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**September 29, 2020**

Licensing  
Nunavut Water Board  
P.O. Box 119  
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**Re: August 2020 – Monthly Monitoring Report for Water Licence 2AM-DOH1335**

This report is comprised of the monitoring requirements set out in Part I and Schedule I of water licence 2AM-DOH1335 Amendment 2 (the licence), and additional requirements from CIRNAC.

During the subject period of this report, the focus of activities at Doris was underground mining, ore processing, water management and environmental compliance.

Dewatering of the Tailings Impoundment Area (TIA) through the Robert's Bay Discharge System was suspended on August 12, 2020 prior to an anticipated seasonal algal bloom which historically results in increased levels of Total Suspended Solids within the TIA reclaim pond. No exceedances of discharge criteria occurred.

Dewatering of the Doris underground workings through the Robert's Bay Discharge System continued until August 24, 2020. At that time the Water Treatment Plant facility used to remove Total Suspended Solids from the mine water was shutdown for an extended maintenance period. Mine water was diverted to the Tailings Impoundment Area for the remainder of August.

Dewatering of the Doris underground workings through the mill tailings system to the TIA also continued this month.

Mining activities at the Madrid North Portal and Naartok East Crown Pillar Recovery Trench were suspended in March and remained inactive during the month of August.

Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 6 through Figure 8 at the end of this report.

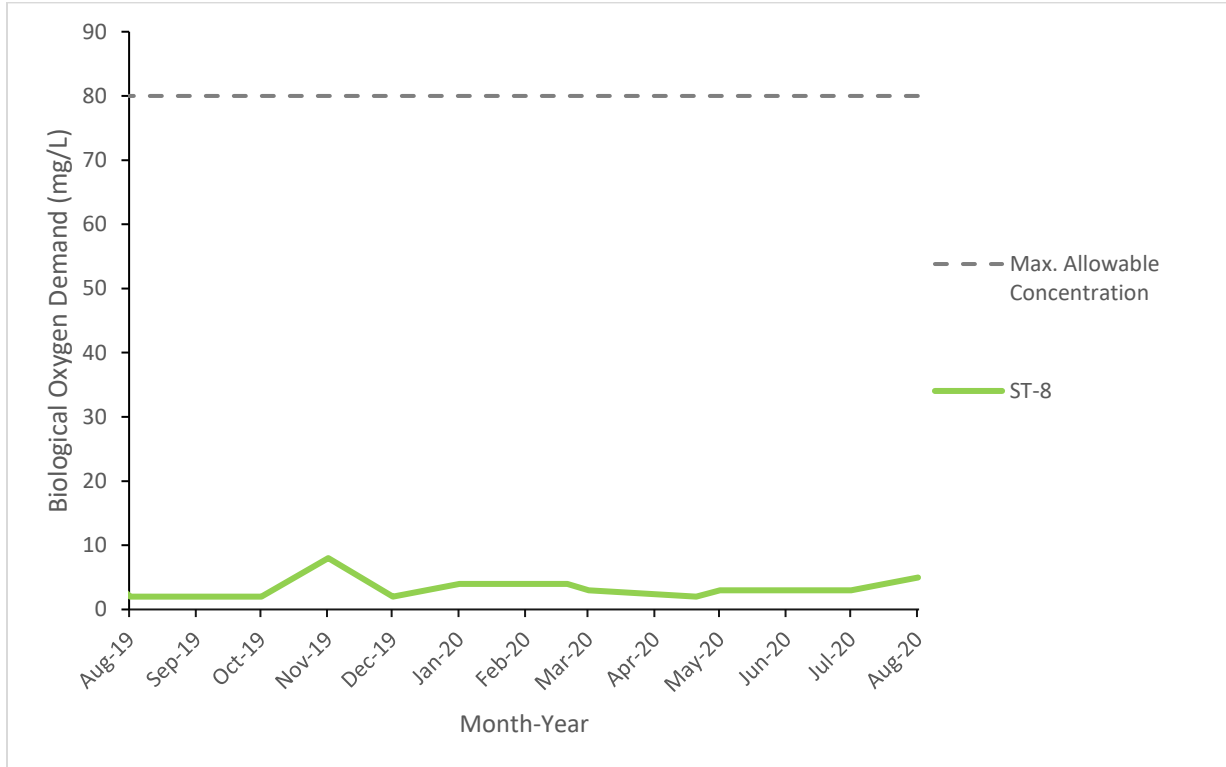
**Site Wide Water Quality Monitoring Program (Part I Item 3 and Schedule I)**

Water quality sampling was conducted in August at monitoring stations identified in Schedule I of the licence (ST-1 through ST-13, TL-1 through TL-12 and MMS-1 through MMS-10). Water quality samples were not collected for monitoring stations that were inactive during the month being reported (e.g., facilities that had not yet been constructed, were frozen during the month, or were not operationally active).

All parameters were compared to the applicable effluent quality limits outlined in Part D and Part F of the licence. No exceedances of effluent quality limits were observed in any samples collected this month. Results of all water quality monitoring are provided in Appendix A attached to this report.

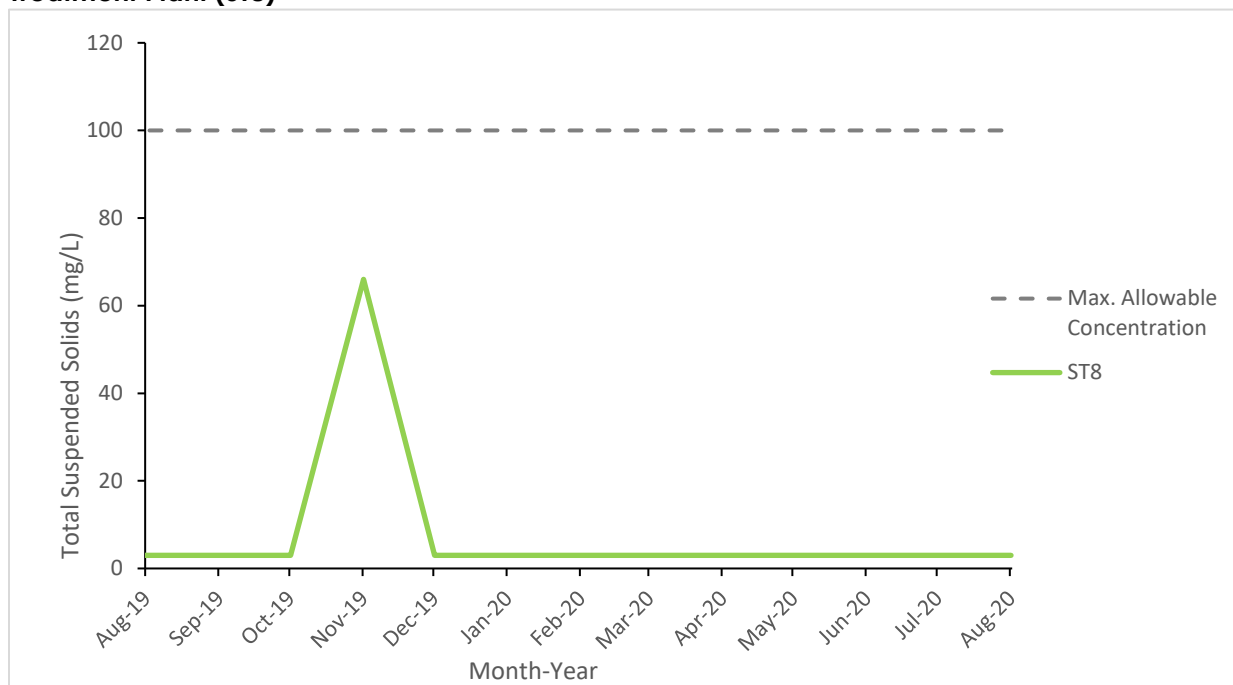
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

**Figure 1. Biological Oxygen Demand Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8)**



Note: Maximum Average Concentration as per Part F Item 4(b).

**Figure 2. Total Suspended Solids Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8)**



Note: Maximum Average Concentration as per Part F Item 4(b).

### Flow and Volume Measurements (Part F, Part I and Schedule I)

**Table 1. Effluent discharge, August 2020**

| Facility  | Station Code | Discharge Volume (m <sup>3</sup> ) | Exceedances of Discharge Criteria | Discharge Location                         | Licence Reference     |
|---|--------------|------------------------------------|-----------------------------------|--|-----------------------|
| Doris Sedimentation Pond *                      | ST-1         | 3,908                              | N/A                               | Tailings Impoundment Area                  | Part F Item 17        |
| Doris Contact Water Pond #1                     | ST-2         | 371                                | N/A                               | Tailings Impoundment Area                  | Part F Item 17, 18(a) |
| Non-Hazardous Landfill Sump                     | ST-3         | 0                                  | 0                                 | Facility not constructed                   | Part F Item 18(a)     |
| Landfarm Sump                                   | ST-4         | 0                                  | 0                                 | Tailings Impoundment Area                  | Part F Item 18(b)     |
| Doris Plant Site Fuel Storage Area              | ST-5         | 0                                  | 0                                 | Tailings Impoundment Area                  | Part F Item 18(b)     |
| Rob Bay Single 5ML Fuel Storage Area            | ST-6a        | 0                                  | 0                                 | Tundra Discharge<br>13W 432954 7563407     | Part F Item 18(b)     |
| Rob Bay Fuel Storage and Containment Berm       | ST-6b        | 0                                  | 0                                 | Tundra Discharge<br>13W 432878 7563130     | Part F Item 18(b)     |
| Doris Sewage Treatment Plant, Effluent          | ST-8         | 655                                | 0                                 | Tundra Discharge<br>13W 432933 7559057     | Part F Item 5(b-c)    |
| Doris Sewage Treatment Plant, Sludge            | N/A          | 25.3                               | N/A                               | Tailings Impoundment Area                  | Part I Item 5(f)      |
| Doris Reagent and Cyanide Storage Facility Sump | ST-11        | 0                                  | N/A                               | Tailings Impoundment Area                  | Part F Item 17        |
| Doris Contact Water Pond #2                     | ST-13        | 0                                  | N/A                               | Facility not constructed                   | Part F Item 17        |
| Doris Mine Water Discharge                      | TL-12        | 54,835                             | N/A                               | Robert's Bay;<br>Tailings Impoundment Area |                       |
| Madrid North Contact Water Pond                 | MMS-1        | 21                                 | 0                                 | Tundra Discharge<br>13W 433203 7549806     | Part F Item 17, 18(a) |
| Madrid South Primary Contact Water Pond         | MMS-2        | 0                                  | N/A                               | Facility not constructed                   | Part F Item 17, 18(a) |
| Madrid South Secondary Contact Water Pond       | MMS-3        | 0                                  | N/A                               | Facility not constructed                   | Part F Item 17, 18(a) |
| Madrid South Fuel Storage Facility              | MMS-5        | 0                                  | 0                                 | Facility not constructed                   | Part F Item 18(b)     |
| Madrid North Connector                          | MMS-7        | 0                                  | N/A                               | No dewatering occurring at this time       |                       |
| Madrid North Fuel Storage Facility              | MMS-8        | 0                                  | 0                                 | Facility not constructed                   | Part F Item 18(b)     |
| Madrid Mine Water Discharge                     | MMS-10       | 0                                  | N/A                               | Facility not constructed                   |                       |

Records of visual monitoring of discharge to tundra are maintained on file as per Part I Item 11.

\* Note: Volume reported includes effluent transferred from the Doris Contact Water Pond #1, Landfarm Sump, and Doris Plant Site Fuel Storage Area. Notification of anticipated discharges was provided to the Inspector on May 11, 2020.

**Table 2. Discharge from TIA to Roberts Bay, August 2020**

| <b>Month</b>             | <b>Number of days of discharge</b> | <b>Discharge Volume (m³)</b> | <b>Exceedances of Discharge Criteria*</b> |
|--------------------------|------------------------------------|------------------------------|---|
| January                  | 0                                  | 0                            | 0   |
| February                 | 29                                 | 154,211                      | 0   |
| March                    | 31                                 | 172,675                      | 0   |
| April                    | 30                                 | 165,578                      | 0   |
| May                      | 31                                 | 167,282                      | 0   |
| June                     | 30                                 | 147,624                      | 0   |
| July                     | 31                                 | 170,302                      | 0   |
| August                   | 12                                 | 67,952                       | 0   |
| <b>Annual Cumulative</b> | <b>194</b>                         | <b>1,045,624</b>             | <b>0</b>                                  |

\* Discharge criteria as outlined in *Metal and Diamond Mining Effluent Regulations*.  
 Acute Lethality testing conducted as outlined in Part F Item 22 and Part I Item 14

**Table 3. Water usage, August 2020**

| Month                   | Windy Lake (ST-7A)  | Doris Lake (ST-7)   |                          |                        |                       |                   | Total Usage      |
|-------------------------|---------------------|---------------------|--------------------------|------------------------|-----------------------|-------------------|------------------|
|                         | Domestic Water (m³) | Domestic Water (m³) | Surface Exploration (m³) | Industrial Usage* (m³) | Dust Suppression (m³) | Winter Track (m³) |                  |
| January                 | 1,492               | 0                   | 0                        | 289                    | 0                     | 93                | 1,874            |
| February                | 1,448               | 0                   | 76                       | 138                    | 0                     | 445               | 2,107            |
| March                   | 1,529               | 0                   | 0                        | 20                     | 0                     | 208               | 1,757            |
| April                   | 759                 | 0                   | 0                        | 13                     | 0                     | 32                | 804              |
| May                     | 733                 | 0                   | 0                        | 0                      | 0                     | 0                 | 733              |
| June                    | 729                 | 0                   | 0                        | 7                      | 112                   | 0                 | 848              |
| July                    | 1,004               | 0                   | 0                        | 205                    | 240                   | 0                 | 1,449            |
| August                  | 809                 | 0                   | 0                        | 209                    | 0                     | 0                 | 1,018            |
| <b>Annual Total</b>     | 8,503               | 0                   | 76                       | 881                    | 352                   | 778               | 10,590           |
| <b>Annual Allowance</b> | <b>43,800</b>       |                     |                          | <b>1,930,000</b>       |                       | <b>60,000</b>     | <b>2,033,800</b> |

As permitted by water licence 2AM-DOH1335 Part E Item 1 and Part I Item 5(a)(b).

\* Includes industrial uses such as mining, core processing, concrete batching, etc.

**Table 4. Volume of Reclaim Water from the TIA for Process Water, August 2020**

| Month                    | Reclaim Water (m³) * |
|--------------------------|----------------------|
| January                  | 76,601               |
| February                 | 64,317               |
| March                    | 67,732               |
| April                    | 68,825               |
| May                      | 67,457               |
| June                     | 62,787               |
| July                     | 65,822               |
| August                   | 60,015               |
| <b>Annual Cumulative</b> | <b>533,556</b>       |

\* As per Part E Item 5 and Part I Item 5(c)

Numbers rounded to the nearest cubic meter.

Table 5. Doris Waste Rock and Ore Volumes, August 2020

| Month            | Waste Rock Management                  |                                      |   |  |   | Underground Void Space                         |   |   | Ore Processing and Tailings Management |   |   |
|------------------|--|--------------------------------------|---|--|---|--|---|---|--|---|---|
|                  | Produced from Mining Activity (tonnes) | Backfilled Directly to Mine (tonnes) | Returned Underground from Temporary Waste Rock Pile* (tonnes) | Moved to Temporary Waste Rock Pile (tonnes)* | Cumulative on Temporary Waste Rock Pile (tonnes)* | Volume Created from Mining Activities (tonnes) | Cumulative Volume Available for Backfill (tonnes) | Cumulative Volume Available for Backfill (m³) | Quantity of Ore Processed** (tonnes)   | Total Dry Tailings Placed in TIA** (tonnes) | Total Dry Detoxified Tailings Placed Underground** (tonnes) |
| December Balance | -                                      | -                                    | -   | -  | 781,072   | -  | 1,547,057   | 682,081                                       | -                                      | -   | -   |
| January          | 28,787                                 | 19,646                               | 2,040   | 9,141  | 781,072   | 26,949   | 1,547,057   | 682,081                                       | 29,858                                 | 28,606                                      | 1,229   |
| February         | 17,050                                 | 18,344                               | 2,640   | -1,294                                       | 777,138   | 23,033   | 1,524,024   | 691,250                                       | 29,195                                 | 27,569                                      | 1,622   |
| March            | 21,580                                 | 22,322                               | 3,140   | -742   | 773,256   | 4,798  | 1,519,226   | 694,085                                       | 41,517                                 | 39,696                                      | 1,813   |
| April            | 5,709                                  | 10,124                               | 4,336   | -4,415                                       | 764,505   | 1,662  | 1,520,887   | 696,227                                       | 38,579                                 | 36,569                                      | 2,026   |
| May              | 2,511                                  | 13,676                               | 7,948   | -11,165                                      | 745,392   | -6,214   | 1,512,141   | 695,942                                       | 33,221                                 | 31,813                                      | 1,407   |
| June             | 3,155                                  | 11,824                               | 4,980   | -8,669                                       | 731,743   | -3,872   | 1,508,269   | 696,338                                       | 49,280                                 | 46,871                                      | 2,449   |
| July             | 3,766                                  | 15,711                               | 6,440   | -11,945                                      | 713,358   | -7,192   | 1,501,077   | 696,069                                       | 30,703                                 | 29,513                                      | 1,217   |
| August           | 2,427                                  | 10,412                               | 5,280   | -7,985                                       | 700,093   | -3,504   | 1,497,573   | 696,704                                       | 23,858                                 | 22,804                                      | 1,037   |
| Cumulative Total | 84,985                                 | 122,059                              | 36,804  | -37,074                                      | 700,093   | 35,660   | 1,497,573   | 696,704                                       | 276,211                                | 263,441                                     | 12,800  |

\* As per Part I Item 5(d)(e)

\*\* As per Part I Item 6

Note: Void space created from mining activities is determined as the sum of the initial void space as calculated in March 2017 and void space created each month from mining activities. A negative volume of void space created in a month indicates that a higher volume of waste rock and detoxified tailings was returned underground compared to the volume of void space created from new mining activities.

Table 6. Madrid North Waste Rock and Ore Volumes, August 2020

| Month            | Waste Rock Management                  |                                      |   |  |                                |   | Underground Void Space                         |   |   | Ore Produced                        |
|------------------|--|--------------------------------------|---|--|--------------------------------|---|--|---|---|-------------------------------------|
|                  | Produced from Mining Activity (tonnes) | Backfilled Directly to Mine (tonnes) | Returned Underground from Temporary Waste Rock Pile* (tonnes) | Moved to Temporary Waste Rock Pile (tonnes)* | Used for Construction (tonnes) | Cumulative on Temporary Waste Rock Pile (tonnes)* | Volume Created from Mining Activities (tonnes) | Cumulative Volume Available for Backfill (tonnes) | Cumulative Volume Available for Backfill (m³) | Quantity of Ore Produced** (tonnes) |
| December Balance | -                                      | -                                    | -   | -  | -                              | -   | -  | -   | -   | -                                   |
| January          | 65,213                                 | 749                                  | 0   | 60,206                                       | 4,258                          | 309,506   | 85,898   | 447,547   | 159,838                                       | 21,658                              |
| February         | 35,380                                 | 0                                    | 0   | 30,926                                       | 4,454                          | 340,432   | 20,473   | 468,020   | 180,311                                       | 21,945                              |
| March            | 9,994                                  | 0                                    | 0   | 9,994  | 0                              | 350,426   | 24,952   | 529,824   | 189,223                                       | 14,958                              |
| April            | 0                                      | 0                                    | 0   | 0  | 0                              | 350,426   | 0  | 529,824   | 189,223                                       | 0                                   |
| May              | 0                                      | 0                                    | 0   | 0  | 0                              | 350,426   | 0  | 529,824   | 189,223                                       | 0                                   |
| June             | 0                                      | 0                                    | 0   | 0  | 0                              | 350,426   | 0  | 529,824   | 189,223                                       | 0                                   |
| July             | 0                                      | 0                                    | 0   | 0  | 0                              | 350,426   | 0  | 529,524   | 189,223                                       | 0                                   |
| August           | 0                                      | 0                                    | 0   | 0  | 0                              | 350,426   | 0  | 529,524   | 189,223                                       | 0                                   |
| Cumulative Total | 110,587                                | 749                                  | 0   | 101,126                                      | 8,712                          | 350,426   | 168,175  | 529,824   | 189,223                                       | 58,561                              |

\* As per Part I Item 5(d)(e)

\*\* As per Part I Item 6

Note: Void space created from mining activities is determined as the sum of the initial void space created each month from mining activities. A negative volume of void space created in a month indicates that a higher volume of waste rock was returned underground compared to the volume of void space created from new mining activities.



**Table 7. Doris Lake Water Level (ST-12), August 2020**

| <b>Month</b> | <b>Minimum Water Level (masl)</b> | <b>Maximum Water Level (masl)</b> | <b>Mean Water Level (masl)</b> | <b>Monthly Water Level Variation (masl)*</b> | <b>Comparison of Mean Water Level from Month to Month (masl)^</b> |
|--------------|-----------------------------------|-----------------------------------|--------------------------------|--|---|
| January      | 21.712                            | 21.748                            | 21.726                         | -0.088                                       | -0.103  |
| February     | 21.698                            | 21.729                            | 21.713                         | 0.031  | -0.013  |
| March        | 21.675                            | 21.715                            | 21.692                         | 0.041  | -0.021  |
| April        | 21.645                            | 21.690                            | 21.667                         | 0.045  | -0.025  |
| May          | 21.642                            | 21.659                            | 21.652                         | 0.017  | -0.015  |
| June         | 21.647                            | 22.222                            | 21.961                         | 0.575  | 0.309   |
| July         | 21.839                            | 22.120                            | 21.965                         | 0.281  | 0.004   |
| August       | 21.727                            | 21.832                            | 21.765                         | 0.105  | -0.200  |

\* Monthly Water Level Variation is calculated as the difference between the Maximum Water Level and the Minimum Water Level measured during the month.

^ Comparison of the change in water level from month to month. This value is calculated by subtracting the Mean Water Level of the current month from the Mean Water Level of the previous month (e.g. February Mean Water level - January Mean Water level). A positive value from this calculation indicates a rise in water level since the previous month; a negative value from this calculation indicates a drop in water level since the previous month.

### **Waste Management (Part F Item 10 and 11)**

In August, TMAC shipped hazardous waste offsite via sealift backhaul. Table 8 below summarizes the type and volume of waste shipped offsite during this month. All waste was transported to the Port of Cote Ste Catherine, Quebec and will be received by KBL Environmental for final remediation and/or disposal.

**Table 8. Waste Backhaul Summary, August 2020**

| <b>Waste Type Shipped</b>                                | <b>Volume Shipped*<br/>(m<sup>3</sup>)</b> |
|--|--|
| Sodium Hydroxide Solid Reagent Packaging (Residue)       | 152  |
| Copper Sulphate Pentahydrate Reagent Packaging (Residue) | 120  |
| Sodium Metabisulfite Reagent Packaging (Residue)         | 210  |

\* Numbers rounded to the nearest cubic meter.

### **Summary of Assessments of Water Balance and Water Quality Model (Part F Item 24 and Part I Item 12 c)**

Average monthly water quality, hydrologic, and climatic monitoring data were collected while in operations during August. Data will contribute to the assessment of the water and load balance model, and will be compared to the predicted water quality and elevation within the TIA and will be reported in the annual report for 2020.

### **Thermal Monitoring (Part I Items 7, 8 and Schedule I)**

Thermal monitoring undertaken as per Part I Items 7, 8 and Schedule I is reported in the annual Geotechnical Report.

### **Site Freshet and Precipitation Conditions (Part I Item 12(d))**

Visual monitoring was conducted during major rain events and periods of sustained precipitation in August.

The Diversion Berm and associated check dam were observed to be functioning as designed and diverting non-contact water around the Doris site infrastructure. Photos of this infrastructure are provided in Figure 3 below.

Inspections were completed of site culverts throughout the month of August. No issues were identified with these water management structures. Figure 4 and 5 below shows the upstream and downstream conditions of culverts located at the Marine Outfall Berm Access Road, DCO Vent Raise Access Road, Windy All-Weather Road and the Madrid All-Weather Road.

**Figure 3. Diversion berm during August 2020**





**Figure 4. Culvert at Marine Outfall Berm Access Road (left) and DCO Vent Raise Access Road (right)**



**Figure 5. Culverts at Madrid (left) and Windy (right) All-Weather Roads.**



## **Incident Reporting**

No incidents pertaining to this licence occurred this month.

Should there be any questions regarding this monthly report, please contact [enviro@tmacresources.com](mailto:enviro@tmacresources.com).

Yours sincerely,



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Oliver Curran, Vice President - Environmental Affairs, TMAC



Figure 6. 2AM-DOH1335 SNP Monitoring Locations



Figure 7. 2AM-DOH1335 SNP Monitoring Locations





Figure 8. 2AM-DOH1335 SNP Monitoring Locations

