

**MELIADINE GOLD PROJECT**  
**MONTHLY ENVIRONMENTAL REPORT APRIL**  
**2012**



**MELIADINE GOLD PROJECT**

**MONTHLY ENVIRONMENTAL REPORT: APRIL 2012**

**PRESENTED TO THE NUNAVUT WATER BOARD**

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MELIADINE GOLD PROJECT  
MONTHLY ENVIRONMENTAL REPORT APRIL  
2012

**Contact:**

**David Frenette**  
**Environment and Health & Safety Coordinator**  
**AGNICO-EAGLE Mines Ltd**  
**Exploration Division Canada**  
C.P. 87  
765, Chemin de la mine Goldex  
Val-d'Or (Qc) Canada  
J9P 4N9  
Phone : 1 (819) 874-5980 (poste. 3622)  
Cel : 1 (819) 355-9271  
David.frenette@agnico-eagle.com

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This monthly report is delivered under water license 2BB-MEL0914, PART J, items 13.

**1. The Licensee shall maintain Monitoring Stations at the following locations:**

Table 1: Monitoring stations

| Monitoring Program Station Number | Description                                                                                                         | Status                       |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------|
| MEL-1                             | Raw water supply intake at Meliadine Lake                                                                           | Active (volume cubic metres) |
| MEL-2                             | Raw water supply intake at Pump Lake                                                                                | Active (volume cubic metres) |
| MEL-3                             | Immediately downstream of old grey water sump prior to effluent entering wetland area, when flow observed           | Active                       |
| MEL-3a                            | Immediately downstream of upgraded sump prior to the effluent entering upgraded wetland area, when flow is observed | Active                       |
| MEL-4                             | At a point immediately upstream of the discharge from the wetland area / upgraded wetland area to Meliadine Lake    | Active                       |
| MEL-5                             | Point of discharge for the Bermed Fuel Containment Facilities                                                       | Active                       |
| MEL-6                             | Point of discharge for the contaminated soil storage                                                                | Active                       |
| MEL-7                             | Final effluent discharge from the BIODISK treatment system                                                          | Active                       |

**2. The Licensee shall measure and record, in cubic metres, the daily quantities of water utilized for camp, drilling and other purposes from all sources.**

The consumption of fresh water for the site was **248,8 m<sup>3</sup>/day** for the month of April 2012

**3. The Licensee shall provide the GPS co-ordinates of all locations where sources of water are utilized for all purposes. In UTM nad 1983**

- Camp water source: East 541943,0 ; North 6989174,0

*Table 2: Drilling sources of water*

| EAST   | NORTH   |
|--------|---------|
| 538210 | 6989397 |
| 538458 | 6988159 |
| 539889 | 6987736 |
| 540947 | 6987422 |
| 542197 | 6986292 |
| 537189 | 6990037 |
| 540167 | 6987126 |
| 538630 | 6987977 |
| 540679 | 6987155 |
| 540150 | 6987272 |
| 542169 | 6986061 |

**4. Licensee shall sample at Monitoring Program Station MEL-3, MEL-3a, MEL-4 and MEL-7, monthly during Sewage treatment, effluent discharge and during periods of flow at the point of entry into Meliadine Lake. Samples shall be analyzed for the following parameters:**

Biochemical Oxygen Demand – BOD<sub>5</sub>  
Total Suspended Solids  
Oil and Grease (and visual)  
Fecal Coliforms  
pH

Here are the MEL-7 results for April. To improve the water system treatment plan, many actions were taken. An inspection by a consultant firm was done and many targets of improvement were defined. The consultant was on the site between the April 3<sup>rd</sup> and 10<sup>th</sup>.

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Table 3 MEL-7 results

| Station: STP-OUT          |        | March      |            |            | April      |            |            |
|---------------------------|--------|------------|------------|------------|------------|------------|------------|
| DATE                      | Limits | 06/03/2012 | 15/03/2012 | 29/03/2012 | 03/04/2012 | 10/04/2012 | 23/04/2012 |
| Ammonia as N              |        | 47.3       | 72.8       | 103.0      | 85.9       | 129.0      | 36.9       |
| Biochemical Oxygen Demand | 80     | <6.0       | 215.0      | 11.4       | 88.0       | 47.1       | 15.0       |
| Heterotrophic Plate Count |        | 30.0       | >3000      | >3000      | >3000      | >3000      | >3000      |
| Nitrate-N                 |        | 11.7       | 3.1        | 16.2       | 12.2       | <0.25      | <0.050     |
| Nitrate and Nitrite as N  |        | <0.050     | 3.14       | 18.00      | 14.70      | 16.50      | 56.40      |
| Nitrite-N                 |        | x          | <0.050     | 1.8        | 2.5        | 16.5       | 56.4       |
| Oil & Grease-(IR)         | 5      | <1.0       | 1.5        | <2.0       | <1.0       | 4.9        | 2.1        |
| Phosphorus (P)-Total      |        | 3.5        | 22.0       | 4.1        | 12.6       | 15.7       | 14.5       |
| TKN                       |        | x          | x          | x          | 95.8       | 143.0      | 41.4       |
| Total Suspended Solids    | 100    | 98.0       | 1,460.0    | 82.0       | 260.0      | 66.0       | 71.7       |
| Transmittance             |        |            |            |            | 27.1       | 18.3       | x          |
| pH                        | 6.5-9  | 5.9        | 7.6        | 7.9        | 7.4        | 8.0        | 5.9        |
| Fecal Coliforms           | 1000   | <3         | >110000    | 230.0      | 110,000.0  | 110,000.0  | 2,300.0    |
| Total Coliforms           |        | <3         | >110000    | 430.0      | 110,000.0  | 110,000.0  | 21,000.0   |

Here are some of the recommendations did by the consultant to improve our system.

- **Improve monitoring to keep an historical of interventions.**
- **Develop an influent characterization program**
  - Suggested frequency : 1 time/month
  - Suggested parameters : BOD<sub>5</sub>, COD, TSS, P<sub>tot</sub>, TKN, NH<sub>3</sub>, FOG
  - Sampling point : EQT outlet or biodisks inlet
- **Improve control regarding the management and the use of household cleaning products used by the maintenance staff (awareness, concentration, toxicity, etc.) that can be discharged into the wastewaters collection system;**
- **Review the procedure for evacuating floating from the kitchen's grease trap. The current tools to collect floating seem unsuitable and difficult to handle. A thinner and lighter screened tool would be more appropriate.**
- **Maintain the STP's supply rate as constant as possible by avoiding prolonged operation of the influent pumps that may cause a decrease in the system performance (punctual hydraulic overload), mainly in final clarifier and UV disinfection unit. Several short pumping cycles over a day are better than a few extended cycles.**
- **Provide a portable turbidimeter for daily monitoring of the effluent quality (see specifications of the proposed equipment in appendix B). Turbidity provides rapid estimation of TSS at the effluent;**
- **Provide a sludge blanket detector to facilitate and improve the accuracy of accumulated sludge monitoring ;**
- **Monitor the sludge level in tanks on a weekly basis. This frequency may be revised according to the rate of accumulation observed in the coming months;**
- **Perform withdrawal of sludge from primary tank at a predetermined fixed frequency (monthly). A sludge volume of 1 m<sup>3</sup>/month can be retained as an initial quantity to pump out but will be revised according future measurements and observations. Experience shows that system performance will be**

- enhanced and overall works operation improved by maintaining volume of sludge to an acceptable level in the tanks ( $\leq 1$  m);*
- *Monitor of sludge blanket at different locations in the new primary tank should be performed after withdrawal to ensure the effectiveness of the operation;*
  - *Given that the system configuration for withdrawing sludge from the LJ-2 primary tank should allow a more efficient and easy withdrawal of sludge than the LJ-1, it is recommended to pump out sludge from the LJ-1 final clarifier towards the LJ-2 primary tank;*
  - *Install a baffle at the inlet of LJ-2 final clarifier to reduce the risk of shorting to the tank's outlet. A modification to prevent floating of being carried out to the effluent has already been conducted as part of our intervention.*
  - *Recirculation of the effluent from the biodisk 3<sup>rd</sup> stage directly to the first stage should be considered. The purpose of this recirculation is to foster a better spreading of the load on the supporting medium, especially when low flow and high concentration; which is currently the case. It also allows extra oxygen in the first stage. The biomass recirculation is currently directed to the entrance of the primary tank, where detention time longer than 24 hours in an anaerobic environment is highly prejudicial to the bacterial flora;*
  - *It is recommended to install a pipe (gravity) between the LJ-2 effluent towards the LJ-1 influent, which would allow operating the two (2) units in serial mode;*
  - *It would be desirable to add an additional opening access above the LJ-2 biodisk (between the two existing) to facilitate observation and measurement of the sludge blanket in the primary tank;*
  - *If the lubrication of biodisk's bearings is required, make sure they're accessible;*
5. *The Licensee shall, prior to the release of effluent from the Bermed Fuel Containment Facilities at Monitoring Program Station MEL-5 and the contaminated soil storage at MEL-6 for the purpose of demonstrating compliance, sample for the parameters listed under Part D, item 17.*
- No effluent release in April.
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6. *The Licensee shall obtain representative samples of the water column below any ice where required under part F, item 7. Monitoring shall include but not limited to the following:*

*Total Suspended Solids*

*pH*

*Electrical Conductivity, and*

*Total trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn), and Trace Arsenic and Mercury.*

Here are the analysis results of the samples taken in April.

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*Table 4: Pump lake results*

|                          |          |                    | Pump Lake (A8) | Pump Lake (A8) | Pump Lake (A8) | Pump Lake (A8) | Pump Lake (A8) | Pump Lake (A8) | Pump Lake (A8) | Pump Lake (A8) |
|--------------------------|----------|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                          |          |                    | P7 (initial)   | P7 (mid)       | P7 (mid)       | P7 (mid)       | P7 (mid)       | P7 (mid)       | P7 (mid)       | P7 (mid)       |
| Parameters               | Unit     | Limits             | 24/01/2012     | 03/02/2012     | 03/02/2012     | 23/02/2012     | 03/03/2012     | 10/03/2012     | 31/03/2012     | 07/04/2012     |
| Chloride                 | mg/L     |                    | 73.7           | 78.8           | 79             | 95.2           | 96.3           | 103            | 128            | 125            |
| Conductivity             | umhos/cm |                    | 406            | 437            | 435            | 526            | 531            | 575            | 694            | 692            |
| Hardness (as CaCO3)      | mg/L     |                    |                | 181            | 169            | 221            | 230            | 258            | 297            | 288            |
| Mercury (Hg)-Total       | mg/L     | 0.000026           | <0.000050      | <0.000050      | <0.000050      | <0.000050      | <0.000050      | <0.000050      | <0.000050      | <0.000050      |
| Sodium Adsorption Ratio  |          |                    |                |                |                |                |                |                | 0.52           | 0.41           |
| Sulfate                  |          |                    |                |                |                |                |                |                | 17.4           |                |
| TDS (Calculated from EC) | mg/L     |                    |                |                |                |                |                |                | 451            | 450            |
| Total Suspended Solids   | mg/L     | 10                 | <5.0           | <5.0           | <5.0           | <5.0           | <5.0           | <5.0           | 13             | <5.0           |
| pH                       | pH units | 6.5-9.0            | 7.21           | 7.13           | 7.16           | 7.26           | 7.43           | 7.15           | 7.1            | 7.06           |
| Aluminum (Al)-Total      | mg/L     | 0.1                | 0.0099         | 0.0116         | 0.0081         | <0.0050        | <0.0050        | 0.0097         | <0.0050        | 0.0052         |
| Antimony (Sb)-Total      | mg/L     |                    | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Arsenic (As)-Total       | mg/L     | 0.005              | 0.00187        | 0.00211        | 0.00198        | 0.00213        | 0.00218        | 0.00228        | 0.0021         | 0.00178        |
| Barium (Ba)-Total        | mg/L     |                    | 0.0489         | 0.0584         | 0.0553         | 0.0688         | 0.0751         | 0.0828         | 0.0925         | 0.0831         |
| Beryllium (Be)-Total     | mg/L     |                    | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Bismuth (Bi)-Total       | mg/L     |                    | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Boron (B)-Total          | mg/L     | 1.5                | <0.010         | <0.010         | <0.010         | <0.010         | <0.010         | <0.010         | 0.011          | <0.010         |
| Cadmium (Cd)-Total       | mg/L     | Hardness dependent | 0.000198       | 0.000304       | 0.000258       | 0.000183       | 0.000182       | 0.000037       | 0.000026       | 0.000029       |
| Calcium (Ca)-Total       | mg/L     |                    | 53.5           | 58.5           | 54.4           | 72.8           | 76.8           | 83.7           | 95             | 97             |
| Cesium (Cs)-Total        | mg/L     |                    | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       |
| Chromium (Cr)-Total      | mg/L     |                    | 0.001          | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        |
| Cobalt (Co)-Total        | mg/L     |                    | <0.00020       | 0.00025        | 0.00024        | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Copper (Cu)-Total        | mg/L     | Hardness dependent | 0.00194        | 0.00219        | 0.00201        | 0.00179        | 0.0018         | 0.00187        | 0.00272        | 0.00534        |
| Iron (Fe)-Total          | mg/L     | 0.3                | 0.14           | 0.19           | 0.18           | 0.19           | 0.2            | 0.17           | 0.16           | <0.10          |
| Lead (Pb)-Total          | mg/L     | Hardness dependent | 0.000205       | 0.00047        | 0.000428       | 0.000142       | 0.000198       | 0.0001         | 0.00145        | 0.000819       |
| Lithium (Li)-Total       | mg/L     |                    | 0.0156         | 0.0175         | 0.0179         | 0.0215         | 0.0228         | 0.0197         | 0.0304         | 0.026          |
| Magnesium (Mg)-Total     | mg/L     |                    | 6.88           | 8.47           | 8.15           | 9.63           | 9.29           | 11.9           | 14.4           | 11.2           |
| Manganese (Mn)-Total     | mg/L     |                    | 0.112          | 0.184          | 0.171          | 0.0739         | 0.0418         | 0.0563         | 0.0462         | 0.0122         |
| Molybdenum (Mo)-Total    | mg/L     |                    | 0.00025        | 0.00028        | 0.0003         | 0.00036        | 0.00023        | 0.00027        | 0.00033        | 0.00028        |
| Nickel (Ni)-Total        | mg/L     | Hardness dependent | 0.0025         | 0.0023         | 0.002          | 0.0033         | <0.0020        | 0.0028         | 0.0029         | 0.0029         |
| Phosphorus (P)-Total     | mg/L     |                    | <0.20          | <0.20          | <0.20          | <0.20          | <0.20          | <0.20          | <0.20          | <0.20          |
| Potassium (K)-Total      | mg/L     |                    | 2.9            | 3.53           | 3.34           | 3.94           | 3.98           | 4.28           | 5.2            | 4.7            |
| Rubidium (Rb)-Total      | mg/L     |                    | 0.00284        | 0.00343        | 0.00326        | 0.00393        | 0.00422        | 0.00403        | 0.00536        | 0.00497        |
| Selenium (Se)-Total      | mg/L     | 0.001              | 0.0014         | 0.0019         | 0.002          | 0.0023         | 0.0073         | 0.0018         | <0.0010        | <0.0010        |
| Silicon (Si)-Total       | mg/L     |                    | 2.34           | 2.19           | 2.14           | 2.96           | 2.94           | 3.57           | 3.76           | 3.26           |
| Silver (Ag)-Total        | mg/L     | 0.0001             | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       |
| Sodium (Na)-Total        | mg/L     |                    | 10.9           | 9.36           | 8.66           | 13             | 13.7           | 16.8           | 20.5           | 15.8           |
| Strontium (Sr)-Total     | mg/L     |                    | 0.325          | 0.394          | 0.372          | 0.458          | 0.435          | 0.452          | 0.562          | 0.646          |
| Tellurium (Te)-Total     | mg/L     |                    | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Thallium (Tl)-Total      | mg/L     | 0.0008             | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       |
| Thorium (Th)-Total       | mg/L     |                    | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       |
| Tin (Sn)-Total           | mg/L     |                    | <0.00020       | <0.00020       | <0.00020       | <0.00040       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Titanium (Ti)-Total      | mg/L     |                    | 0.0003         | 0.00055        | 0.00047        | 0.00021        | 0.00029        | 0.0007         | 0.0006         | 0.00063        |
| Tungsten (W)-Total       | mg/L     |                    | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        | <0.0010        |
| Uranium (U)-Total        | mg/L     | 0.015              | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       | <0.00010       |
| Vanadium (V)-Total       | mg/L     |                    | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       | <0.00020       |
| Zinc (Zn)-Total          | mg/L     | 0.03               | 0.0138         | 0.0081         | 0.0082         | 0.0058         | 0.0212         | 0.0073         | 0.0065         | 0.0168         |
| Zirconium (Zr)-Total     | mg/L     |                    | <0.00040       | <0.00040       | <0.00040       | <0.00040       | <0.00040       | <0.00040       | <0.00040       | <0.00040       |
| Oil/Grease-(IR)          | mg/L     |                    |                |                |                |                | <1.0           | <1.0           |                |                |

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*Table 5: Bud lake results*

|                          |          |                    | 2012-BUD-03 | 2012-BUD-03 | 2012-BUD-04 |
|--------------------------|----------|--------------------|-------------|-------------|-------------|
|                          |          |                    | (initial)   | (mid)       | (mid)       |
| Parameters               | Unit     | Limits             | 07/03/2012  | 31/03/2012  | 07/04/2012  |
| Chloride                 | mg/L     |                    | 66.3        | 79.6        | 92.1        |
| Conductivity             | umhos/cm |                    | 427         | 504         | 565         |
| Hardness (as CaCO3)      | mg/L     |                    | 201         | 198         | 238         |
| Mercury (Hg)-Total       | mg/L     | 0.000026           | <0.000050   | <0.000050   | <0.000050   |
| Oil & Grease-(IR)        | mg/L     |                    | <1.0        |             |             |
| Sodium Adsorption Ratio  |          |                    |             | 0.48        | 0.4         |
| Sulfate                  | mg/L     |                    |             | 14.1        |             |
| TDS (Calculated from EC) | mg/L     |                    |             | 327         | 368         |
| Total Suspended Solids   | mg/L     | 10                 | 11          | <5.0        | 8           |
| pH                       | pH units | 6.5-9.0            | 7           | 6.97        | 7.06        |
| Aluminum (Al)-Total      | mg/L     | 0.1                | 0.0051      | 0.0057      | 0.0751      |
| Antimony (Sb)-Total      | mg/L     |                    | <0.00020    | <0.00020    | 0.00035     |
| Arsenic (As)-Total       | mg/L     | 0.005              | 0.00156     | 0.00135     | 0.00217     |
| Barium (Ba)-Total        | mg/L     |                    | 0.0698      | 0.0849      | 0.0812      |
| Beryllium (Be)-Total     | mg/L     |                    | 0.0002      | <0.00020    | <0.00020    |
| Bismuth (Bi)-Total       | mg/L     |                    | <0.00020    | <0.00020    | <0.00020    |
| Boron (B)-Total          | mg/L     | 1.5                | <0.010      | <0.010      | 0.014       |
| Cadmium (Cd)-Total       | mg/L     | Hardness dependent | 0.000035    | 0.000043    | 0.000058    |
| Calcium (Ca)-Total       | mg/L     |                    | 67          | 64          | 80.6        |
| Cesium (Cs)-Total        | mg/L     |                    | <0.00010    | <0.00010    | <0.00010    |
| Chromium (Cr)-Total      | mg/L     |                    | <0.0010     | <0.0010     | 0.0021      |
| Cobalt (Co)-Total        | mg/L     |                    | 0.00025     | 0.00042     | 0.00101     |
| Copper (Cu)-Total        | mg/L     | Hardness dependent | 0.0017      | 0.00214     | 0.00811     |
| Iron (Fe)-Total          | mg/L     | 0.3                | 0.2         | 0.32        | 0.66        |
| Lead (Pb)-Total          | mg/L     | Hardness dependent | <0.000090   | 0.000204    | 0.00226     |
| Lithium (Li)-Total       | mg/L     |                    | 0.0169      | 0.0222      | 0.0264      |
| Magnesium (Mg)-Total     | mg/L     |                    | 8.16        | 9.34        | 8.97        |
| Manganese (Mn)-Total     | mg/L     |                    | 0.323       | 0.452       | 0.534       |
| Molybdenum (Mo)-Total    | mg/L     |                    | <0.00020    | 0.00026     | 0.00031     |
| Nickel (Ni)-Total        | mg/L     | Hardness dependent | 0.0027      | 0.0026      | 0.0035      |
| Phosphorus (P)-Total     | mg/L     |                    | <0.20       | <0.20       | <0.20       |
| Potassium (K)-Total      | mg/L     |                    | 3.43        | 3.68        | 4.07        |
| Rubidium (Rb)-Total      | mg/L     |                    | 0.00332     | 0.00429     | 0.00461     |
| Selenium (Se)-Total      | mg/L     | 0.001              | 0.0016      | <0.0010     | <0.0010     |
| Silicon (Si)-Total       | mg/L     |                    | 2.41        | 2.07        | 2.2         |
| Silver (Ag)-Total        | mg/L     | 0.0001             | <0.00010    | <0.00010    | <0.00010    |
| Sodium (Na)-Total        | mg/L     |                    | 14.6        | 15.4        | 14          |
| Strontium (Sr)-Total     | mg/L     |                    | 0.335       | 0.465       | 0.527       |
| Tellurium (Te)-Total     | mg/L     |                    | <0.00020    | <0.00020    | <0.00020    |
| Thallium (Tl)-Total      | mg/L     | 0.0008             | <0.00010    | <0.00010    | <0.00010    |
| Thorium (Th)-Total       | mg/L     |                    | <0.00010    | <0.00010    | <0.00010    |
| Tin (Sn)-Total           | mg/L     |                    | <0.00020    | <0.00020    | 0.00043     |
| Titanium (Ti)-Total      | mg/L     |                    | 0.00042     | 0.00047     | 0.00251     |
| Tungsten (W)-Total       | mg/L     |                    | <0.0010     | <0.0010     | <0.0010     |
| Uranium (U)-Total        | mg/L     | 0.015              | <0.00010    | <0.00010    | <0.00010    |
| Vanadium (V)-Total       | mg/L     |                    | <0.00020    | <0.00020    | 0.00023     |
| Zinc (Zn)-Total          | mg/L     | 0.03               | 0.0063      | 0.0081      | 0.0203      |
| Zirconium (Zr)-Total     | mg/L     |                    | <0.00040    | <0.00040    | <0.00040    |

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Table 6: Woody lake results

|                                  |          |                    | 2012-Woody-03<br>(initial) | 2012-Woody-03<br>(Mid) | 2012-Woody<br>(Mid) |
|----------------------------------|----------|--------------------|----------------------------|------------------------|---------------------|
| Parameters                       | Unit     | Limits             | 07/03/2012                 | 31/03/2012             | 07/04/2012          |
| Chloride                         | mg/L     |                    | 86.9                       | 95.2                   | 104                 |
| Conductivity                     | umhos/cm |                    | 506                        | 523                    | 576                 |
| Hardness (as CaCO <sub>3</sub> ) | mg/L     |                    | 216                        | 219                    | 240                 |
| Mercury (Hg)-Total               | mg/L     | 0.000026           | <0.000050                  | <0.000050              | <0.000050           |
| Oil & Grease-(IR)                | mg/L     |                    | <1.0                       |                        |                     |
| Sodium Adsorption Ratio          |          |                    |                            | 0.37                   | 0.32                |
| Sulfate                          | mg/L     |                    |                            | 12.2                   |                     |
| TDS (Calculated from EC)         | mg/L     |                    |                            | 340                    | 375                 |
| Total Suspended Solids           | mg/L     | 10                 | <5.0                       | <5.0                   | 6                   |
| pH                               | pH units | 6.5-9.0            | 7.03                       | 6.97                   | 7.11                |
| Aluminum (Al)-Total              | mg/L     | 0.1                | <0.0050                    | 0.0057                 | 0.0248              |
| Antimony (Sb)-Total              | mg/L     |                    | <0.00020                   | <0.00020               | 0.00035             |
| Arsenic (As)-Total               | mg/L     | 0.005              | 0.00173                    | 0.0014                 | 0.00138             |
| Barium (Ba)-Total                | mg/L     |                    | 0.0761                     | 0.0761                 | 0.0737              |
| Beryllium (Be)-Total             | mg/L     |                    | <0.00020                   | <0.00020               | <0.00020            |
| Bismuth (Bi)-Total               | mg/L     |                    | <0.00020                   | <0.00020               | <0.00020            |
| Boron (B)-Total                  | mg/L     | 1.5                | <0.010                     | <0.010                 | 0.01                |
| Cadmium (Cd)-Total               | mg/L     | Hardness dependent | 0.000048                   | 0.000048               | 0.000075            |
| Calcium (Ca)-Total               | mg/L     |                    | 74.3                       | 74                     | 84                  |
| Cesium (Cs)-Total                | mg/L     |                    | <0.00010                   | <0.00010               | <0.00010            |
| Chromium (Cr)-Total              | mg/L     |                    | 0.0013                     | <0.0010                | 0.0022              |
| Cobalt (Co)-Total                | mg/L     |                    | <0.00020                   | 0.00029                | <0.00020            |
| Copper (Cu)-Total                | mg/L     | Hardness dependent | 0.00188                    | 0.00162                | 0.0067              |
| Iron (Fe)-Total                  | mg/L     | 0.3                | 0.18                       | 0.21                   | 0.14                |
| Lead (Pb)-Total                  | mg/L     | Hardness dependent | 0.000102                   | 0.000147               | 0.000744            |
| Lithium (Li)-Total               | mg/L     |                    | 0.0233                     | 0.027                  | 0.0275              |
| Magnesium (Mg)-Total             | mg/L     |                    | 7.5                        | 8.22                   | 7.47                |
| Manganese (Mn)-Total             | mg/L     |                    | 0.0628                     | 0.115                  | 0.0645              |
| Molybdenum (Mo)-Total            | mg/L     |                    | 0.00023                    | 0.00022                | 0.00026             |
| Nickel (Ni)-Total                | mg/L     | Hardness dependent | 0.0032                     | 0.003                  | 0.0039              |
| Phosphorus (P)-Total             | mg/L     |                    | <0.20                      | <0.20                  | <0.20               |
| Potassium (K)-Total              | mg/L     |                    | 3.87                       | 4.11                   | 5.36                |
| Rubidium (Rb)-Total              | mg/L     |                    | 0.00368                    | 0.00391                | 0.00469             |
| Selenium (Se)-Total              | mg/L     | 0.001              | 0.0023                     | <0.0010                | <0.0010             |
| Silicon (Si)-Total               | mg/L     |                    | 2.66                       | 2.47                   | 2.41                |
| Silver (Ag)-Total                | mg/L     | 0.0001             | <0.00010                   | <0.00010               | 0.00022             |
| Sodium (Na)-Total                | mg/L     |                    | 12.2                       | 12.5                   | 11.4                |
| Strontium (Sr)-Total             | mg/L     |                    | 0.47                       | 0.56                   | 0.666               |
| Tellurium (Te)-Total             | mg/L     |                    | <0.00020                   | <0.00020               | <0.00020            |
| Thallium (Tl)-Total              | mg/L     | 0.0008             | <0.00010                   | <0.00010               | <0.00010            |
| Thorium (Th)-Total               | mg/L     |                    | <0.00010                   | <0.00010               | <0.00010            |
| Tin (Sn)-Total                   | mg/L     |                    | <0.00020                   | <0.00020               | 0.00032             |
| Titanium (Ti)-Total              | mg/L     |                    | 0.00056                    | 0.0426                 | 0.00123             |
| Tungsten (W)-Total               | mg/L     |                    | <0.0010                    | <0.0010                | <0.0010             |
| Uranium (U)-Total                | mg/L     | 0.015              | <0.00010                   | <0.00010               | <0.00010            |
| Vanadium (V)-Total               | mg/L     |                    | 0.00027                    | <0.00020               | <0.00020            |
| Zinc (Zn)-Total                  | mg/L     | 0.03               | 0.008                      | <0.0020                | 0.0166              |
| Zirconium (Zr)-Total             | mg/L     |                    | <0.00040                   | <0.00040               | <0.00040            |