



May 12, 2022

Mr. David Felderhof  
Zephyr Gold USA Ltd.  
1959 Upper Water St. Suite 1300  
Halifax, Nova Scotia, CA B3J 3N2

**Re: Third Adequacy Review, Dawson Gold Mine, Permit No. M-2021-046**

Dear Mr. Felderhof:

The Division of Reclamation, Mining and Safety (DRMS/Division) has completed its review of your responses (dated April 28, 2022) to our March 23, 2022 second adequacy review (SAR) for the Dawson Gold Mine 112d-2 Reclamation Permit Application. **The current decision date for the application is May 31, 2022.**

The third adequacy review only pertains to those items responded to in your responses to the Division's second adequacy review. The Division acknowledges there are other outstanding adequacy items that have not been addressed and it is the intent of the applicant to withdraw the application before addressing those outstanding items.

The following adequacy items need to be addressed:

#### **6.4.7 EXHIBIT G - Water Information**

1. Section 2.7.2: Division comment, while this section describes potential physical (quantity) impacts to surrounding creeks, particularly Grape Creek. The purpose for monitoring surface water is to monitor potential impacts to quality as well as quantity.
2. Section 2.7.4: The first paragraph does not mention surface water sampling on Grape Creek in the monitoring network despite surface water locations being listed in Table 2.7.4.1-1. Additionally, it appears that Table 2.4.7-2 Reg. 32 Stream Classification and Water Quality Standards may have been mislabeled and is intended to be Table 2.7.4-2 cited in this paragraph. The Division believes the applicant intends to sample monitoring wells and compare those results to the standards listed in Table 2.7.4-1 Reg No. 41 Most Restrictive Groundwater Standards and surface water sample results will be compared standards listed in Table 2.7.4-2 Reg. 32 Stream Classification and Water Quality Standards. Please affirmatively acknowledge this is the applicant's intent.
3. Section 2.7.4: The last paragraph alludes to one surface water sampling location when there are two on the map. Please commit to sampling the two locations located on Figure 3 and listed in table 2.7.4.1-1 on a quarterly basis.



## **QAPP**

4. Table 5.2 is missing. Is this the same table as Table 2.7.4.1-1, if not please provide the table?
5. Section 5.3: Please commit to seeking Division approval, through a Technical Revision, on changing the frequency of surface water sampling during site development and mine operations. The Division expects that quarterly sampling of the surface water locations will continue on a quarterly basis until a Technical Revision is submitted and approved.
6. Section 6.4: Well purging, in the second paragraph it is stated that one casing volume will be removed prior to sample collection. The Division requires a minimum purge volume equal to three casing volumes be removed prior to sample collection. This volume is consistent with EPA guidelines for volumetric purging of monitoring wells prior to sampling. However, the applicant could monitor water-quality-indicator parameters. These measurements should be taken and recorded every ½ well volume after the removal of 1 to 1 ½ well volume(s). Once three successive readings of the water-quality-indicator parameters provided in the table have stabilized, sampling may begin. Water quality is considered stable if for three consecutive readings:
  - temperature range is no more than +/-1°C;
  - pH varies by no more than 0.2 pH units;
  - specific conductance readings are within 10% of the average

No more than six casing volumes should be removed to minimize over pumping effects to the well. All measurements taken will be recorded on the appropriate field sheet.

Please commit to using these guidelines for monitoring well purging.

7. Section 6: There is no section describing how surface water samples will be collected. Please commit to collecting surface water samples following the techniques described below.

Typically surface water samples are collected using the grab technique and the data are used to represent conditions at the exact moment sampling occurs. The grab sample shall be collected from the main channel or thalweg, which is the line of fastest flow in the stream channel and often the deepest, just below the water surface.

If stream conditions are unsafe for the sampler to wade into the thalweg, the grab sample may be collected from the stream bank where active flow occurs or where stream flow is directed along the bank, or from a bridge using a bucket.

### **Instream Direct Method**

Follow these procedures when collecting the routine and duplicate samples instream.

- Put on powder-free nitrile gloves or any applicable PPE.
- Remove the first non-filtered sample container from the re-sealable bag.

- Proceed to a point within the thalweg, or other approved location, and face upstream.
- Remove the container cap and submerge the sample container into the thalweg water column.

**Note:** Metals containers may have already been acid washed and do not need to be rinsed with sample before filling.

If a rinse is required then fill the container  $\frac{1}{4}$  full, re-cap, shake forcefully, and then discard the rinsate downstream from the sample point. Repeat two more times. It is important to also rinse the cap since it is part of the “container”.

- Fill the container to the desired level, cap, and return container to the re-sealable bag.
- Repeat the above steps for the remaining non-filtered containers.
- Proceed to the filtering phase.
- Triple rinse with deionized water any sample collection device, such as a bucket, filter holder or syringe that is to be reused from site to site.

### **Bucket Direct Method**

Bridge sampling can be performed on the upstream or the downstream side of a bridge if access to the stream bank is hazardous or if property access was unobtainable. However, be cognizant of the exact location of the station. Some station descriptions are specific as to whether it is located upstream or downstream of the bridge.

Follow these procedures when collecting the routine and duplicate samples from a bridge.

- Put on powder-free nitrile gloves or any PPE.
- Based on the site description and established coordinates, approach the upstream or downstream side of the bridge. In the absence of a directional descriptor or if the coordinates fall directly on the bridge, default to the upstream side of the bridge.
- From the bridge, position yourself directly over the thalweg and lower the bucket down into the water column.
- Fill the bucket.
- Raise the bucket back to the bridge.

For upstream side sampling, discard the bucket rinsate to the downstream side of the bridge. If the bridge is heavily traveled by motor vehicles do not attempt to cross the road to discard the rinsate. While on the bridge, laterally move to one side of the thalweg and dump the bucket rinsate back into the stream away from the sample point.

For downstream side sampling, laterally move to one side of the thalweg and dump the bucket rinsate back into the stream away from the sample point.

- Repeat the bucket rinsing procedure twice more.
- On the fourth bucket, fill with stream water up to the  $\frac{3}{4}$  quarter point of the bucket and raise the bucket back up to the bridge. This is your sample.
- For non-filtered samples, remove the container cap and pour water from the bucket directly into the sample containers to the prescribed levels. Do not dip the sample containers into the bucket.

**Note:** Metals containers may have already been acid washed and do not need to be rinsed with sample before filling.

**Note:** If a rinse is required then fill the container  $\frac{1}{4}$  full, re-cap, shake forcefully, and then discard the rinse water downstream from the sample point. Repeat two more times. It is important to rinse the cap since it is part of the “container”.

- Return the container(s) to the re-sealable bag
- Proceed to the filtering phase.
- Triple rinse with deionized water any sample collection device, such as a bucket, filter holder or syringe that is to be reused from site to site.

A meter reading should be performed on the last bucket volume.

8. Section 9.1.1.3 Duplicates: In this section it states duplicate samples will be collected at a rate of one per type and only one groundwater duplicate will be collected per quarter. The Division wants the applicant to commit to collecting at least one surface water duplicate sample once per quarter in addition to the one groundwater duplicate sample per quarter.

If you need additional information or have any questions, please contact me by telephone at **303-866-3567 x8114**, or by email at [patrick.lennberg@state.co.us](mailto:patrick.lennberg@state.co.us).

Sincerely,



Patrick Lennberg  
Environmental Protection Specialist

cc: Tim Cazier, DRMS  
Michael Cunningham, DRMS  
Lucas West, DRMS  
Jared Ebert, DRMS  
Angela Bellantoni, PhD, EAI