.8, the surface area increases with decreasing particle size. As indicated by the particle size distributions in IR 9.8 and reproduced below (Table 9.8-2), the humidity cell test samples contained material that was likely less than 0.001 mm in diameter as measured by the Hydrometer analysis (see lab analysis sheet attached to IR 9.8). These fine particles would have been produced during crushing of the drill core samples to produce the	

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			material used in the humidity cell test. A geometric mean of the particle diameter of 0.0014 mm was used to be conservative even though the Hydrometer test indicated that the particles were less than 0.001 mm. If a particle diameter of 0.001 mm had been used, the total surface area of the humidity cell samples would increase from 24,469 m^2 to 36,995 m^2 (an increase of 51%). The particle size distribution for the Blast rock provided in the response to IR 9.8 and presented below (Table 9.8-2) indicates that roughly 1% (more precisely, 1.065%) of the material would pass a 4.76 mm sieve. The results of the particle size distribution for the HC sample for grain sizes less than 4.5 mm (that is similar to 4.76 mm for the smallest blast rock shown in Table 9.8-2) was used to fill in the distribution between 4.76 and 0.001 mm and is highlighted in Table 9.8-2. The 1.065% of material smaller than 4.5 mm was distributed with the same percentage distribution and is shown as highlighted text in Table 9.8-2 below, that was modified from the response to IR 9.8 to clarify the calculations. For example, the humidity cell samples had an average of 27.0 % of the mass in the 4.5 to 2.0 mm size interval (Table 9.8-1). Therefore, the percent of blast rock with this particle size should be approximately 27% x 0.01065 or 0.32%. The specific area calculation gives a value of 310 m^2/t for the blast rock (Table 9.8-2) compared to a specific area for the humidity cell samples of 24,469 m^2/t (Table 9.8-1). The blast rock has a calculated surface area that is 1.3% of the humidity cell sample. Therefore, the ratios of the surface areas agree well with the estimate based on mass that indicates that the mine rock in the stockpile will have only about 1% of material as fine as the humidity cell material and therefore the loading rates for the rock	

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			in the stockpile will be about 1% of those measured in the humidity cell based on the particle size distributions. The relative surface areas or ratios between the surface areas for the humidity cell samples and the blast rock material are not sensitive to the presence of material with particle diameters less than 0.001 mm. If the 0.001 mm fraction is removed from both the humidity cell and blast rock materials, the overall surface areas of each material deceases but the ratio of the blast rock to humidity cell surface areas remains at 1%. When the surface area per tonne is known, the leaching rate from the humidity cell results can be used to calculate the unit leaching rate for the stockpile. Because the unit rate based on surface area is used, the stockpile will have a unit rate that is 1% of the humidity cell rate in agreement with the ratio of the specific surface areas for the respective materials that were applied in EcoMetrix (2012). Furthermore, the particle size adjustment factor was assessed with a sensitivity analysis. The adjustment factor was increased by a factor of 3 from 1% to 3% to address some potential for variation in the results of the particle size modelling on the Blast rock. **3b and c.** The temperature adjustment factor of 0.3 was considered and the water quality was recalculated as a sensitivity case to compare to the results reported in the EIS. The results of this sensitivity assessment are discussed for the water quality results for the process solids management facility (PSMF) and the mine rock storage area (MRSA) in detail in the following sections of this response.	

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			4. Predicted Concentrations in MRSA Drainage The first portion of this response explains the results of the changes in predicted loadings from **MRSA** drainage and Pic River water quality for sensitivity cases that were considered for the temperature and particle size adjustment factors. Four scenarios are shown for MRSA drainage and Pic River water quality. These are: 1. Base Case (Scenario 1) – the predicted loadings and concentrations based on the methods described in the EIS with updates for the current conceptual design quantity of Type 1 mine rock of 191 Mt plus 5% of the design quantity of 20 MT of Type 2 mine rock in the MRSA, 2. Scenario 2 – same as the Base Case except the temperature adjustment factor was changed to 0.3 or about two times that in the Base Case, 3. Scenario 3 – same as the Base Case except that the particle size adjustment factor was set to a factor of 3 times the Base Case value, 4. Scenario 4 – same as the Base Case except the temperature adjustment factor was changed to 0.3 and the particle size adjustment was set to a factor of 3 times the Base Case value. **Predicted Concentrations in the PSMF Discharge** The effects of the sensitivity cases for the predicted **PSMF** discharge and Hare Lake Water quality are presented for a Base Case and an Upper Bound case below. These cases are described and discussed in more detail in the response to SIR 5. The following includes a brief description of the updated conditions and summaries of the prediction results. The two cases that were considered were:	

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			1. Base Case – updated chemistry of the process water for the mill, taken as the decant water from the 2013 pilot plant metallurgical test; updated loading rates from the 2012 humidity cells on Type 1 process solids; the assumed design capacity of 20 M tonnes of the temporary Type 2 mine rock stockpiles; the assumed design capacity of 10 M tonnes of ore stockpiled at the mill during operations; the design for the PSMF, with updated areas of beaches and ponds; and the updated water balance for the PSMF including the mill output and reclaim (as described in the response to SIR 5). 2. Upper Bound – same as the Base Case except that the temperature adjustment factor was changed for all mine rock and process solids loading rates to 0.3 as suggested by NRCan and the particle size adjustment factor was increased by a factor of 3 from that used in the Base Case for the Type 2 mine rock in the temporary stockpiles. **Table Descriptions (full tables can be seen in SIR 4):** **Table 1a** shows the predicted concentrations in the MRSA drainage for what is referred to here as the Base Case (the assumptions used originally). **Table 1b** shows the predicted concentrations in MRSA drainage if the temperature adjustment factor is changed from 0.17 to 0.3 as suggested by NRCan. **Table 1c** shows the predicted concentrations in MRSA drainage if the particle size adjustment factor is increased by a factor of 3 above that in the Base Case as a sensitivity case referred to here as Scenario 3.	

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			Table 1d shows the predicted concentrations of COPCs in the drainage from the MRSA for a scenario where both the temperature adjustment factor and the particle size adjustment factors are increased as described above in Scenarios 3 and 4, respectively. **Table 2** shows the predicted maximum loadings from the MRSA drainage for each of the scenarios. **Table 3** shows the predicted concentrations for the four scenarios compared to the existing background water quality, as measured in the Baseline Study presented in the EIS (SID 6 Table 3-6), in the Pic River for the average flow of 51.4 m^3/s. **Table 4** presents the predicted concentrations for the four scenarios compared to the existing "Background" water quality in the Pic River for low flow representing a 7Q20 condition of 4.2 m^3/s. **Table 5** shows the predicted concentrations of the untreated water discharge from the PSMF. **Table 6** presents the predicted concentrations at the edge of the mixing zone of the discharge system in Hare Lake based on the discharge concentrations shown in **Table 5** above and as discussed in greater detail in the response to SIR 5. **Supplemental Information for 3a.** The following Tables 9.8-1 and 9.8-2 are reproduced from the response to IR 9.8 and are provided here to assist with response	

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			3a above. Table 9.8-2 was modified to clarify the response to comments from NRCan that are the basis for SIR 4. The information that was added to the original Table 9.8-2 is highlighted for ease of comparison to the original table.	

SIR 6: Groundwater Recharge, Retention and the Effects of Climate Change

IR Number	Document Reference	Panel IR	Proponent Response	NRCan Additional Information Request
SIR 6 related to IR 19 IR 22.2 IR 24.5	574 EC sufficiency review 547	Groundwater Recharge 1. Explain the rationale for the recharge rate used in the numerical groundwater model. 2. Recalculate the annual recharge value and demonstrate to what extent the new value affects the numerical groundwater model through the operations, closure and post-closure phases of the project. 3. Clarify whether and how the estimation of recharge can be improved beyond correcting the error. In this regard, note that the Golder (2007) report	**Proponent response summary (full response in found in SIR 6)** The information provided in response to SIR 6 is summarized as follows: 1. The PSMF closure water balance considered potential climate change by modelling a scenario using a 1 in 25 year dry annual precipitation value and a scenario using the 5th percentile monthly precipitation values. The 1 in 25 year dry case presented a lower annual precipitation, which assumed month to month persistence of below normal conditions. The extreme dry conditions based on 5th percentile monthly precipitation values were meant to be used for estimating water balance conditions in a specified month and not for inferring conditions among consecutive months. 2. Additional modelling was presented to demonstrate that there will be sufficient water available to maintain the Type 2 process solids in a saturated state. The results of the additional modelling	From a hydrogeology perspective, NRCan is satisfied with the proponent's response.

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		suggests that a more accurate measure of the groundwater recharge to the study area would require a hydrological assessment in determining base flows from main watersheds in the area during periods of low precipitation. *Effects of Climate Change on the Design of the PSMF* 1. With respect to current climate change modelling undertaken by SCI to date, explain the implicit assumption that monthly precipitation values are independent as opposed to assuming month to month persistence. 2. Demonstrate through the application of new modelling - and assuming future multi-year drought scenarios and month to month persistence – the potential effects of increases in temperature and evaporation through climate change on the maintenance of moist conditions of type 2 process	show that, under persistent drought conditions, the infiltration into the process solids will be sufficient to replace water lost from seepage. The potential increases in climate temperature and evapotranspiration may have an effect on the process solids moisture and vegetation cover but would not have an effect on the saturated state of the deeper Type 2 process solids. The sensitivity of the model results to climate change scenarios is also discussed. 3. The additional modelling demonstrates that groundwater recharge during the early spring and late fall is the key factor in maintaining the moisture conditions in the Type 2 process solids as it replaces water lost through seepage/evapotranspiration. The model results show that even under extreme drought conditions, the groundwater recharge will be sufficient to maintain saturated conditions in the Type 2 process solids. 4. The Contingency plans to maintain saturated conditions in the Type 2 process solids are presented. Contingency measures focus on increasing the infiltration and recharge of the water table in the process solids. **REFERENCES** Gray, D. M. (1970). *Handbook on the principles of hydrology*. New York. Water Information Center Inc. Knight Piesold Ltd. (KPL). (2013a). Memorandum to Tabatha LeBlanc. Re: *Information Request 22.2: PSMF Closure Design Under a Range of Climate Scenarios.* February 12. North Bay, Ontario. NB13-00083.	

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		solids within the PSMF, post closure. 3. Demonstrate whether groundwater recharge and retention are the key factors in maintaining moist conditions of the Type 2 process solids within the PSMF, even under multi-year drought scenarios post closure. 4. Identify the contingency plans in the event groundwater levels are not maintained in the PSMF as planned.	Knight Piesold Ltd. (KPL). (2013b). Transmittal to Tabatha LeBlanc. Re: *Joint Review Panel Information Request 9.7 – Geological Cross Section of PSMF and MRSA and Separation of Process Solids.* February 14. North Bay, Ontario. NB13-00082. Knight Piesold Ltd. (KPL). (2013c). Memorandum to Kevin McCarthy. Re: *Process Solids Management Facility Seepage Analysis*. June 10. North Bay, Ontario. NB13-00080. Singer, S. N. & Cheng C. K.. (2002). An Assessment of the Groundwater Resources of Northern Ontario: Areas Draining into Hudson Bay, James Bay and Upper Ottawa River. Hydrogeology of Ontario Series (Report 2). Ministry of the Environment. Toronto, Ontario. Stillwater Canada Inc. (SCI). (2012a). Supporting *Information Document No 21. – Surface Water Hydrologic Impact Assessment.* Prepared by Calder Engineering Ltd. Kleinburg, Ontario. Ref. No. 09-115. Stillwater Canada Inc. (SCI). (2012b). *Supporting Information Document No. 8 - Greenhouse Gas and Climate Change Assessment for the Marathon PGM-Cu Project.* Prepared by Ecometrix Inc. Mississauga, Ontario. Ref. No. 11-1851	