

Diavik Diamond Mines (2012) Inc.
P.O. Box 2498
Suite 300, 5201-50th Avenue
Yellowknife, NT X1A 2P8
Canada
T (867) 669 6500
F 1-866-313-2754

Ms. Violet Camsell-Blondin
Chair
Wek'èezhii Land and Water Board
Box 32
Wekweètì, NT X0E 1W0

2 August 2017

Dear Ms. Camsell-Blondin

Subject: Proposed Update to SNP, Station 1645-41, DDMI Water Licence W2015L2-0001

Diavik Diamond Mines (2012) Inc. (DDMI) is currently planning for the dewatering of the A21 Pool, which is scheduled to commence in early October 2017. The Surveillance Network Program (SNP) outlined in Annex 1 of Water Licence W2015L2-0001 includes one monitoring station (1645-41) for the A21 dike pool dewatering (Stations Applying to the A21 Construction and Development). DDMI has reviewed the current sampling requirements for 1645-41 with the Inspector and they are provided here in Table 1 of Attachment I: Current and Proposed Surveillance Network Program Requirements for Station 1645-41. As currently written, there is a lack of certainty and clarity related to the sample collection frequency and the collection of a sample on the final day of Dewatering.

Sample Collection - Frequency

Water from the A21 dike pool is approved for pumping directly to Lac de Gras, provided that it meets DDMI's Effluent Quality Criteria (EQC). Once water sample results show that water quality in the A21 pool is approaching EQCs, DDMI then re-directs the A21 pool water to the North Inlet and ceases pumping to Lac de Gras. DDMI's interpretation of the requirements in Annex 1 is that the sampling frequencies at 1645-41 for dewatering are linked to the direct discharge of water to the receiving environment (Lac de Gras), and would not be required when water is directed to the North Inlet. This approach was applied during the dewatering of the A154 and A418 pools. Suggested wording to clarify this requirement is provided in Table 2 (Attachment I), followed by a more detailed explanation of the rationale for the change.

Sample Collection – Final Day of Dewatering

In advance of A21 pool dewatering the SNP requires DDMI to conduct sampling of the pool water from 5 stations spaced along a longitudinal transect across the surface of the pool. DDMI is currently working with the Inspector to approve these locations. The wording in the SNP for the final day of Dewatering currently requires a sample from each of these 5 sites. Water levels in the pool will reduce with dewatering, as will the surface area of the pool, and water will not be present in each of the areas where the original 5 sample stations were located. A similar issue occurred during the A154 and A418 pool dewatering; in both cases, only two locations could be sampled at the point when water was directed to the on-land storage facility. For A21, unsafe conditions (i.e. ice) will not allow the direct sampling of water at any of the five initial locations. Suggested wording to clarify this requirement is provided in Table 2 (Attachment I), followed by a more detailed explanation of the rationale for the change.

DDMI is requesting that the sample frequency description for 1645-41 be modified to add regulatory certainty and clarity. DDMI requests that these changes be in place by October 1, 2017. To assist with the review process, DDMI has attached the current SNP requirements for 1645-41 (Table 1), along with a track-changes (Table 2) and clean (Table 3) version that includes DDMI's proposed modifications.

If you have any questions related to DDMI's request to update the wording to SNP Station 1645-41, please contact the undersigned.

Yours sincerely,



David Wells
Superintendent, Environment

cc. Anneli Jokela, WLWB
Sarah Elsasser, WLWB

Attach: Attachment I: Current and Proposed Surveillance Network Program Requirements for Station 1645-41

Attachment I: Current and Proposed Surveillance Network Program Requirements for Station 1645-41

Table 1: Surveillance Network Program (SNP) Station 1645-41 (Active) - CURRENT

Description:	A21 SNP Station: Near intake structure for dike pool dewatering			
Location:	A21			
Sampling Frequency:	Once prior to commencement of Discharge at a minimum of five (5) stations evenly spaced along a longitudinal transect as approved by an Inspector. At each station, samples must be collected at surface and at two (2) metre intervals	Daily during Dewatering	Every six (6) days during Dewatering	Once on the final day of Dewatering at each of the five (5) sites
Sampling Parameters:	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Total Suspended Solids, Turbidity, Total Phosphorus	Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵
	Note: Additional sampling may be required at the request of an Inspector			
Rationale for Station:	To monitor water quality during A21 development			

Table 2: Surveillance Network Program (SNP) Station 1645-41 (Active) - Proposed

Description:	A21 SNP Station: Sample Spigot from Dewatering Pipeline Near intake structure for dike pool dewatering				
Location:	A21				
Sampling Frequency:	Once prior to commencement of Discharge at a minimum of five (5) stations evenly spaced along a longitudinal transect in the A21 pool , as approved by an Inspector. At each station, samples must be collected at surface and at two (2) metre intervals	Daily during Dewatering to Lac de Gras	Every six (6) days during Dewatering to Lac de Gras	Once on the final day of Dewatering to Lac de Gras at each of the five (5) sites	Every (2) weeks during Dewatering to the North Inlet
Sampling Parameters:	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Total Suspended Solids, Turbidity, Total Phosphorus	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients⁵, Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients⁵, Total Petroleum Hydrocarbons (TPH)
	Note: Additional sampling may be required at the request of an Inspector				
Rationale for Station:	To monitor water quality during A21 Pool Dewatering development				

Rationale

- Station Description: DDMI recommends updating the wording to reflect the planned process. With the exception of the initial sampling transect prior to Dewatering, all water samples will be collected from a sample spigot directly on the dewatering pipeline, rather than from the pool surface using a boat. This is to prevent staff exposure to unsafe conditions (ice, in-take pumps, access restrictions).
- Sampling Prior to Discharge: With the change in Station Description, DDMI recommends adding the words “in the A21 pool” for clarity.
- Daily Dewatering Sampling Frequency: DDMI recommends the addition of “to Lac de Gras” to provide certainty and clarity. Within the SNP no “internal” stations require daily sampling. It is DDMI’s interpretation that daily sampling is only required when Discharge is directly occurring to the receiving environment.

- Six Day Dewatering Sampling Frequency:
 - DDMI recommends the addition of “to Lac de Gras” to provide certainty and clarity. Within the SNP no “internal” stations require six day sampling, with the exception of influent (1645-13) to the North Inlet Water Treatment Plant (NIWTP). It is DDMI’s interpretation that six day sampling is only required when Discharge is directly occurring to the receiving environment (e.g. NIWTP effluent, 1645-18 and 1645-18B) or for those specific reasons highlighted in the description of 1645-13.
 - DDMI recommends adding pH, Total Suspended Solids, and Turbidity to the six day sample requirements so that these sampling parameters align with those required on the final day of Dewatering.

- Final Day of Dewatering:
 - DDMI recommends the addition of “to Lac de Gras” to provide certainty and clarity. As the SNP is currently written, the final day of dewatering will have water directed to the North Inlet, rather than to Lac de Gras, which in our opinion is not the intended purpose of this requirement.
 - DDMI recommends the removal of “at each of the five (5) sites” from this column as well, as water at the original 5 sampling locations will not be present. A review of historic data from the Dewatering of the A154 (1645-39) and A418 (1645-40) Pools indicates that samples were collected from two of the five sites on the final day of Dewatering to Lac de Gras. As described above, unsafe conditions (i.e. ice) will not allow for direct sampling of water at any of the five initial locations within the A21 pool. DDMI recommends that water be sampled from the dewatering pipeline on the final day of Dewatering to Lac de Gras.
 - DDMI recommends adding Total Petroleum Hydrocarbons (TPH) to the sampling parameters required on the final day of dewatering in order to align with the six day frequency requirements.

- Rational for Station: DDMI recommends removing “development” and replacing it with “Pool Dewatering”.

- DDMI recommends adding a sampling frequency requirement of every two weeks for water directed to the North Inlet. The frequency and parameters are the same as required for underground Dewatering (1645-75 and 1645-75B), which is a similar daily volume.

Table 3: Surveillance Network Program (SNP) Station 1645-41 (Active) – Proposed (Clean Version)

Description:	A21 SNP Station: Sample Spigot from Dewatering Pipeline				
Location:	A21				
Sampling Frequency:	Once prior to commencement of Discharge at a minimum of five (5) stations evenly spaced along a longitudinal transect of the A21 pool, as approved by an Inspector. At each station, samples must be collected at surface and at two (2) metre intervals	Daily during Dewatering to Lac de Gras	Every six (6) days during Dewatering to Lac de Gras	Once on the final day of Dewatering to Lac de Gras	Every (2) weeks during Dewatering to the North Inlet
Sampling Parameters:	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Total Suspended Solids, Turbidity, Total Phosphorus	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)	pH ⁴ , Field Parameters ³ , ICP-MS Metal Scan ¹ (Total), Major Ions ² , Total Suspended Solids, Turbidity, Nutrients ⁵ , Total Petroleum Hydrocarbons (TPH)
	Note: Additional sampling may be required at the request of an Inspector				
Rationale for Station:	To monitor water quality during A21 Pool Dewatering				