

MLR ANNUAL REPORT ADDENDUM

Sunnyside Mine and Mayflower Mill

File No. M-1977-378

April 2017 to March 2018

Sunnyside Gold Corporation ("SGC")  
San Juan County  
Silverton, Colorado

Submitted to:

Division of Reclamation, Mining and Safety  
Colorado Department of Natural Resources  
Denver, Colorado

**ANNUAL REPORT FORM SUPPLEMENTAL INFORMATION FOR NUMBERED QUESTIONS**

4. Date of last excavation, processing or hauling was August 1991.
8. While the 131.3 acres have not been released, reclamation has been completed in accordance with the approved mine plan and, therefore, the acres are no longer "affected lands."
13. The predominant method used for placement of seed, fertilizer and mulch was listed on the report form as hydro-seed. Broadcast was the alternate method used for seeding and fertilizer placement and hand spreading with equipment crimp as an alternate for mulch placement.
20. If any reclamation remained to be completed, a legal right to enter is still valid. SGC completed its reclamation in 2006. With respect to the reclamation previously completed at the permit area near the American Tunnel, any legal right to enter has been complicated by the private landowner's subsequent agreements with EPA and EPA's actions at that site.

## **SITE RECLAMATION ACTIVITY**

### **APRIL 2017 TO MARCH 2018**

Reclamation activity during the 2017 reporting year (April 2017 to March 2018) consisted of reclamation monitoring, minor maintenance at the Tailings Pond No. 4 area and activity by others within the permit area. In the following sections of this report, environmental activity during the 2017 reporting year and activity within the permit area by others is discussed on a site by site basis.

All four of the below permit areas have been included in the listing for the so-called Bonita Peak Mining District NPL site. In 2018, SGC intends to request area release for the Terry Tunnel and Sunnyside Basin permit areas.

#### **PERMIT AREA NEAR THE AMERICAN TUNNEL** - (Map attached)

During the 2017 reporting year, no additional acreage was disturbed or reclaimed by SGC. Activity at this site consisted of monitoring what little remains of the reclaimed site. With completion of work in 2006, all of the reclamation work in the reclamation plan was completed. The two buildings and surrounding area that remained after reclamation were occupied in 2017 by the EPA under an agreement with the current owner of the land and buildings. SGC had no involvement in that process.

Since the Gold King incident on August 5, 2015, EPA has taken over the area to use as a staging area for their Gold King response and to build and operate a water treatment plant to treat the Gold King flows. As a result, most of SGC's reclamation work has been and remains disturbed. Given the EPA occupation of the site, and the previous completion of SGC's reclamation obligations, SGC assumes EPA will be responsible for this area going forward.

**TERRY TUNNEL AREA** - (Map attached)

During the 2017 reporting year, no additional acreage was disturbed.

Activity at this site consisted of;

- 1) monitoring of the reclaimed site.

**SUNNYSIDE BASIN (LAKE EMMA) AREA** - (Map attached)

During the 2017 reporting year, no additional acreage was disturbed.

Activity at the site consisted of;

- 1) monitoring of the reclaimed site.

**TAILINGS POND No.4** - (Map attached)

During the 2017 reporting year no additional acreage was disturbed other than minor disturbance caused by installation of monitoring wells.

Activity at this site consisted of;

- 1) monitoring, minor maintenance and weed control.
- 2) conducting a voluntary study, at the request of EPA, CDPHE and BLM, of the Animas River from Arrastra Creek to the 14<sup>th</sup> Street bridge in Silverton to determine what impact, if any, the Mayflower facilities may be having on water quality. This work is discussed in the monitoring section.
- 3) Monitoring the nine boreholes placed on Tailings Pond #4 to characterize the tailings and depth to groundwater. These holes were converted into monitoring wells.
- 4) Placement of five additional monitoring wells within the permit area. These well locations are shown on the reclamation map.

Water Quality Monitoring

Sunnyside Mine and Mayflower Mill

File No. M-1977-378

April 2016 to March 2017



## **MONITORING** - Water Quality

Attached is water quality data for;

- 1) Mayflower Millsite area
  - a) Animas River above (AR3.5) and below (AR4) complex.
- 2) Permit Area near the American Tunnel
  - a) Cement Creek above (CC1) and below (CC2) complex.
  - b) Springs in the area of the now reclaimed waste dump (ATS1, ATS2). These springs no longer flow from their original sites because of the waste dump reclamation and are no longer sampled. Copies of old data is not included.

## **MONITORING** - Discussion of Water Quality Monitoring Results

### 1) Mayflower Millsite area

The Animas River monitoring results continue to exhibit increased zinc and manganese concentrations between upstream and downstream monitoring points although the differential for zinc was relatively small in 2017. The differential for manganese was highest in the fall sample. The small zinc differential may be the result of the completed diversions and reclamation projects.

At the request of EPA, CDPHE and BLM, SGC voluntarily implemented a study to assess what impact, if any, the Mayflower Area tailings ponds have on water quality in the segment of the Animas River between Arrastra Creek and the 14<sup>th</sup> Street bridge in Silverton (A-68). The MLR monitoring points are within this segment.

The study included the following: continuation of the close spaced in-stream water quality samples as well as sampling of visible inflow along the segment during high-flow and low-flow; in-stream sediment and pore water sampling and the monitoring of the groundwater levels and water quality beneath the tailings ponds. Nine (increased to fourteen in 2017) of these monitoring wells are within SGC's MLR permit area on Tailings Pond 4 (refer to map).

The study results were similar to 2015 and 2016. In general,

the highest concentration results in 2017 were during low flow.

2) Permit Area near the American Tunnel

Cement Creek monitoring shows metals concentrations are similar between the points with some elevation for most metals between the upstream and downstream points. The metals with the largest changes are iron, manganese and zinc. Following its takeover of the area, EPA discharges the treated Gold King water between the monitoring stations.

The seep ATS2, originally from the toe of the American Tunnel waste dump, has either relocated or dried up. The seep ATS1 appears to have disappeared or relocated due to the reclamation of the waste dump.

# **APPENDIX A**

## **Monitoring Data**



GPS Coordinates: N37° 49.622' W107°37.596'

A-1

| Mean    | 0.5       | 0.001  | 0.004  | *      |        |       |       |       |       |      |      |      |      | 0.25 | 0.41 | 0.33 |
|---------|-----------|--------|--------|--------|--------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| Std dev | 0.2       | 0.001  | 0.010  |        |        |       |       |       |       |      |      |      |      | 0.14 | 0.21 | 0.11 |
| Station | mg/l      | mg/l   | mg/L   | mg/l   | mg/l   | mg/l  | mg/l  | mg/l  | mg/l  | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |      |
| AR3.5   | FI        | dCd    | dCu    | dHg    | dPb    | dAg   | dAl   | dCrT  | dFe   | dMn  | dSr  |      |      |      |      |      |
| AR3.5   | 01-May-15 | <0.001 | 0.008  | <0.001 | <0.005 | <0.01 | <0.05 | <0.01 | <0.03 | 0.19 |      |      |      |      | 0.26 |      |
| AR3.5   | 09-Sep-15 | <0.001 | <0.005 | <0.001 | <0.005 | <0.01 | <0.05 | <0.01 | <0.03 | 0.27 |      |      |      |      | 0.27 |      |
| AR3.5   | 23-May-16 | <0.001 | 0.009  | <0.001 | <0.005 | <0.01 | 0.06  | <0.01 | 0.03  | 0.18 | 0.21 |      |      |      | 0.25 |      |
| AR3.5   | 01-Sep-16 | <0.001 | <0.005 | <0.001 | <0.005 | <0.01 | <0.05 | <0.01 | <0.03 | 0.54 | 0.44 |      |      |      | 0.23 |      |
| AR3.5   | 31-May-17 | <0.001 | 0.009  | <0.001 | <0.005 | <0.01 | 0.07  | <0.01 | 0.03  | 0.18 | 0.19 |      |      |      | 0.25 |      |
| AR3.5   | 05-Sep-17 | <0.001 | <0.005 | <0.001 | <0.005 | <0.01 | <0.05 | <0.01 | <0.03 | 0.25 | 0.47 |      |      |      | 0.17 |      |

Sunnyside Gold Corporation-Sunnyside Mine/Mayflower Mill

MLR Report

Site: AR 4

GPS Coordinates: N37° 48.976' W107° 38.974'

|         |            | * * * |         |         |          |     |     |      |        |         |     |         |       |      |      |
|---------|------------|-------|---------|---------|----------|-----|-----|------|--------|---------|-----|---------|-------|------|------|
| Mean    |            | 7.0   | 262     | 189     | 4        | 32  | 119 | 39   | 89     |         |     | mg/l    | mg/l  | mg/l | mg/l |
| Std dev |            | 0.5   | 75      | 80      | 10       | 6   | 33  | 7    | 30     |         |     | mg/l    | mg/l  | mg/l | mg/l |
|         |            | ===== |         |         |          |     |     |      |        |         |     | =====   |       |      |      |
| Station | Sampledate | Qmgd  | FieldpH | labcond | TDS(180) | TSS | Alk | Hard | Bicarb | Sulfate | CO3 | NO3&NO2 | NH3-N |      |      |
| AR4     | 01-May-15  |       | 6.9     | 230     | 150      | <5  | 33  | 99   | 40     | 70      | <5  | 0.14    | <0.1  |      |      |
| AR4     | 09-Sep-15  |       | 6.4     | 349     | 220      | <5  | 38  | 144  | 46     | 110     | <5  | 0.08    | <0.1  |      |      |
| AR4     | 23-May-16  |       | 6.2     | 153     | 100      | <10 | 27  | 62   | 22     | 40      | <5  | 0.11    | <0.1  |      |      |
| AR4     | 01-Sep-16  |       | 6.5     | 263     | 180      | <5  | 33  | 124  | 41     | 90      | <5  | 0.06    | <0.1  |      |      |
| AR4     | 31-May-17  |       | 6.3     | 136     | 100      | 6   | 25  | 58   | 30     | 30      | <5  | 0.07    | <0.1  |      |      |
| AR4     | 05-Sep-17  |       | 6.3     | 315     | 190      | <5  | 38  | 133  | 46     | 100     | <5  | <0.05   | <0.1  |      |      |

|         |            | *<br>mg/l |        |        |        |        |       |       |        |       |      |      |      |      |      |      |     |      |     |      |     |      |     |      |     |
|---------|------------|-----------|--------|--------|--------|--------|-------|-------|--------|-------|------|------|------|------|------|------|-----|------|-----|------|-----|------|-----|------|-----|
| Mean    | 0.505      | 0.001     |        |        |        |        |       |       |        |       |      |      |      |      |      |      |     |      |     |      |     |      |     |      |     |
| Std dev | 0.359      | 0.002     |        |        |        |        |       |       |        |       |      |      |      |      |      |      |     |      |     |      |     |      |     |      |     |
| Station | Sampledate | mg/l      | FI     | mg/l   | dCd    | mg/l   | dHg   | mg/l  | dPb    | mg/l  | dAg  | mg/l | dAl  | mg/l | dCrT | mg/l | dCu | mg/l | dFe | mg/l | dMn | mg/l | dSr | mg/l | dZn |
| AR4     | 01-May-15  | 0.4       | 0.001  | <0.001 | <0.001 | <0.005 | <0.01 | 0.06  | <0.01  | 0.009 | 0.1  | 0.75 | 0.35 |      |      |      |     |      |     |      |     |      |     |      |     |
| AR4     | 09-Sep-15  | 0.5       | <0.001 | <0.001 | <0.005 | <0.01  | 0.06  | <0.01 | <0.005 | 0.16  | 1.05 | 0.36 |      |      |      |      |     |      |     |      |     |      |     |      |     |
| AR4     | 23-May-16  | 0.3       | <0.001 | <0.001 | <0.005 | <0.01  | 0.08  | <0.01 | 0.009  | 0.08  | 0.34 | 0.21 |      |      |      |      |     |      |     |      |     |      |     |      |     |
| AR4     | 01-Sep-16  | 0.5       | <0.001 | <0.001 | <0.005 | <0.01  | 0.06  | <0.01 | <0.005 | 0.11  | 1.02 | 0.36 |      |      |      |      |     |      |     |      |     |      |     |      |     |
| AR4     | 31-May-17  | 0.2       | <0.001 | <0.001 | <0.005 | <0.01  | 0.07  | <0.01 | 0.007  | 0.07  | 0.34 | 0.17 |      |      |      |      |     |      |     |      |     |      |     |      |     |
| AR4     | 05-Sep-17  | 0.6       | 0.001  | <0.001 | <0.005 | <0.01  | 0.07  | <0.01 | <0.005 | 0.15  | 0.94 | 0.45 |      |      |      |      |     |      |     |      |     |      |     |      |     |

Sunnyside Gold Corporation  
Sunnyside Mine/Mayflower Mill  
MLR Report

Site: CC1

GPS Coordinates: N37° 53.525' W107° 38.921'

| SAMPLE SITE | Sampledate | Qmgd | FieldpH | labcond | TDS(180) | TSS | Ac  | Hard  | NO3&NO2 | NH3  | FI   | P    | CL | sulfate | Ca  | Mg | K  | Na |
|-------------|------------|------|---------|---------|----------|-----|-----|-------|---------|------|------|------|----|---------|-----|----|----|----|
| CC-1        | 01-May-15  |      | 3.6     | 9       | 570      | 26  | 53  | 292.0 | <0.05   | <0.1 | 1.6  |      | <5 | 350     | 104 | 8  | 2  | 10 |
| CC-1        | 15-Sep-15  |      | 4.0     | 1870    | 1580     | 48  | 139 | 827.0 | <0.05   | 0.3  | 4.3  |      | <5 | 930     | 298 | 21 | 2  | 10 |
| CC-1        | 23-May-16  |      | 3.25    | 310     | 190      | 10  | 24  | 90    | 0.08    | <0.1 | 0.6  | <0.1 | <5 | 120     | 32  | 3  | <1 | 1  |
| CC-1        | 01-Sep-16  |      | 3.75    | 870     | 660      | 20  | 43  | 358   | <0.05   | <0.1 | 1.6  | <0.1 | <5 | 390     | 127 | 10 |    | 6  |
| CC-1        | 31-May-17  |      | 3.83    | 259     | 170      | 11  | 19  | 77    | <0.05   | <0.1 | 0.50 | <0.1 | <5 | 90      | 27  | 2  | <1 | 3  |
| CC-1        | 05-Sep-17  |      | 4.69    | 1240    | 1070     | 25  | 74  | 547   | <0.05   | <0.1 | 2.9  | <0.1 | <5 | 640     | 199 | 12 | 1  | 18 |

| SAMPLE SITE | Sampledate | dAl  | dAs    | dB    | dCd   | dCr   | dCu   | dFe  | dPb   | dMn  | dHg    | dSe    | dAg   | dSr  | dZn  |
|-------------|------------|------|--------|-------|-------|-------|-------|------|-------|------|--------|--------|-------|------|------|
| CC-1        | 01-May-15  | 3.43 | <0.005 |       | 0.011 | <0.01 | 0.215 | 13.5 | 0.013 | 7.22 | <0.001 | <0.005 | <0.01 |      | 4.84 |
| CC-1        | 15-Sep-15  | 9.16 | <0.005 |       | 0.034 | <0.01 | 1.61  | 18.3 | 0.013 | 19.5 | <0.001 | <0.005 | <0.01 |      | 14   |
| CC-1        | 23-May-16  | 1.58 | <0.005 | <0.01 | 0.006 | <0.01 | 0.146 | 3.27 | 0.009 | 1.89 | <0.001 | <0.005 | <0.01 | 0.31 | 1.83 |
| CC-1        | 01-Sep-16  | 2.71 | <0.005 | <0.01 | 0.014 | <0.01 | 0.138 | 10.3 | 0.012 | 9.05 | <0.001 | <0.005 | <0.01 | 1.16 | 4.32 |
| CC-1        | 31-May-17  | 1.25 | <0.005 | <0.03 | 0.004 | <0.01 | 0.114 | 2.2  | 0.008 | 1.59 | <0.001 | <0.005 | <0.01 | 0.22 | 1.77 |
| CC-1        | 05-Sep-17  | 3    | <0.005 | <0.03 | 0.012 | <0.01 | 0.113 | 19.9 | 0.019 | 12.4 | <0.001 | <0.005 | <0.01 | 2.16 | 6.72 |



SUNNYSIDE GOLD CORPORATION  
Sunnyside Mine/Mayflower Mill  
MLR REPORT  
Site: CC-2

GPS Coordinates: N37° 53.400 W107° 39.160°

| Station | Sampledate | Qmgd | FieldpH | labcond | TDS(180) | TSS | Ac  | Hard | Bicarb | Sulfate | Ca  | Mg | K  | P    | Na | CO3 | NO3&NO2 | NH3-N |
|---------|------------|------|---------|---------|----------|-----|-----|------|--------|---------|-----|----|----|------|----|-----|---------|-------|
| CC2     | 01-May-15  |      | 3.63    | 933     | 640      | 34  | 80  | 326  | <5     | 410     | 115 | 10 | <1 |      | 14 | <5  | <0.05   | <0.1  |
| CC2     | 09-Sep-15  |      | 3.59    | 1980    | 1650     | 46  | 145 | 859  | <5     | 970     | 308 | 22 | 2  |      | 10 | <5  | <0.05   | 0.5   |
| CC2     | 23-May-16  |      | 3.23    | 459     | 290      | 10  | 33  | 146  | <5     | 180     | 52  | 4  | <1 | <0.1 | 3  | <5  | 0.07    | <0.1  |
| CC2     | 01-Sep-16  |      | 3.46    | 1050    | 790      | 25  | 58  | 423  | <5     | 480     | 150 | 12 | <1 | <0.1 | 7  | <5  | <0.05   | <0.1  |
| CC2     | 31-May-17  |      | 3.76    | 368     | 240      | 13  | 24  | 118  | <5     | 140     | 42  | 3  | <1 | <0.1 | 4  | <5  | <0.05   | <0.1  |
| CC2     | 05-Sep-17  |      | 4.69    | 1680    | 1550     | 51  | 57  | 880  | <5     | 950     | 325 | 17 | 2  | <0.1 | 18 | <5  | <0.05   | <0.1  |

|         |            | *<br>===== |      |        |       |        |        |       |      |       |       |      |      |      |      |      |      |
|---------|------------|------------|------|--------|-------|--------|--------|-------|------|-------|-------|------|------|------|------|------|------|
| Station | Sampledate | mg/L       | mg/l | mg/l   | mg/l  | mg/l   | mg/l   | mg/l  | mg/l | mg/l  | mg/l  | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| CC2     | 01-May-15  | CL         | FI   | dAs    | dCd   | dHg    | dPb    | dAg   | dAl  | dCrT  | dCu   | dFe  | dMn  | dSr  | dZn  |      |      |
| CC2     | 01-May-15  | <5         | 1.9  | <0.005 | 0.019 | <0.001 | 0.018  | <0.01 | 4.49 | <0.01 | 0.279 | 16.4 | 10.9 |      | 7.22 |      |      |
| CC2     | 09-Sep-15  | <5         | 4.3  | <0.005 | 0.034 | <0.001 | 0.022  | <0.01 | 9.36 | <0.01 | 1.58  | 20.5 | 20.9 |      | 14.4 |      |      |
| CC2     | 23-May-16  | <5         | 0.9  | <0.005 | 0.009 | <0.001 | 0.017  | <0.01 | 2.24 | <0.01 | 0.175 | 4.48 | 3.85 | 0.52 | 2.72 |      |      |
| CC2     | 01-Sep-16  | <5         | 1.7  | <0.005 | 0.014 | <0.001 | 0.022  | <0.01 | 3.34 | <0.01 | 0.16  | 12.2 | 11.4 | 1.37 | 5.31 |      |      |
| CC2     | 31-May-17  | <5         | 0.7  | <0.005 | 0.005 | <0.001 | 0.012  | <0.01 | 1.45 | <0.01 | 0.107 | 2.84 | 2.57 | 0.33 | 2.03 |      |      |
| CC2     | 05-Sep-17  | <5         | 4.9  | <0.005 | 0.016 | <0.001 | <0.005 | <0.01 | 2.56 | <0.01 | 0.397 | 15.1 | 15.5 | 3.46 | 6.74 |      |      |