APPENDIX D

Laboratory Methods

FRASER ENVIRONMENTAL SERVICES

METHODS MANUAL
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FRASER ENVIRONMENTAL SERVICES

METHODS MANUAL

Details of the analytical methods used by Fraser Environmental Services are described here. Our firm employs similar standard techniques to ensure consistency over time. The QA/QC procedures employed can be found in the QA/QC Manual.

Phytoplankton Identification and Enumeration

Scope :

This method describes the identification and enumeration of phytoplankton.

Summary :

The sample is settled overnight and the slide is examined. Using the appropriate keys and procedures, phytoplankton can then be identified and subsequently enumerated.

Apparatus :

1. Utermohl-type settling chambers
2. Inverted microscope
3. Compound microscope
4. Appropriate taxonomic keys

Reagents :

1. Lugol's Solution : prepared as outlined in **Standard Methods for the Examination of Water and Wastewater.**

Procedure :

1. Calibrate the microscope using stage and ocular micrometers (see Section 1, page 8 for procedure).
2. Confirm that the sample is appropriately preserved.
3. Settle out an appropriate sample volume randomly removed depending on the density of organisms (usually 100 mL) for approximately 24 hours. Use smaller or diluted volumes for densely populated samples or concentrate sparsely populated samples by centrifugation or by sedimentation.
4. Scan the entire slide at increasing powers of magnification to determine which species/genera are present. Identify the organisms observed to the requested level if possible.
5. Once the identifications are made, do the counts. Count at least 10 random fields,

continue counting until you get a total count of at least 100 for the dominant species. Statistical tests for randomness will be performed.

6. Enumerate the data by a total cell count (cells/mL). Calculate the per mL total for each species or genera by multiplying the actual count by the factor F as defined below :

$$F = \frac{A / r^2 \pi N}{V}$$

where A= the area of the settling chamber
r= the radius of the field
N= the number of fields counted
V= the volume settled

Taxonomic Keys :

1. Bourrelly, P. (1966)
2. Cleve-Euler, A. (1951)
3. Cleve-Euler, A. (1968)
4. Contant, H. (1978)
5. Dodd, J. (1947)
6. Germain, H. (1981)
7. Hustedt, F. (1930)
8. Hustedt, F. (1985)
9. Patrick, R. (1966)
10. Patrick, R. (1975)
11. Pennak, R. (1953)
12. Prescott, G. (1978)
13. Prescott, G. (1982)
14. Stein, J. (1975)
15. Ward, H.B. (1959)
16. Webber, C. (1966)

Note : Other taxonomic keys may be used but they will be cited in the data summary.

References :

Bold, Harold C., and Wynne, Michael J. 1978. **Introduction to the Algae : Structure and Reproduction**.

Bourrelly P. 1966. **Les Algues D'Eau Douce. Initiation a la systematique. Tome 1. Les Algues Vertes**.

Clesceri, L.S., Greenberg, A.E. and Trussell, R.R. (eds). 1989. **Standard Methods for the Examination of Water and Wastewater. 17th edition**. APHA - AWWA - WPCF.

Cleve-Euler, Astrid. 1951. **Die Diatomeen Von Schweden Und Finnland**. Bibliotheca Phycologica, Band 2.

Cleve-Euler, Astrid. 1968. **Die Diatomeen Von Schweden Und Finnland**. Bibliotheca Phycologica, Band 5.

Contant, Helene and Duthie, Hamish C. 1978. **The Phytoplankton of Lac St-Jean, Quebec**. Bibliotheca Phycologica, Band 40.

Dodd, John Jeffrey. 1947. **Diatoms : The Illustrated Flora of Illinois**.

Germain, Henry. 1981. **Flore Des Diatomees eaux douces et saumatres**.

Hustedt, Friedrich. 1930. **The Bacillariophyta**.

Hustedt, Friedrich. 1985. **The Pennate Diatoms**.

Lind, O.T. 1985. **Handbook of Common Methods in Limnology : Second edition**.

Patrick, Ruth and Reimer, Charles W. 1966. **The Diatoms of the United States : Exclusive of Alaska and Hawaii : Volume 1**.

Patrick, Ruth and Reimer, Charles W. 1975. **The Diatoms of the United States : Exclusive of Alaska and Hawaii : Volume 2, Part 1**.

Pennak, Robert W. 1953. **Fresh-Water Invertebrates of the United States**.

Prescott, G.W. 1978. **How to Know the Freshwater Algae, 3rd edition**.

Prescott, G.W. 1982. **Algae of the Western Great Lakes Area, revised edition**.

Stein, Janet R. 1975. Freshwater algae of British Columbia : the Lower Fraser Valley. **Syesis**, Vol.8, 1975.

Ward, H.B. and Whipple, G.C. 1959. **Freshwater Biology, 2nd edition**.

Weber, Cornelius I. 1966. **A Guide to the Common Diatoms at Water Pollution Surveillance System Stations**. U.S. Environmental Protection Agency, National Environmental Research Center, Analytical Quality Control Laboratory, Cincinnati, Ohio 45268. Reprint 1971.

Wetzel, R.G. 1983. **Limnology: Second edition**.

Periphyton Identification and Enumeration

Scope :

This method describes the identification and enumeration of periphyton.

Summary :

The sample is settled for at least two hours and the slide is examined. The minimum settling time is dependent on the volume of the chamber used. Using the appropriate keys and procedures, periphyton can then be identified and subsequently enumerated.

Apparatus :

1. Utermohl-type settling chambers
2. Inverted microscope
3. Compound microscope
4. Appropriate taxonomic keys

Reagents :

1. Lugol's Solution : prepared as outlined in **Standard Methods for the Examination of Water and Wastewater.**
2. Hyrax mounting medium (or other medium with similar optical properties).

Procedure :

1. Calibrate the microscope using stage and ocular micrometers (see Section 1, page 8 for procedure).
2. Confirm that the sample is appropriately preserved. Measure and record the total volume of the sample.
3. Settle out an appropriate sample volume randomly removed, depending on the density of organisms (usually 25 mL) for approximately 4 hours. Use smaller or diluted volumes for densely populated samples or concentrate sparsely populated samples by centrifugation or by sedimentation.
4. Scan the entire slide at increasing powers of magnification to determine which species/genera are present. Identify the organisms observed to the requested level if possible.
5. Prepare three diatom slides using either pyrolysis or acid digestion to clear the frustules. See Standard Methods for the Examination of Water and Wastewater for further details of these procedures.
6. Examine the three diatom slides at increasing powers of magnification. Identify the organisms observed to the requested level if possible. Work on one slide and use the other two slides for confirmation.

7. Once the identifications are made, do the counts. From the settling chambers count at least 10 random fields, continue counting until you get a total count of at least 100 for the dominant species. Statistical tests for randomness will be performed.
8. Enumerate the data by a total cell count (cells/mL). Calculate the per mL total for each species or genera by multiplying the actual count by the factor F as defined below :

$$F = \frac{A / r^2 \pi N}{V}$$

where A= the area of the settling chamber
r= the radius of the field
N= the number of fields counted
V= the volume settled

The cells per total sample can then be determined by multiplying by the total sample volume. Then divide by the area sampled to get cells per cm^2. In other words the count can be multiplied by factor P as defined below to get cells per cm^2 :

$$P = \frac{FD V_t}{A_s}$$

where F = the factor defined previously
D = the dilution
V_t = the total sample volume
A_s = the area sampled (cm^2)

Taxonomic keys:

1. Cleve-Euler, A. (1951)
2. Cleve-Euler, A. (1968)
3. Contant, H. (1978)
4. Dodd, J. (1947)
5. Geitler, L. (1932)
6. Germain, H. (1981)
7. Huber-Pestalozzi, G. (1938, 1941, 1961,1955, 1972 & 1983)
8. Hustedt, F. (1930)
9. Hustedt, F. (1985)
10. Komarek, J. and K. Anagnostidis. (1999)
11. Patrick, R. (1966)
12. Patrick, R. (1975)
13. Pennak, R. (1953)
14. Prescott, G. (1978)
15. Prescott, G. (1982)
16. Stein, J. (1975)
17. Ward, H.B and C. G. Whipple. (1959)
18. Webber, C. (1966)

Note : Other taxonomic keys may be used but they will be cited in the data summary.

References:

Bold, Harold C., and Wynne, Michael J. 1978. **Introduction to the Algae : Structure and Reproduction**.

Clesceri, L.S., Greenberg, A.E. and Trussell, R.R. (eds). 1989. **Standard Methods for the Examination of Water and Wastewater. 17th edition**. APHA - AWWA - WPCF.

Cleve-Euler, Astrid. 1951. **Die Diatomeen Von Schweden Und Finnland**. Bibliotheca Phycologica, Band 2.

Cleve-Euler, Astrid. 1968. **Die Diatomeen Von Schweden Und Finnland**. Bibliotheca Phycologica, Band 5.

Contant, Helene and Duthie, Hamish C. 1978. **The Phytoplankton of Lac St-Jean, Quebec**. Bibliotheca Phycologica, Band 40.

Dodd, John Jeffrey. 1947. **Diatoms : The Illustrated Flora of Illinois**.

Geitler, L. 1932. **Cyanophyceae**. In: Kryptogamen-Flora von Duetschland, Osterreich und der Schweiz. (ed., L. Rabenhorst). Akademische, Leipzig. 1196 pp.

Germain, Henry. 1981. **Flore Des Diatomees eaux douces et saumatres**.

Huber-Pestalozzi, G. 1938. **Das Phytoplankton des Susswassers. Teil 1. Allgemeiner Teil, Blaualgen, Bakterien, Pilze**. In Die Binnengewasser (ed., A. Thienemann). E. Schweizerbart, Stuttgart. 342 pp.

Huber-Pestalozzi, G. 1941. **Das Phytoplankton des Susswassers. Teil 2(1). Chrysophyceen**. In Die Binnengewasser (ed., A. Thienemann). E. Schweizerbart, Stuttgart. 365 pp.

Huber-Pestalozzi, G. 1955. **Das Phytoplankton des Susswassers. Teil 4. Euglenophyceen**. In Die Binnengewasser (ed., A. Thienemann), E. Schweizerbart, Stuttgart. 606 pp. 114 pl.

Huber-Pestalozzi, G. 1961. **Das Phytoplankton des Susswassers. Teil 5. Chlorophyceae : Volvocales**. In Die Binnengewasser (ed., A. Thienemann), E. Schweizerbart, Stuttgart. 744 pp. 158 pl.

Huber-Pestalozzi, G. and B. Fott. 1972. **Das Phytoplankton des Susswassers. Teil 6. Chlorophyceae : Tetrasporales**. In Die Binnengewasser (ed., A. Thienemann). E. Schweizerbart, Stuttgart. 116 pp. 47 pl.

Huber-Pestalozzi, G., J. Komarek and B. Fott. 1983. **Das Phytoplankton des Susswassers. Teil 7. Chlorophyceae : Chlorococcales**. In Die Binnengewasser (ed.,

A. Thienemann). E. Schweizerbart, Stuttgart. 1044 pp.

Hustedt, Friedrich. 1930. **The Bacillariophyta**.

Hustedt, Friedrich. 1985. **The Pennate Diatoms**.

Komarek, J. and K. Anagnostidis. 1999. **Susswasserflora von Mitteleuropa. Band 19/1. Cyanoprokaryota: Chroococcales**. (ed., H. Ettl, G Gartner, H. Heynig and D. Mollenhauer). Gustav Fischer, Jena. 548 pp.

Lind, O.T. 1985. **Handbook of Common Methods in Limnology : Second edition**.

Patrick, Ruth and Reimer, Charles W. 1966. **The Diatoms of the United States : Exclusive of Alaska and Hawaii : Volume 1**.

Patrick, Ruth and Reimer, Charles W. 1975. **The Diatoms of the United States : Exclusive of Alaska and Hawaii : Volume 2, Part 1**.

Pennak, Robert W. 1953. **Fresh-Water Invertebrates of the United States**.

Prescott, G.W. 1978. **How to Know the Freshwater Algae, 3rd edition**.

Prescott, G.W. 1982. **Algae of the Western Great Lakes Area, revised edition**.

Stein, Janet R. 1975. Freshwater algae of British Columbia : the Lower Fraser Valley. **Syesis**, Vol.8, 1975.

Ward, H.B. and Whipple, G.C. 1959. **Freshwater Biology, 2nd edition**.

Weber, Cornelius I. 1966. **A Guide to the Common Diatoms at Water Pollution Surveillance System Stations**. U.S. Environmental Protection Agency, National Environmental Research Center, Analytical Quality Control Laboratory, Cincinnati, Ohio 45268. Reprint 1971.

Wetzel, R.G. 1983. **Limnology: Second edition**.

Zooplankton Identification and Enumeration

Scope :

This method describes the identification and enumeration of zooplankton.

Summary :

The sample is settled and the slide is examined. Using the appropriate keys and procedures, zooplankton can then be identified and subsequently enumerated.

Apparatus :

1. Sedgwick-Rafters
2. Inverted microscope
3. Compound microscope
4. Stereoscopic microscope
5. Appropriate taxonomic keys

Reagents :

1. Preservative such as 70% ethanol or 10% buffered formalin
2. 0.04% rose bengal stain

Procedure :

1. Confirm that the sample is appropriately preserved. Measure and record the total volume of the sample.
2. Examine an appropriate sample volume depending on the density of organisms (usually 50 mL) in a petri dish. Use smaller or diluted volumes for densely populated samples or concentrate sparsely populated samples by centrifugation or by sedimentation.
3. Scan the entire dish at increasing powers of magnification to determine which species/genera are present. Identify the organisms observed to the requested level if possible.
4. Once the identifications are made, do the counts. Settle out a 1mL aliquot of a well mixed subsample in a Sedgwick-Rafter, allow to settle for at least 15 minutes.Count the entire cell using a strip counting method. Count at least 3 of the 1mL aliquots, continue counting until you get a total count of at least 200 zooplankton organisms.
5. Enumerate the data by calculating the total number of organisms per sample for each species or genera. Take an average count for each species or genera from all the aliquots counted. This gives you an organisms per mL count. Now the volume can then be multiplied in to give you a count of organisms per total sample. The counts may be expressed as a number/unit volume or a number/unit area, depending on the instructions in the requisition.

Taxonomic Keys :

1. Brandlova, J. et. al (1972)
2. Brooks, J.L. (1957)
3. Comita, G.W. et. al (1976)
4. Deevey, E.S. et. al (1971)
5. Edmondson, W.T. et. al (1982)
6. Fulton, J. (1968)
7. Green, J.D. et. al (1982)
8. Pennak, R.W. (1953)
9. Pinel-Alloul, B. et. al (1988)
10. Pontin, R.M. (1978)
11. Ruttner-Kolisko, A. (1974)
12. Smith, D.L. (1977)
13. Ward, H.B. et. al (1959)

Note : Other taxonomic keys may be used but they will be cited in the data summary.

References :

Brandlova, J., Brandl, Z., and C.H. Fernando. 1972. The Cladocera of Ontario with remarks on some species and distribution. **Can. J. of Zoo.**, Vol. 50, 1972. p. 1373-1403.

Brooks, John Langdon. 1957. **The Systematics of North American Daphnia. Volume XIII.**

Clesceri, L.S., Greenberg, A.E. and Trussell, R.R. (eds.). 1989. **Standard Methods for the Examination of Water and Wastewater 17th edition**. APHA - AWWA - WPCF.

Comita, G.W., and S.J. McNett. 1976. The Postembryonic Developmental Instars of Diaptomus Oregonensis Lilljeborg, 1889 (Copepoda). **Crustaceana** 30 (2). 1976.

Deevey, E.S. and G.B. Deevey. 1971. The American Species of Eubosmina Seligo (Crustacea, Cladocera). **Limnol. and Ocean.** vol.16(2). 1971.

Edmondson, W.T. and Arni H. Litt. 1982. Daphnia in Lake Washington. **Limnol. Oceanogr.** 27(2), 1982, p.272-293.

Fulton, John. 1968. **A Laboratory Manual for the Identification of British Columbia Marine Zooplankton.** Fisheries Research Board of Canada. Technical Report No. 55.

Green, J.D. and T.G. Northcote. 1982. The naupliar instars of Diaptomus kenai (Copepoda, Calanoida) and their distinction from those of four other diaptomids. **Can. J. Zoo.** vol. 60. 1982.

Lind, O.T. 1985. **Handbook of Common Methods in Limnology : Second edition**.

Pennak, R.W. 1953. **Fresh-Water Invertebrates of the United States**.

Pinel-Alloul, B. and J. Lamoureux. 1988. Developpement post-embryonnaire du copepode calanoide Diaptomus (Aglaodiaptomus) Leptopus S.A. Forbes, 1882 II. Phases Copepodite et Adulte. **Crustaceana** 54(2) 1988.

Pontin, R.M. 1978. **A key to British Freshwater Planktonic Rotifera**.

Ruttner-Kolisko, A. 1974. **Plankton Rotifers : Biology and Taxonomy**.

Smith, Deboyd L. 1977. **A Guide to Marine Coastal Plankton and Marine Invertebrate Larvae.**

Ward, H.B. and Whipple, G.C. 1959. **Freshwater Biology, 2nd edition**.

Wetzel, R.G. 1983. **Limnology: Second edition**.

Benthic Invertebrate Identification and Enumeration

Scope :

This method describes the identification and enumeration of benthic invertebrates.

Summary :

The sample is fractioned into various sizes. Invertebrates are removed, sorted, identified and enumerated using appropriate procedures and taxonomic keys.

Apparatus :

1. Nested screens of various sizes 1 - .001 mm
2. Dissecting microscope
3. Subsampling equipment (splitter, Stemple pipette, or gridded petri dish)
4. Compound microscope equipped with phase contrast

Reagents :

1. ethanol
2. mounting media (CMCP, Euparol)
3. KOH

Procedure :

1. Wash and decant animals and detritus from sediments and preservative.
2. Sieve through nested screens. Size classes are similar to Cummins et al. 1973.
3. Microscope sort for benthic invertebrates. Remove from detritus. Identify individuals to appropriate taxa.
4. Identified taxa will be sorted in 70% ethanol in glass vials.
5. If a sample unit contains a very large number of individuals in a given taxon, it may be necessary to subsample to obtain an estimate because the time required to count is prohibitive (Merrit and Cummins 1984). If subsampling is required, size fraction and subsample volumes will be based on the nature of the sample, especially the density of benthic invertebrates. For example, size fractions will be made up to a constant volume (500-1000 mL) and 1 - 3 subsamples (40 mL) will be randomly removed (Merritt and Cummins 1984). Statistical tests for randomness will be performed according to Elliot (1977). Subsamples will be identified as in procedure 3.
6. If permanent microscope slides are required to be made in order to identify benthic invertebrates to a particular level, the following two procedures will be used : a) direct slide mounting from water or ethanol if CMC or Euparol is used, or b) the clearing of opaque tissues by heating in 5-10% KOH solution until transparent, then transfer to distilled water and 95% ethanol 1 minute, then use mounting media.

Taxonomic Keys :

1. Clarke, A.H. (1973)
2. Curtis (1967)
3. Brinkhurst (1971)
4. Burch, J.B. (1972)
5. Burch, J.B. (1973)
6. Edmunds et al. (1978)
7. Ferris et al. (1973)
8. Forrest, H. (1963)
9. Johannsen (1934)
10. Kenk, R. (1972)
11. Klemm, D.J. (1972)
12. McAlpine et al. (1981)
13. Merritt and Cummins (1984)
14. Nimmo and Scudder (1978)
15. Pennak (1989)
16. Richards (1968)
17. Usinger (1963)
18. Wiggins (1977)
19. Scudder et al. (1976)

Note : Other taxonomic keys may be used but they will be cited in the data summary.

References :

Brinkhurst, R.O. and B.G.M. Jamieson. 1971. **Aquatic Oligochaeta of the world**. Univ. Toronto Press, Toronto.

Burch, J.B. 1972. **Freshwater sphaeriacean clams (Mollusca : Pelecypoda) of North America**. Biota of freshwater ecosystems, U.S.E.P.A., Ident. Man. No. 3. Wash., D.C. p.31.

Burch, J.B. 1973. **Freshwater uninacean clams (Mollusca : Pelecypoda) of North America**. Biota of freshwater ecosystems, U.S.E.P.A., Ident. Man. No. 11 Wash., D.C. p.176.

Clarke, A.H. 1973. The freshwater mollusks of the Canadian interior basin. **Malacologia** 13. p.509.

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Cummins, K.W., Peterson, R.C., Howard, F.O., Wuycheck, J.C., and Holt, V.I. 1973. The utilization of leaf litter by stream detrivores. **Ecology** 54:336-345.

Curtis, L.C. 1967. The mosquitoes of British Columbia. **Occ. Pap. British Columbia Prov. Mus.** 15:1-90.

Edmunds, G.F. Jr., Jensen, S.L. and Berner, L. 1976. **The mayflies of North and Central America**. Univ. Minn. Press, Minneapolis. p.330.

Elliot, J.M. 1977. **Some methods for statistical analysis of samples of benthic invertebrates, 2nd edition**. Sci. Publ. Freshwat. Biol. Assoc. 25. 160pp.

Ferris, V.R., Ferris, J.M. and Tjepkema, J.P. 1973. **Genera of freshwater nematodes (Nematoda) of eastern North America**. Biota of freshwater ecosystems, U.S.E.P.A., Ident. Man. No. 10. Wash., D.C. p.38.

Forrest, H. 1963. Taxonomic studies on the hydras of North America. VIII. Description of two new species, with records and a key to North American hydras. **Trans. Amer. Micr. Soc.** 82:6-17.

Johannsen, O.A. 1969. **Aquatic Diptera**. Entomological Reprint Specialists. Michigan. p.80.

Kenk, R. 1972. **Freshwater planarians (Tubellaria) of North America**. Biota of freshwater ecosystems, U.S.E.P.A., Ident. Man. No. 8. Wash., D.C. p.53.

Klemm, D.J. 1972. **Freshwater leeches (Annelida : Hirundinea) of North America**. Biota of freshwater ecosystems, U.S.E.P.A., Ident. Man. No. 8. Wash., D.C. p.53.

McAlpine, J.F., B.V. Peterson, G.E. Shewell, Teskey, H.J. Vockeroth, J.R., and D.M. Wood. **Manual of Nearctic Diptera**. 1981. Re. Branch. Agric. Can. Monogr. 27. Ottawa. p.674.

Merrit, R.W. and Cummins, K.W. **An introduction to the aquatic insects of North America, 2nd edition**. 1984. Kendall / Hunt Publishing Company. Iowa. p.722.

Nimmo, A.P. and G.G.E. Scudder. 1978. An annotated checklist of the Tricoptera (Insecta) of British Columbia. **Syesis**. 11 : 117-134.

Pennak, R.W. **Fresh-water invertebrates of the United States, Protozoa to Mollusca, 3rd edition**. 1989. John Wiley and Sons, Inc. Toronto. p.628.

Richards, W.R. Generic Classification, Evolution, and Biogeography of the Smithuridae of the World (Collembola). **Memoirs of the Entomological Society of Canada** - No. 53.

Scudder, G.E., Cannings, R.A., and K.M. Stuart. 1976. An annotated checklist of Odonata (Insecta) of British Columbia. **Syesis**. 9 : 143-162.

Wiggins, G.B. **Larvae of the North American Caddisfly Genera (Trichoptera)**. 1977. University of Toronto Press. p.401.

Usinger, R.L. **Aquatic Insects of California with keys to North American Genera and California species**. 1963. University of California Press. Berkley. p.508.

Avalon 2010 Benthic Invertebrate Methods – Cordillera Consulting Sue Salter, Summerland,BC

The 12 benthic invertebrate samples collected by Stantec were received by Cordillera Consulting on September 23 2010 for processing. The samples were rinsed and elutriated to remove formalin and sand and gravel. The sand and gravel was examined for trichopterans cases and molluscs before being discarded. The samples were sieved with a 500 micron and 1 mm sieve. The remaining organic material was stored in two plastic jars and assigned Cordillera Consulting numbers.

The sample was examined to determine total numbers and need for subsampling. All of the samples in this project were sorted in their entirety.

Sorting efficiency was measured by resorting 3 of the samples (10 % or at least 3). The sorting efficiency was 90% or greater in the four resorted samples. See attached report for subsampling efficiency.

The invertebrates were stored in vials with 80% ethanol as preservative. The taxonomist identified the invertebrates using the following texts:

Clifford, Hugh F. 1991. Aquatic Invertebrates of Alberta. University of Alberta Press Edmonton, Alberta.

Epler, John. 2001 The Larval Chironomids of North and South Carolina. http://home.earthlink.net/~johnepler/

Epler, John. Identification Manual for the Water Beetles of Florida. http://home.earthlink.net/~johnepler/

Epler, John. Identification Manual for the Aquatic and Semi-aquatic Heteroptera of Florida. http://home.earthlink.net/~johnepler/

Jacobus, Luke and Pat Randolph. 2005. Northwest Ephemeroptera Nymphs. Manual from Northwest Biological Assessment Working Group. Moscow Idaho 2005. Not Published.

Kathman,R.D., R.O. Brinkhurst. 1999. Guide to the Freshwater Oligochaetes of North America. Aquatic Resources Center, College Grove, Tennessee.

Larson, D.J., Y. Alarie, R.E. Roughly.2005. Predaceous Diving Beetles (Coleoptera: Dytiscidae) of the Neararctic Region. NRC-CNRC Research Press. Ottawa.

Merritt, R.W., K.W. Cummins and M.B. Berg. (eds.). 2008. An introduction to the aquatic insects of North America, 4th . Kendall/Hunt, Dubuque, IA.

Needham, James, M. May, M. Westfall Jr. 2000. Dragonflies of North America. Scientific Publishers. Gainsville FL.

Westfall, Minter J. Jr. and May, Michael L. 1996. Damselflies of North America. Scientific Publishers, Gainesville, FL.

Needham, K. 1996. An Identification Guide to the Nymphal Mayflies of British Columbia. Publication #046 Resource Inventory Committee, Government of British Columbia.

Oliver, Donald R. and Mary E. Roussel. 1983. The Insects and Arachnids of Canada Part 11. The Genera of larval midges of Canada. Biosystematics Research Institute. Ottawa, Ontario. Research Branch, Agriculture Canada. Publication 1746.

Proctor, H. The 'Top 18' Water Mite Families in Alberta. Zoology 351.

Stewart, Kenneth W. and Bill Stark. 2002. The Nymphs of North American Stonefly Genera (Plecoptera). The Caddis Press. Columbus Ohio.

Wiggins, Glenn B. 1998. Larvae of the North American Caddisfly Genera (Tricoptera) 2nd ed. University of Toronto Press. Toronto Ontario.

Thorpe, J. H. and A. P. Covich [Eds.] 1991. Ecology and classification of North American freshwater invertebrates. Academic Press, San Diego.

Weiderholm, Torgny (Ed.) 1983. The larvae of Chironomidae (Diptera) of the Holartic region. Entomologica Scaninavica. Supplement No. 19.

http://albertson.edu/campus/community/museum/CorbiculaceaOfNorthAmerica-GLMackie/Sphaeriidae/SphaeriidaeIndex.htm

http://albertson.edu/campus/community/museum/CorbiculaceaOfNorthAmerica-GLMackie/CorbiculaceaIndex.htm

The vials and sorted debris are in the Cordillera Consulting laboratory in Summerland and we will wait for further instructions regarding where they will be shipped to.

D-2: The Aged Otolith

Photo 1: Cut and burned otolith showing annuli. Prepared by Hamaguchi Fish Aging Services

D-3: FISH AGING METHODOLOGY AND QUALITY CONTROL

North/South Consultants Inc.

Age determination techniques employed by North/South Consultants Inc. (NSC) have been developed by adopting a number of methodologies outlined in documents such as: Materials and methods used to age fish in Saskatchewan and Fish ageing methods for Alberta.

Methodologies vary between structures, species of fish, and potential age of fish (based on size). However, the methodologies outlined below are guidelines followed by NSC.

Otoliths

A number of procedures could be applied in the ageing of otoliths including thin sectioning, polishing, crack and toast, or whole. Whole is defined as an otolith in pristine or unaltered condition.

Viewing Whole:

- The otolith is placed in a shallow dish/well plate filled with a 'clearing medium' (i.e., oil of wintergreen).
- Using a dissecting microscope (Leica MS5) and reflected light, the otolith is viewed. Light intensity, magnification, and angle of otolith are adjusted throughout the viewing process.

Polishing:

- Larger otoliths often require surface polishing to reveal the underlying annuli.
- The convex surface of the otolith is wet polished on a carborundum stone to improve visibility, then viewed in a clearing medium as described for whole otoltiths.

Crack and Toast:

- The otolith can either be toasted whole (where otoliths are either small, difficult to section, or cannot be ground) or cracked and then toasted.
- To toast an otolith whole, it is first placed a fine mesh screen. Using an alcohol filled Bunsen burner the screen is then slowly passed through the tip of the flame. Caution needs to be exercised at this point such that the otolith does not burn. If the otolith burns it is often becomes brittle and the annuli are obscured.
- Once cooled, the toasted otolith can be placed in a shallow dish/well plate filled with a 'clearing medium' (i.e., oil of wintergreen) and aged.
- To crack an otolith they are typically placed on a hard surface but seated on a piece of paper towel. The technician then places his/her thumb nail on the center of the otolith (length wise). A firm pressure is placed on the otolith until it snaps. The cracked otolith can then be toasted as described above.
- To age a cracked otolith it is typically inserted into plasticine. A drop of clearing medium is placed on the cracked surface and viewed under a dissecting microscope with reflected light.

Thin Sectioning or Focus Sectioned:

- Otoliths can be thin sectioned in the same manner as fin rays (see sectioning if fins below). The sectioning of otoliths depends on the size of the fish (relative age).
- Otoliths may also be set in epoxy and sectioned at/near the focus. This is conducted if the otolith in question is small, brittle, or at the request of the client. The epoxy holds the otolith together and allows it to be manipulated by the ageing technician.

Otolith ageing is species dependant, the most appropriate method is determined with consultation of the client after a review of the structures and life history of the fish in question..

Fins and/or Dorsal Rays

Pectoral fins, pelvic fins, and dorsal rays can be prepared in the same manner, and are generically referred to as fins.

- The fins are first dipped in an epoxy resin (Cold Cure™) and allowed to harden.
- Sections of fins are taken using a Struers Minitom™ (low speed sectioning saw). Sections can vary between 0.5 and 0.75 mm in thickness.
- The sections are then permanently mounted to a labelled glass slide using Cytoseal-60™.
- The mounted sections are then viewed under a dissecting microscope with transmitted light. Light intensity and magnification are adjusted throughout the viewing process.

Scales

- Scales are typically removed from their respective envelopes and pressed between two glass slides.
- Using a dissecting microscope (Leica MS5) and reflected light, the scales are viewed. Light intensity, magnification, and angle of scale are adjusted throughout the viewing process.

Cleithra:

- If required, cleithra may be boiled prior to ageing. The boiling process removes any tissue or oil residue that may be left on the structure after removal from the fish.
- Cleithra are typically read ‘free hand’ (i.e., without a microscope), however a dissecting microscope is sometimes utilized when required.

Age Determination and Quality Control

Regardless of the preparation method used, all structures are read a minimum of two times and, if consistency was not met between the first two readings, a third is taken. All readings are conducted as ‘blind’ (i.e., independent from each other). Second and third ageing technicians review a sub-sample (i.e., 10%) of the ages provided by the first ageing technician. These readings are conducted to look for consistency and accuracy. These quality control readings are also conducted as ‘blind’.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

JACQUES WHITFORD

ATTN: SANDRA NICOL

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Reported On: 22-DEC-08 01:08 PM
Revision: 1

Lab Work Order #: **L711720** **Date Received:** **25-NOV-08**

Project P.O. #:
Job Reference: 1036222.09 PHASE 900
Legal Site Desc: THOR LAKE
CofC Numbers:

Other Information:

Comments:

Bryan Mark
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS	PUGET SOUND PROTOCOLS

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. Tissue samples are homogenized either mechanically or manually prior to digestion. The hotplate or block digestion involves the use of nitric acid followed by repeated additions of hydrogen peroxide. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2794-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

Certificate of Analysis

STANTEC CONSULTING LTD.
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PO BOX 21
BURNABY BC V5G 4L7

Report Date: 02-MAR-10 13:08 (MT)
Version: FINAL

Lab Work Order #: L842922 **Date Received:** 23-NOV-09

Project P.O. #: NOT SUBMITTED
Job Reference: 123510051 TASK 205
Legal Site Desc: THOR LAKE
CofC Numbers:

Other Information:

Comments: Please see the results for La, Gd, and Y ICPMS metals in the attachment. This analysis was sublet to Saskatchewan Research Council.

Natasha Markovic-Mirovic
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

MET-WET-ICP-VA	Tissue	Metals in Tissue by ICPOES	EPA 200.3, EPA 6010B

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Optical Emission Spectrophotometry, adapted from US EPA Method 6010B. This digestion procedure was implemented on October 5, 2009.

MET-WET-MS-VA	Tissue	Metals in Tissue by ICPMS	EPA 200.3, EPA 6020A

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Mass Spectrometry, adapted from US EPA Method 6020A. This digestion procedure was implemented on October 5, 2009

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Certificate of Analysis

STANTEC CONSULTING LTD.
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Report Date: 02-MAR-10 13:50 (MT)
Version: FINAL

Lab Work Order #: L842923 **Date Received:** 23-NOV-09

Project P.O. #: NOT SUBMITTED
Job Reference: 123510051 TASK 205
Legal Site Desc: THOR LAKE
CofC Numbers:

Other Information:

Comments: Please see the results for La, Gd, and Y ICPMS metals in the attachment. This analysis was sublet to Saskatchewan Research Council.

Natasha Markovic-Mirovic
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

MET-WET-ICP-VA	Tissue	Metals in Tissue by ICPOES	EPA 200.3, EPA 6010B

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Optical Emission Spectrophotometry, adapted from US EPA Method 6010B. This digestion procedure was implemented on October 5, 2009.

MET-WET-MS-VA	Tissue	Metals in Tissue by ICPMS	EPA 200.3, EPA 6020A

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Mass Spectrometry, adapted from US EPA Method 6020A. This digestion procedure was implemented on October 5, 2009

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

STANTEC CONSULTING LTD.
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Date Received: 11-SEP-10
Report Date: 22-OCT-10 09:02 (MT)
Version: FINAL

Certificate of Analysis

Lab Work Order #: L930448
Project P.O. #: NOT SUBMITTED
Job Reference: 123510431-202.200
Legal Site Desc: THOR LAKE
C of C Numbers: 09-029028

Comments: Please note that the analysis for Rare Earth Metals was subcontracted to Saskatchewan Research Council. Please refer to the attached report for details of this analysis.

Heather Easton
Account Manager

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Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-WET-ICP-VA	Tissue	Metals in Tissue by ICPOES	EPA 200.3, EPA 6010B

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Optical Emission Spectrophotometry, adapted from US EPA Method 6010B. This digestion procedure was implemented on October 5, 2009.

MET-WET-MS-VA	Tissue	Metals in Tissue by ICPMS	EPA 200.3, EPA 6020A

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Mass Spectrometry, adapted from US EPA Method 6020A. This digestion procedure was implemented on October 5, 2009

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

09-029028

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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Date Received: 11-SEP-10
Report Date: 20-OCT-10 11:45 (MT)
Version: FINAL

Certificate of Analysis

Lab Work Order #: L930449
Project P.O. #: NOT SUBMITTED
Job Reference: 123510431-202.200
Legal Site Desc: THOR LAKE
C of C Numbers: 09-029030

Comments: Please note that the analysis of Rare Earth metals was subcontracted to Saskatchewan Research Council. Please refer to the attached report for details of this analysis.

Heather Easton
Account Manager

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Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-WET-ICP-VA	Tissue	Metals in Tissue by ICPOES	EPA 200.3, EPA 6010B

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Optical Emission Spectrophotometry, adapted from US EPA Method 6010B. This digestion procedure was implemented on October 5, 2009.

MET-WET-MS-VA	Tissue	Metals in Tissue by ICPMS	EPA 200.3, EPA 6020A

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Mass Spectrometry, adapted from US EPA Method 6020A. This digestion procedure was implemented on October 5, 2009

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

09-029030

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
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Date Received: 11-SEP-10
Report Date: 21-OCT-10 09:56 (MT)
Version: FINAL

Certificate of Analysis

Lab Work Order #: L930450
Project P.O. #: NOT SUBMITTED
Job Reference: 123510431-202.200
Legal Site Desc: THOR LAKE
C of C Numbers: 09-029029

Heather Easton
Account Manager

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Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

09-029029

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

STANTEC CONSULTING LTD.
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Phone: 604-436-3014

Date Received: 11-SEP-10
Report Date: 21-OCT-10 10:04 (MT)
Version: FINAL

Certificate of Analysis

Lab Work Order #: L930451
Project P.O. #: NOT SUBMITTED
Job Reference: 123510431-202.200
Legal Site Desc: THOR LAKE
C of C Numbers: 09-029004

Heather Easton
Account Manager

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Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

09-029004

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
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Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

APPENDIX E

In Situ Water Quality Data

Table E1 Blachford Lake (BL-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
21-Mar-08	2.10	0.5	ICE							- Ice thickness = 0.54 m
10:00		1.0	-0.22	7.78	221	-	12.84	211.0	-	- sampled at 1.25 m
		1.5	-0.05	7.71	225	-	11.71	213.2	-	- Gen. chem from 1st grab, radionukes & replicate (BL-004) split btw
		2.0	0.28	7.46	231	-	8.28	206.0	-	1st, 2nd and 3rd grabs; waypoint 438
4-Oct-08	3.90	0.5	7.04	8.35	463	107.7	12.19	99.3	0.22	- YSI & samples taken from new location; original station approx.
		1.0	7.03	8.35	462	101.7	12.33	99.3	0.22	142 m S/SW
		1.5	6.97	8.36	462	100.7	12.22	99.4	0.22	- Secchi depth = 2.5 m
		2.0	6.93	8.36	462	100.4	12.19	99.7	0.22	- Did not sample radionuclides - ran out of bottles & was unable to
		2.5	6.91	8.36	462	100.3	12.19	100.0	0.22	get the correct ones sent
		3.0	6.88	8.36	462	100.2	12.19	100.3	0.22	- was lightly raining; water was brillant aqua blue
		3.5	6.88	8.36	462	100.4	12.20	100.5	0.22	- Wypt is BL-02
14-Mar-09	4.00	0.8	0.17	8.09	291	103.8	15.06	40.9	0.14	- Ice thickness = 0.74 m
14:30		1.0	0.32	8.09	289	102.6	14.84	42.1	0.14	
		1.5	0.48	8.08	286	101.8	14.66	43.3	0.13	
		2.0	0.65	8.07	285	100.9	14.46	44.7	0.13	
		2.5	0.81	8.06	284	100.3	14.30	45.9	0.13	
		3.0	0.99	8.04	283	99.7	14.15	48.2	0.13	
		3.5	1.15	8.01	283	97.8	13.82	50.3	0.13	
		3.9	1.29	7.97	283	93.4	13.17	52.0	0.13	
27-Jun-09	4.30	0.5	14.31	8.38	205	103.2	10.64	107.0	0.10	
14:45		1.0	13.94	8.39	205	100.5	10.29	106.5	0.10	
		1.5	13.42	8.39	205	97.1	10.13	106.2	0.10	
		2.0	13.32	8.38	205	96.4	10.08	105.3	0.10	
		2.5	13.29	8.37	204	96.2	10.07	104.4	0.10	
		3.0	13.25	8.38	205	96.0	10.05	104.2	0.10	
		3.5	13.20	8.36	205	95.5	10.01	104.6	0.10	
		4.0	13.12	8.35	205	94.9	9.97	105.0	0.10	
21-Sep-09	4.25	0.5	11.68	8.19	225	106.9	11.59	123.1	0.11	- Secchi depth = 2.0 m
		1.0	11.69	8.19	225	103.7	11.24	123.4	0.11	
		1.5	11.65	8.19	225	101.5	11.01	123.5	0.11	
		2.0	11.63	8.18	225	100.2	10.88	124.6	0.11	
		2.5	11.62	8.18	225	98.4	10.69	125.4	0.11	
		3.0	11.59	8.18	225	98.0	10.65	125.4	0.11	
		3.5	11.51	8.18	225	97.3	10.59	126.2	0.11	
		4.0	11.30	8.18	225	96.0	10.50	126.4	0.11	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E2 Elbow Lake North (EL-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
19-Mar-08	> 10.0	0.5	ICE							- Waypoint 432
16:15		1.0	0.28	7.70	334	-	8.92	163.3	-	- YSI meter shut itself off at 9 m
		1.5	1.27	7.71	338	-	8.38	163.9	-	- sampled gen. chem., radionukes (4L) & Ra226 split (EL-011)
		2.0	1.72	7.72	340	-	8.03	163.8	-	- Gen. chem from 1st grab
		2.5	2.01	7.74	343	-	7.65	163.5	-	- Radionukes from 1st & 2nd grab
		3.0	2.11	7.73	344	-	7.34	164.5	-	- Ra226 from 2nd grab
		3.5	2.23	7.72	345	-	7.17	165.3	-	
		4.0	2.32	7.71	346	-	7.08	166.1	-	
		4.5	2.35	7.69	346	-	7.06	166.9	-	
		5.0	2.34	7.68	348	-	6.61	167.3	-	
		5.5	2.31	7.68	349	-	6.53	168.0	-	
		6.0	2.32	7.67	351	-	6.51	168.7	-	
		6.5	2.30	7.66	352	-	6.55	169.2	-	
		7.0	2.28	7.69	353	-	6.29	166.9	-	
		7.5	2.27	7.68	354	-	5.83	168.6	-	
		8.0	2.27	7.67	355	-	5.62	169.7	-	
		8.5	2.27	7.67	356	-	5.42	170.5	-	
		9.0	2.30	7.68	358	-	5.10	170.5	-	
		9.5	2.28	7.63	359	-	5.33	174.4	-	
		10.0	2.28	7.69	359	-	5.41	171.5	-	
1-Oct-08	13.8	0.5	6.68	8.56	591	99.9	11.83	120.3	0.29	- First station after having trouble with conductivity calibration
		1.0	6.67	8.60	591	96.8	11.82	120.5	0.29	- Had to return to sample radionuclides (sampled at 14:14) -
		1.5	6.66	8.60	591	96.7	11.83	120.7	0.29	dropped cap in boat on to rainpants)
		2.0	6.65	8.60	591	96.7	11.83	120.5	0.29	
		2.5	6.65	8.60	591	96.6	11.81	120.8	0.29	
		3.0	6.65	8.60	592	96.9	11.85	121.5	0.29	
		3.5	6.65	8.60	592	96.7	11.82	121.6	0.29	
		4.0	6.65	8.59	591	96.7	11.82	121.7	0.29	
		4.5	6.65	8.59	591	96.8	11.82	121.8	0.29	
		5.0	6.65	8.60	591	96.6	11.80	121.9	0.29	
		5.5	6.65	8.59	591	96.4	11.79	122.0	0.29	
		6.0	6.66	8.59	592	96.5	11.79	122.4	0.29	
		6.5	6.66	8.59	592	96.4	11.78	122.6	0.29	
		7.0	6.66	8.59	591	96.4	11.78	122.7	0.29	
		7.5	6.66	8.59	591	96.4	11.79	122.8	0.29	
		8.0	6.66	8.59	592	96.4	11.78	123.0	0.29	
		8.5	6.65	8.59	591	96.5	11.80	123.3	0.29	
		9.0	6.66	8.59	592	96.6	11.80	123.4	0.29	
		9.5	6.66	8.59	591	96.5	11.79	123.5	0.29	
		10.0	6.66	8.58	591	96.5	11.79	123.8	0.29	
		10.5	6.66	8.58	591	96.5	11.80	123.9	0.29	
		11.0	6.66	8.58	591	96.6	11.80	124.0	0.29	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		11.5	6.66	8.58	592	96.6	11.80	124.1	0.29	
		12.0	6.66	8.58	591	96.6	11.81	124.4	0.29	
		12.5	6.66	8.58	592	96.6	11.80	124.5	0.29	
		13.0	6.65	8.58	592	96.5	11.80	124.7	0.29	
		13.5	6.66	8.58	592	96.5	11.80	124.8	0.29	
16-Mar-09	12.50	0.5	ICE							- Ice thickness = 0.86 m
13:05		1.0	0.67	7.96	302	79.1	11.34	69.6	0.14	
		1.5	1.38	7.96	298	75.2	10.57	69.5	0.14	
		2.0	1.77	7.95	295	72.3	10.06	70.3	0.14	
		2.5	1.92	7.95	294	70.1	9.70	70.9	0.14	
		3.0	1.96	7.94	294	67.7	9.36	72.2	0.14	
		3.5	2.04	7.93	294	67.1	9.26	72.9	0.14	
		4.0	2.06	7.82	293	66.2	9.13	73.3	0.14	
		4.5	2.09	7.90	293	62.0	8.54	77.2	0.14	
		5.0	2.13	7.88	293	60.7	8.36	78.3	0.14	
		5.5	2.15	7.86	294	58.5	8.05	79.9	0.14	
		6.0	2.15	7.86	2984	57.5	7.91	80.5	0.14	
		6.5	2.15	7.86	296	58.1	7.99	80.9	0.14	
		7.0	2.15	7.86	297	58.5	8.05	81.7	0.14	
		7.5	2.16	7.85	298	57.1	7.86	82.6	0.14	
		8.0	2.18	7.83	298	56.1	7.69	83.3	0.14	
		8.5	2.13	7.83	300	54.9	7.58	84.2	0.14	
		9.0	2.14	7.83	300	55.2	7.60	84.6	0.14	
		9.5	2.19	7.82	299	54.1	7.44	85.3	0.14	
		10.0	2.21	7.80	299	51.7	7.10	86.2	0.14	
		10.5	2.17	7.80	302	51.9	7.13	86.7	0.14	
		11.0	2.18	7.81	302	52.2	7.18	87.2	0.14	
		11.5	2.20	7.80	302	52.1	7.16	87.8	0.14	
		12.0	2.26	7.79	302	51.2	7.02	88.4	0.14	
		12.5	2.38	7.78	301	49.5	6.78	88.9	0.14	
28-Jun-09	14.20	0.5	15.22	8.49	259	112.3	11.25	125.1	0.12	Did blank here (EL-03)
9:15		1.0	15.14	8.50	259	110.6	11.11	125.5	0.12	Started to rain when sampling
		1.5	15.00	8.50	259	109.5	11.04	125.9	0.12	
		2.0	14.96	8.49	260	109.1	11.01	126.3	0.12	
		2.5	14.87	8.49	260	108.2	10.93	126.9	0.12	
		3.0	14.77	8.48	260	107.5	10.87	127.6	0.12	
		3.5	14.21	8.47	261	105.1	10.77	128.7	0.12	
		4.0	13.87	8.46	261	103.7	10.71	129.8	0.12	
		4.5	13.86	8.46	261	103.7	10.71	130.1	0.12	
		5.0	13.67	8.46	261	102.8	10.66	130.7	0.12	
		5.5	13.61	8.46	261	102.7	10.66	131.2	0.12	
		6.0	13.47	8.45	261	101.4	10.56	131.9	0.12	
		6.5	12.06	8.38	266	92.9	9.99	135.7	0.13	
		7.0	11.19	8.32	269	86.9	9.57	138.0	0.13	
		7.5	9.54	8.20	277	99.0	9.07	143.1	0.13	
		8.0	7.22	8.04	291	71.0	8.56	149.7	0.14	
		8.5	6.41	7.96	291	67.2	8.27	152.5	0.14	
		9.0	6.17	7.89	292	64.2	7.95	155.1	0.14	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		9.5	5.92	7.85	293	61.0	7.60	156.6	0.14	
		10.0	5.74	7.81	294	58.0	7.26	158.5	0.14	
		10.5	5.55	7.79	295	55.7	7.01	159.4	0.14	
		11.0	5.34	7.77	295	54.0	6.82	160.4	0.14	
		11.5	5.15	7.76	295	53.4	6.79	160.8	0.14	
		12.0	5.11	7.74	296	51.6	6.55	161.8	0.14	
		12.5	4.95	7.70	298	46.3	5.91	163.0	0.14	
		13.0	4.84	7.68	299	42.8	5.48	163.6	0.14	
		13.5	4.82	7.64	298	39.2	5.02	165.3	0.14	
		14.0	4.22	7.53	302	23.2	2.98	-124.1	0.14	
30-Sep-09	12.00	0.5	9.47	8.37	293	78.8	8.99	92.1	0.14	- Secchi depth = 2.3 m
		1.0	9.46	8.36	293	78.2	8.94	93.6	0.14	
		1.5	9.47	8.36	292	78.1	8.92	93.6	0.14	
		2.0	9.47	8.36	292	78.1	8.92	94.5	0.14	
		2.5	9.48	8.36	292	78.0	8.90	95.2	0.14	
		3.0	9.47	8.36	292	78.0	8.90	95.5	0.14	
		3.5	9.48	8.36	292	78.0	8.90	96.4	0.14	
		4.0	9.48	8.36	292	78.0	8.91	96.8	0.14	
		4.5	9.48	8.35	292	78.1	8.91	97.7	0.14	
		5.0	9.48	8.35	292	78.1	8.92	98.1	0.14	
		5.5	9.48	8.35	292	78.2	8.93	98.2	0.14	
		6.0	9.47	8.35	292	78.2	8.94	99.2	0.14	
		6.5	9.47	8.35	292	78.3	8.95	99.3	0.14	
		7.0	9.47	8.35	292	78.4	8.96	99.9	0.14	
		7.5	9.47	8.35	292	78.5	8.97	100.5	0.14	
		8.0	9.46	8.35	292	78.8	9.00	101.7	0.14	
		8.5	9.46	8.34	292	78.9	9.02	102.5	0.14	
		9.0	9.46	8.34	292	79.0	9.02	103.3	0.14	
		9.5	9.46	8.34	292	79.0	9.03	103.4	0.14	
		10.0	9.46	8.35	292	79.1	9.03	103.7	0.14	
		10.5	9.46	8.34	292	79.2	9.05	104.4	0.14	
		11.0	9.44	8.34	292	79.2	9.04	105.2	0.14	
		11.5	9.42	8.34	292	79.0	9.03	105.4	0.14	
		12.0	9.30	8.34	291	78.4	8.99	105.9	0.14	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E3 Elbow Lake South (EL-02) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
21-Mar-08	8.10	0.5	ICE							- Ice thickness = 0.68 m
16:30		1.0	0.12	7.85	268	-	9.39	131.4	-	- Gen. chem from 1st grab; radionuke (4L) from 1st and 2nd grab
		1.5	0.89	7.84	271	-	8.96	130.7	-	- Waypoint 442
		2.0	1.18	7.84	274	-	8.75	132.2	-	
		2.5	1.47	7.84	276	-	8.72	132.2	-	
		3.0	1.47	7.82	279	-	8.58	137.6	-	
		3.5	1.47	7.81	283	-	8.49	133.4	-	
		4.0	1.49	7.78	285	-	8.35	134.0	-	
		4.5	1.52	7.72	289	-	6.96	135.9	-	
		5.0	1.65	7.66	291	-	6.30	136.7	-	
		5.5	1.80	7.63	293	-	6.01	137.6	-	
		6.0	1.83	7.65	293	-	5.87	136.2	-	
		6.5	2.05	7.62	295	-	5.24	137.5	-	
		7.0	2.11	7.58	301	-	4.58	140.3	-	
		7.5	2.32	7.54	304	-	4.37	140.4	-	
		8.0	2.53	7.50	310	-	3.63	105.4	-	
1-Oct-08	7.60	0.5	6.30	8.62	588	98.6	12.19	103.6	0.29	- General chemistry from 1st grab at 3.5 m
		1.0	6.27	8.62	588	97.8	12.04	103.8	0.29	- Radionuclide sample from 2nd grab at
		1.5	6.28	8.62	588	97.4	12.02	103.9	0.29	3.5 m
		2.0	6.28	8.62	589	97.3	12.01	104.1	0.29	
		2.5	6.26	8.62	589	97.2	12.00	104.1	0.29	
		3.0	6.25	8.62	589	96.9	11.97	104.4	0.29	
		3.5	6.25	8.62	589	97.0	11.98	104.2	0.29	
		4.0	6.23	8.62	589	97.0	11.98	104.6	0.29	
		4.5	6.22	8.62	589	96.8	11.96	104.7	0.29	
		5.0	6.20	8.62	590	96.8	11.96	105.0	0.29	
		5.5	6.19	8.62	590	96.6	11.95	105.1	0.29	
		6.0	6.19	8.61	590	96.5	11.93	105.3	0.29	
		6.5	6.19	8.61	590	96.5	11.93	105.5	0.29	
		7.0	6.18	8.61	590	96.3	11.91	105.7	0.29	
		7.5	6.18	8.54	590	82.9	10.67	106.7	0.29	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
16-Mar-09	8.00	0.5	ICE							- Ice thickness = 0.70 m
12:00		0.7	0.25	7.97	309	74.7	10.84	120.1	0.15	
		1.0	0.71	7.97	306	74.2	10.62	119.9	0.14	
		1.5	1.20	7.96	303	73.5	10.38	119.6	0.14	
		2.0	1.18	7.94	312	72.2	10.21	120.8	0.15	
		2.5	1.34	7.92	313	71.1	10.00	120.9	0.15	
		3.0	1.45	7.90	313	69.8	9.78	121.0	0.15	
		3.5	1.53	7.89	313	68.0	9.51	121.4	0.15	
		4.0	1.62	7.87	313	65.5	9.11	122.0	0.15	
		4.5	2.00	7.82	311	59.2	8.18	122.8	0.15	
		5.0	2.17	7.78	310	53.5	7.35	123.6	0.15	
		5.5	2.35	7.75	313	51.9	7.10	123.9	0.15	
		6.0	2.49	7.75	314	51.6	7.03	124.4	0.15	
		6.5	2.53	7.73	314	50.2	6.83	124.4	0.15	
		7.0	2.60	7.71	315	44.1	6.00	125.0	0.15	
		7.5	2.86	7.69	314	42.2	5.70	125.1	0.15	
28-Jun-09	7.70	0.5	16.14	8.51	257	116.5	11.14	57.0	0.12	- Raining during profile & sample collection
10:45		1.0	15.94	8.52	258	113.3	11.17	57.5	0.12	
		1.5	15.82	8.50	259	112.1	11.09	59.4	0.12	
		2.0	15.59	8.51	259	110.7	11.01	60.0	0.12	
		2.5	15.37	8.50	259	109.4	10.93	61.3	0.12	
		3.0	15.17	8.50	259	108.3	10.87	62.5	0.12	
		3.5	14.99	8.49	259	107.3	10.81	63.6	0.12	
		4.0	14.77	8.47	260	106.0	10.73	65.4	0.12	
		4.5	14.54	8.47	260	104.5	10.63	66.8	0.12	
		5.0	14.42	8.46	260	103.9	10.61	67.9	0.12	
		5.5	14.06	8.44	262	102.0	10.49	69.5	0.12	
		6.0	11.57	8.34	271	87.0	9.50	75.3	0.13	
		6.5	10.73	8.25	273	83.6	9.31	79.2	0.13	
		7.0	9.94	8.18	277	80.7	9.09	82.3	0.13	
		7.5	9.20	8.07	283	75.4	8.67	86.3	0.14	
29-Sep-09	7.50	0.5	8.99	8.30	289	102.3	11.82	136.3	0.14	
		1.0	8.99	8.31	289	101.2	11.69	136.3	0.14	
		1.5	9.00	8.32	289	100.4	11.60	136.1	0.14	
		2.0	9.00	8.32	289	99.8	11.53	136.1	0.14	
		2.5	9.00	8.32	290	99.3	11.47	136.3	0.14	
		3.0	9.00	8.33	289	98.7	11.40	135.7	0.14	
		3.5	9.00	8.34	289	98.3	11.36	135.8	0.14	
		4.0	8.98	8.34	289	98.1	11.34	136.0	0.14	
		4.5	8.97	8.34	290	98.0	11.32	136.2	0.14	
		5.0	8.95	8.34	290	97.8	11.31	136.2	0.14	
		5.5	8.94	8.35	290	97.9	11.32	136.4	0.14	
		6.0	8.93	8.35	290	97.8	11.31	136.3	0.14	
		6.5	8.92	8.35	290	97.7	11.30	136.6	0.14	
		7.0	8.63	8.35	291	95.7	11.17	137.2	0.14	
		7.5	8.59	8.32	290	93.5	10.92	112.2	0.14	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E4 Fred Lake (FL-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
18-Mar-08	2.75	0.5	ICE							- sampled gen. chem at 1.5 m
18:00		1.0	1.08	7.76	393	-	4.43	173.6	-	- waypoint 428
		1.5	1.92	7.64	372	-	3.31	165.4	-	
		2.0	2.83	7.49	400	-	2.20	61.0	-	
		2.5	3.76	7.19	474	-	1.71	33.0	-	
7-Oct-08	0.96	0.25	7.03	8.45	560	95.6	11.58	60.3	0.27	- whole lake very shallow
		0.5	7.03	8.45	560	94.7	11.47	60.6	0.27	- lots of whitefish caught by Fisheries
		0.75	7.03	8.45	560	94.5	11.45	61.3	0.27	- deeper depths reported by sounder (see bathy)
13-Mar-09	1.80	0.5	ICE							- estimated depths of measurement & bottom depth - depth sensor
14:45		1.0	0.73	7.49	16	34.6	4.98	-17.0	0.01	on YSI not working properly
		1.25	1.90	7.24	18	4.4	0.58	-106.1	0.01	- Ice thickness = 0.64 m
		1.5	2.86	7.43	24	2.2	0.30	-174.2	0.01	
		1.75	3.49	7.27	32	1.8	0.24	-166.6	0.01	
24-Jun-09	1.94	0.25	14.00	8.39	225	94.4	9.72	120.3	0.11	no zooplankton net
8:45		0.50	13.99	8.40	225	94.0	9.68	119.5	0.11	sampled TKN in 250ml clear glass jar
		0.75	13.99	8.40	225	93.7	9.65	120.0	0.11	sampled general chemistry, radionuclides
		1.00	13.99	8.40	225	93.4	9.62	119.3	0.11	and phytoplantkton
		1.25	13.96	8.41	225	93.3	9.62	119.0	0.11	
		1.50	13.78	8.40	224	92.8	9.59	119.2	0.11	
		1.75	12.93	8.24	219	80.8	8.55	105.0	0.10	
5-Sep-09	1.50	0.25	16.05	8.31	294	78.2	7.70	146.8	0.14	- Secchi depth = 1.5 m
		0.50	16.05	8.34	294	75.7	7.46	144.6	0.14	- Started to rain
		0.75	16.04	8.35	294	75.3	7.41	143.5	0.14	- Unfiltered sample lid accidentally put on filtered sample after it was
		1.00	16.05	8.34	294	74.8	7.36	143.1	0.14	preserved - watch for d-met results
		1.25	15.99	8.35	294	74.5	7.35	142.4	0.14	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E5 Cressy Lake (FL-02) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
21-Mar-08	6.15	0.5	ICE							- Ice thickness = 0.64 m
13:15		1.0	0.57	7.28	209	-	3.50	124.2	-	- sampled at 4 m (gen. chem)
		1.5	1.22	7.29	213	-	3.39	125.3	-	- waypoint 441
		2.0	1.74	7.30	216	-	3.02	126.3	-	
		2.5	2.04	7.32	219	-	2.92	125.9	-	
		3.0	2.28	7.31	221	-	2.34	128.8	-	
		3.5	2.42	7.26	223	-	1.13	130.7	-	
		4.0	2.64	7.23	227	-	0.44	132.2	-	
		4.5	2.74	7.25	230	-	0.18	131.5	-	
		5.0	2.82	7.23	233	-	0.14	133.5	-	
		5.5	3.24	7.41	252	-	0.10	-33.7	-	
		6.0	3.41	7.95	292	-	0.07	-162.2	-	
13-Mar-09	5.50	0.5	ICE							- radionuclides from 1st and 2nd grabs
13:30		0.6	0.34	7.83	273	28.5	4.15	37.1	0.13	- general chemistry from 1st
		1.0	1.34	7.82	269	24.8	3.50	39.0	0.13	- Ice thickness = 0.61 m
		1.5	2.30	7.81	266	23.7	3.23	40.5	0.13	
		2.0	2.93	7.78	266	22.5	3.03	42.5	0.13	
		2.5	3.25	7.78	265	21.6	2.87	43.6	0.13	
		3.0	3.41	7.77	265	18.1	2.43	46.1	0.13	
		3.5	3.63	7.73	265	11.0	1.41	47.1	0.13	
		4.0	3.77	7.70	268	3.4	0.47	48.1	0.13	
		4.5	3.90	7.68	277	1.7	0.21	48.7	0.13	
		5.0	4.16	7.67	293	1.2	0.18	48.1	0.14	
		5.5	4.45	7.84	317	1.6	0.21	-175.0	0.15	
24-Jun-09	6.00	0.5	15.08	8.20	199	100.3	10.03	100.9	0.09	sampled TKN in 250ml clear glass jar
16:30		1.0	15.01	8.18	199	97.1	9.76	102.5	0.09	(no preservaties)
		1.5	14.82	8.16	198	95.3	9.63	104.4	0.09	no zooplankton net, did not sample on June 24
		2.0	14.74	8.15	198	94.6	9.58	105.1	0.09	sampled general chemistry, radionucliodes,
		2.5	14.73	8.15	198	94.2	9.54	105.8	0.09	phytoplankton (chl and tax)
		3.0	14.66	8.14	198	93.4	9.48	106.5	0.09	
		3.5	13.20	8.08	199	88.3	9.25	110.8	0.09	
		4.0	11.02	7.79	203	65.0	7.18	120.3	0.10	
		4.5	8.35	7.72	207	56.1	6.51	125.1	0.10	
		5.0	7.43	7.64	208	47.8	5.66	128.0	0.10	
		5.5	7.10	7.56	211	38.4	4.53	129.6	0.10	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
8-Sep-09	6.00	0.5	12.92	7.98	242	68.8	7.24	133.9	0.12	-secchi depth= 2.4 m
		1.0	12.89	7.98	242	67.5	7.13	133.9	0.12	
		1.5	12.85	7.97	242	67.0	7.07	134.4	0.12	
		2.0	12.86	7.97	242	66.5	7.03	134.6	0.12	
		2.5	12.78	7.98	242	66.2	7.00	134.3	0.12	
		3.0	12.78	7.98	242	65.9	6.47	134.3	0.12	
		3.5	12.78	7.98	242	65.6	6.94	134.7	0.12	
		4.0	12.78	7.98	242	65.3	6.91	134.8	0.12	
		4.5	12.76	7.98	242	65.0	6.89	134.6	0.12	
		5.0	12.64	7.98	242	64.6	6.86	135.1	0.12	
		5.5	12.38	7.95	241	63.3	6.76	136.1	0.21	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E6 Lake A (FL-03) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
23-Mar-08	> 10.0	0.5	ICE							- Ice thickness = 0.69 m
10:30		1.0	0.05	7.49	226	-	9.15	205.5	-	- Gen. chem from 1st grab; radionukes from 1st and 2nd grab
		1.5	0.70	7.55	227	-	8.97	207.8	-	- snow not v. deep on ice (< 30 cm)
		2.0	1.20	7.57	229	-	8.81	208.5	-	- YSI meter shut itself off at 9 m
		2.5	1.63	7.57	231	-	8.61	209.0	-	- Waypoint 446
		3.0	1.83	7.60	232	-	8.34	207.1	-	
		3.5	2.01	7.58	233	-	8.40	208.6	-	
		4.0	2.07	7.58	234	-	8.60	209.2	-	
		4.5	2.10	7.59	234	-	8.61	208.7	-	
		5.0	2.11	7.59	235	-	8.67	208.8	-	
		5.5	2.13	7.59	235	-	8.64	209.1	-	
		6.0	2.14	7.59	235	-	8.50	209.0	-	
		6.5	2.15	7.57	235	-	8.43	209.9	-	
		7.0	2.17	7.56	236	-	8.18	210.3	-	
		7.5	2.19	7.55	236	-	8.26	210.8	-	
		8.0	2.21	7.55	236	-	7.63	210.7	-	
		8.5	2.22	7.54	236	-	7.49	211.3	-	
		9.0	2.28	7.55	237	-	6.71	211.2	-	
		9.5	2.29	7.52	237	-	6.76	211.0	-	
		10.0	2.28	7.50	238	-	6.66	213.6	-	
4-Oct-08	> 15.5	0.5	6.23	7.85	572	84.0	10.38	108.3	0.28	- Secchi depth 2.17 m
		1.0	6.20	7.85	571	84.0	10.38	108.8	0.28	- felt like fish were biting YSI
		1.5	6.21	7.85	572	83.9	10.37	109.3	0.28	- did replicate here - FL-04
		2.0	6.18	7.84	572	83.8	10.37	109.8	0.28	
		2.5	6.16	7.84	572	83.4	10.32	110.0	0.28	
		3.0	6.14	7.84	572	83.3	10.31	110.9	0.28	
		3.5	6.11	7.84	571	83.1	10.29	111.4	0.28	
		4.0	6.07	7.84	571	82.8	10.27	112.1	0.28	
		4.5	6.07	7.83	571	82.6	10.25	112.0	0.28	
		5.0	6.07	7.83	571	82.6	10.25	112.4	0.28	
		5.5	6.05	7.83	572	82.5	10.24	112.9	0.28	
		6.0	6.03	7.83	572	82.2	10.20	113.5	0.28	
		6.5	6.00	7.82	572	81.8	10.15	114.5	0.28	
		7.0	6.01	7.82	572	81.4	10.12	115.0	0.28	
		7.5	5.98	7.82	572	81.1	10.08	115.1	0.28	
		8.0	5.97	7.81	572	81.0	10.08	115.8	0.28	
		8.5	5.95	7.80	572	80.9	10.07	116.3	0.28	
		9.0	5.90	7.79	572	80.2	10.00	117.0	0.28	
		9.5	5.89	7.79	572	80.0	9.97	117.1	0.28	
		10.0	5.86	7.79	572	79.4	9.91	117.7	0.28	
		10.5	5.85	7.79	572	79.3	9.90	118.4	0.28	
		11.0	5.84	7.79	572	79.3	9.89	118.7	0.28	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		11.5	5.82	7.79	572	78.9	9.84	118.6	0.28	
		12.0	5.68	7.75	574	75.6	9.48	120.2	0.28	
		12.5	5.67	7.74	574	74.8	9.37	120.4	0.28	
		13.0	5.66	7.74	574	74.7	9.36	121.4	0.28	
		13.5	5.65	7.74	574	74.3	9.31	121.3	0.28	
		14.0	5.59	7.72	576	73.0	9.17	122.0	0.28	
		14.5	5.49	7.69	578	70.0	8.83	123.2	0.28	
		15.0	5.29	7.62	583	60.4	7.64	126.3	0.28	
		15.5	4.41	7.38	612	15.7	2.03	54.1	0.30	
16-Mar-09	16.10	0.5	ICE							- used secchi disc to determine total depth
16:30		0.7	0.29	7.68	279	73.8	10.66	40.4	0.13	- Ice thickness = 0.64 m
		1.0	0.48	7.67	278	71.9	10.35	42.7	0.13	
		1.5	1.07	7.65	275	71.3	10.09	45.9	0.13	
		2.0	1.64	7.64	272	71.0	9.91	48.2	0.13	
		2.5	1.97	7.62	269	70.2	9.71	53.5	0.13	
		3.0	2.26	7.61	269	70.3	9.65	57.3	0.13	
		3.5	2.37	7.61	269	70.5	9.64	58.5	0.13	
		4.0	2.39	7.61	269	70.2	9.60	61.4	0.13	
		4.5	2.42	7.61	269	70.1	9.58	62.7	0.13	
		5.0	2.48	7.60	269	70.1	9.55	63.9	0.13	
		5.5	2.51	7.60	268	68.7	9.36	66.4	0.13	
		6.0	2.53	7.60	268	67.7	9.22	69.4	0.13	
		6.5	2.57	7.60	268	67.7	9.21	70.5	0.13	
		7.0	2.61	7.60	268	67.7	9.20	71.5	0.13	
		7.5	2.64	7.60	268	67.6	9.19	72.6	0.13	
		8.0	2.67	7.60	268	67.0	9.10	74.9	0.13	
		8.5	2.67	7.59	268	64.7	8.79	76.9	0.13	
		9.0	2.73	7.58	268	63.3	8.56	77.5	0.13	
		9.5	2.81	7.57	267	61.6	8.31	78.3	0.13	
		10.0	2.85	7.57	267	60.1	8.10	78.9	0.13	
		10.5	2.92	7.56	267	58.2	7.82	79.7	0.13	
		11.0	2.95	7.55	268	54.7	7.37	80.5	0.13	
		11.5	2.99	7.52	269	44.7	6.01	82.3	0.13	
		12.0	3.00	7.50	270	45.1	6.07	82.5	0.13	
		12.5	3.02	7.50	271	44.1	5.92	83.5	0.13	
		13.0	3.03	7.48	272	38.3	5.13	84.6	0.13	
		13.5	3.04	7.45	274	36.2	4.86	85.2	0.13	
		14.0	3.05	7.43	276	30.5	4.09	86.1	0.13	
		14.5	3.04	7.41	280	28.4	3.81	86.6	0.13	
		15.0	3.03	7.39	287	27.2	3.65	87.6	0.14	
		15.5	3.04	7.36	300	21.2	2.84	88.8	0.14	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
27-Jun-09	>15.5	0.5	16.35	8.09	217	102.2	10.00	120.6	0.10	
16:00		1.0	16.29	8.08	218	101.2	9.92	121.6	0.10	
		1.5	15.81	8.08	218	98.7	9.78	122.9	0.10	
		2.0	15.16	8.03	217	95.2	9.56	124.8	0.10	
		2.5	14.79	8.00	217	92.6	9.36	126.8	0.10	
		3.0	12.86	7.85	219	81.3	8.58	132.9	0.10	
		3.5	9.92	7.77	226	74.1	8.40	138.5	0.11	
		4.0	8.02	7.73	231	70.9	8.45	141.6	0.11	
		4.5	5.78	7.68	237	66.3	8.28	145.6	0.11	
		5.0	5.10	7.61	244	61.0	7.75	149.0	0.12	
		5.5	4.45	7.57	253	56.8	7.31	150.4	0.12	
		6.0	4.04	7.55	261	54.0	7.03	151.8	0.12	
		6.5	3.69	7.52	269	51.4	6.75	152.9	0.13	
		7.0	3.45	7.52	274	48.5	6.42	153.8	0.13	
		7.5	3.33	7.50	277	46.4	6.18	154.4	0.13	
		8.0	3.26	7.49	278	45.0	5.98	154.3	0.13	
		8.5	3.21	7.48	279	43.5	5.80	154.8	0.13	
		9.0	3.14	7.48	280	42.4	5.67	155.2	0.13	
		9.5	3.13	7.46	281	41.2	5.52	155.4	0.13	
		10.0	3.09	7.47	283	40.0	5.35	156.0	0.13	
		10.5	3.05	7.45	283	39.0	5.23	156.4	0.13	
		11.0	3.04	7.44	284	38.1	5.12	156.3	0.13	
		11.5	3.04	7.44	284	36.0	4.80	157.1	0.13	
		12.0	3.03	7.41	286	32.0	4.30	157.3	0.14	
		12.5	3.01	7.41	289	28.9	3.85	157.9	0.14	
		13.0	3.01	7.39	290	26.5	3.53	158.4	0.14	
		13.5	2.98	7.38	293	24.4	3.24	158.5	0.14	
		14.0	2.99	7.37	300	20.6	2.69	159.3	0.14	
		14.5	2.99	7.35	307	13.3	1.79	-85.0	0.15	
		15.0	2.99	7.35	320	7.8	1.04	-77.5	0.15	
		15.5	3.00	7.33	336	7.1	0.96	-106.9	0.16	
20-Sep-09	5.00	0.5	11.86	7.99	263	100.0	10.80	160.3	0.13	- Anchor was dragging, had to re-set and re-start
		1.0	11.86	7.99	263	98.9	10.69	160.4	0.13	
		1.5	11.85	8.00	263	98.2	10.61	160.4	0.13	
		2.0	11.86	8.00	263	97.4	10.53	160.3	0.13	
		2.5	11.86	8.00	263	97.1	10.49	160.2	0.13	
		3.0	11.85	8.01	263	96.8	10.45	160.5	0.13	
		3.5	11.83	8.01	263	96.5	10.43	160.6	0.13	
		4.0	11.84	8.01	263	96.3	10.41	160.8	0.13	
		4.5	11.84	8.01	263	96.1	10.38	161.0	0.13	
		5.0	11.59	8.00	264	93.3	10.14	161.8	0.13	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
20-Sep-09	>15.5m	0.5	11.84	8.00	263	98.8	10.66	162.5	0.13	- Secchi depth = 3.5 m
13:05		1.0	11.84	8.00	263	97.7	10.55	162.4	0.13	
		1.5	11.84	8.00	263	97.2	10.50	162.4	0.13	
		2.0	11.85	8.01	263	96.9	10.48	162.4	0.13	
		2.5	11.84	8.01	263	96.7	10.45	162.2	0.13	
		3.0	11.84	8.01	263	96.7	10.45	162.9	0.13	
		3.5	11.84	8.01	263	96.6	10.44	163.1	0.13	
		4.0	11.84	8.01	263	96.4	10.42	162.9	0.13	
		4.5	11.84	8.01	263	96.4	10.42	163.4	0.13	
		5.0	11.78	8.00	263	95.7	10.35	163.4	0.13	
		5.5	8.15	7.31	281	39.1	4.67	163.6	0.13	
		6.0	6.04	7.11	291	26.1	3.25	183.5	0.14	
		6.5	5.04	7.09	297	24.6	3.13	191.4	0.14	
		7.0	4.29	7.07	301	25.2	3.29	193.2	0.14	
		7.5	3.80	6.99	307	23.0	3.01	195.0	0.15	
		8.0	3.67	6.96	308	20.0	2.62	200.3	0.15	
		8.5	3.61	6.95	308	16.9	2.20	200.8	0.15	
		9.0	3.58	6.94	309	13.7	1.82	201.4	0.15	
		9.5	3.51	6.94	310	11.7	1.55	201.1	0.15	
		10.0	3.45	6.94	311	10.3	1.37	201.2	0.15	
		10.5	3.42	6.94	312	9.3	1.24	200.5	0.15	
		11.0	3.38	6.95	312	8.5	1.12	200.0	0.15	
		11.5	3.30	6.95	314	7.6	1.02	199.8	0.15	
		12.0	3.30	6.97	315	6.8	0.91	199.3	0.15	
		12.5	3.26	6.98	315	6.2	0.82	198.3	0.15	
		13.0	3.24	6.98	317	5.8	0.77	194.3	0.15	
		13.5	3.23	6.99	318	5.6	0.74	177.3	0.15	
		14.0	3.19	6.98	321	5.4	0.72	-17.8	0.15	
		14.5	3.14	7.01	333	4.8	0.65	-107.4	0.16	
		15.0	3.12	7.09	345	4.6	0.61	-137.4	0.16	
		15.5	3.12	7.18	350	4.4	0.60	-150.3	0.17	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E7 Great Slave Lake (GL-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
1-Oct-08	-	0.5	7.80	8.36	364	101.9	12.11	107.1	0.17	- Oct. 1: Yellowknife weather forecast predicted 30 km winds from the SE; anchor did not hold boat in place
2-Oct-08	19.00	0.5	7.64	8.28	358	102.0	12.18	114.5	0.17	
		1.0	7.64	8.28	358	101.9	12.16	114.5	0.17	
		1.5	7.63	8.28	358	101.9	12.16	114.6	0.17	- Oct. 2: returned to sample again; sampled in a slightly different location from Oct. 1
		2.0	7.63	8.27	359	101.7	12.14	114.7	0.17	
		2.5	7.63	8.27	358	101.7	12.14	115.0	0.17	
		3.0	7.63	8.27	359	101.5	12.12	115.1	0.17	- Secchi depth = 4.2 m
		3.5	7.62	8.27	359	101.5	12.12	115.2	0.17	- General chemistry from 1st grabm radionuclides from 2nd grab at 9.5 m
		4.0	7.62	8.27	359	101.4	12.11	115.8	0.17	
		4.5	7.62	8.26	359	101.2	12.08	116.0	0.17	
		5.0	7.62	8.26	359	101.1	12.08	116.6	0.17	
		5.5	7.62	8.26	359	101.2	12.10	116.5	0.17	
		6.0	7.62	8.26	359	101.3	12.08	117.0	0.17	
		6.5	7.62	8.27	359	101.2	12.09	117.2	0.17	
		7.0	7.63	8.27	359	101.1	12.07	117.4	0.17	
		7.5	7.62	8.26	359	101.1	12.08	117.6	0.17	
		8.0	7.62	8.26	359	101.1	12.08	117.9	0.17	
		8.5	7.62	8.26	359	101.0	12.06	118.0	0.17	
		9.0	7.62	8.26	359	101.1	12.07	118.4	0.17	
		9.5	7.62	8.26	359	101.1	12.06	118.7	0.17	
		10.0	7.62	8.25	359	100.8	12.04	119.1	0.17	
		10.5	7.62	8.25	359	100.8	12.03	119.5	0.17	
		11.0	7.62	8.25	359	100.7	12.03	119.8	0.17	
		11.5	7.62	8.25	359	100.7	12.02	120.4	0.17	
		12.0	7.62	8.25	359	100.6	12.01	121.1	0.17	
		12.5	7.62	8.25	359	100.5	12.01	121.2	0.17	
		13.0	7.62	8.25	359	100.5	12.00	121.4	0.17	
		13.5	7.62	8.25	359	100.6	12.01	121.6	0.17	
		14.0	7.62	8.25	359	100.5	12.00	121.8	0.17	
		14.5	7.62	8.25	359	100.5	12.00	122.0	0.17	
		15.0	7.62	8.25	359	100.4	11.99	122.4	0.17	
		15.5	7.62	8.25	359	100.4	11.99	122.6	0.17	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
16-Mar-09	18.00	0.5			ICE					- used secchi disc to determine total depth
10:40		1.0	0.12	7.93	188	106.0	15.41	70.2	0.09	- secchi depth ~ 4 m
		1.5	0.15	7.97	296	104.1	15.14	71.2	0.09	- Ice thickness = 1.14 m
		2.0	0.16	8.00	184	102.9	14.97	72.8	0.09	
		2.5	0.20	8.02	182	102.0	14.81	74.1	0.09	
		3.0	0.22	8.02	181	100.7	14.61	75.6	0.08	
		3.5	0.24	8.03	180	100.0	14.51	77.1	0.08	
		4.0	0.26	8.03	179	99.2	14.39	79.2	0.08	
		4.5	0.29	8.02	178	98.4	14.26	80.7	0.08	
		5.0	0.30	8.02	178	97.8	14.18	82.0	0.08	
		5.5	0.30	8.02	178	97.5	14.12	83.9	0.08	
		6.0	0.34	8.01	177	96.1	13.90	86.8	0.08	
		6.5	0.37	8.01	1765	95.8	13.86	88.2	0.08	
		7.0	0.40	8.00	175	95.4	13.78	90.2	0.08	
		7.5	0.41	8.00	174	95.2	13.75	91.1	0.08	
		8.0	0.45	8.00	173	94.8	13.67	92.2	0.08	
		8.5	0.46	7.99	173	93.9	13.55	94.8	0.08	
		9.0	0.49	7.99	173	93.9	13.55	96.7	0.08	
		9.5	0.50	7.98	172	94.0	13.54	97.5	0.08	
		10.0	0.53	7.98	172	93.6	13.48	99.3	0.08	
		10.5	0.54	7.98	171	93.6	13.48	100.2	0.08	
		11.0	0.56	7.98	171	93.5	13.46	101.1	0.08	
		11.5	0.60	7.98	170	93.4	13.43	101.8	0.08	
		12.0	0.68	7.98	170	93.2	13.39	102.4	0.08	
		12.5	0.70	7.98	167	92.9	13.32	102.6	0.08	
		13.0	0.74	7.98	167	92.6	13.26	103.0	0.08	
		13.5	0.77	7.98	166	92.2	13.20	103.5	0.08	
		14.0	0.77	7.98	165	92.0	13.15	104.0	0.08	
		14.5	0.77	7.98	166	91.8	13.13	104.6	0.08	
		15.0	0.77	7.98	166	91.8	13.13	105.0	0.08	
		15.5	0.77	7.98	166	91.8	13.13	105.3	0.08	
28-Jun-09	>15.5	0.5	1.70	8.23	143	85.6	11.93	116.3	0.07	raining and cold here
12:16		1.0	1.69	8.20	143	85.6	11.93	117.1	0.07	
		1.5	1.68	8.18	143	95.7	11.96	117.4	0.07	
		2.0	1.66	8.15	143	85.8	11.98	118.4	0.07	
		2.5	1.67	8.15	143	86.0	12.01	118.5	0.07	
		3.0	1.65	8.13	142	86.1	12.02	118.9	0.07	
		3.5	1.66	8.13	145	86.2	12.02	119.3	0.07	
		4.0	1.67	8.13	143	86.3	12.04	119.8	0.07	
		4.5	1.67	8.13	142	86.3	12.04	120.3	0.07	
		5.0	1.67	8.13	142	86.5	12.06	121.3	0.07	
		5.5	1.67	8.12	142	86.5	12.07	122.0	0.07	
		6.0	1.67	8.12	144	86.5	12.07	122.5	0.07	
		6.5	1.70	8.13	143	86.6	12.07	123.2	0.07	
		7.0	1.67	8.13	142	86.6	12.07	123.2	0.07	
		7.5	1.74	8.12	145	86.6	12.06	123.4	0.07	
		8.0	1.75	8.12	143	86.6	12.06	124.1	0.07	
		8.5	1.75	8.11	143	86.7	12.07	124.1	0.07	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		9.0	1.77	8.11	144	86.7	12.06	124.3	0.07	
		9.5	1.78	8.11	144	86.7	12.06	124.4	0.07	
		10.0	1.77	8.12	144	86.8	12.07	125.0	0.07	
		10.5	1.87	8.11	144	86.8	12.05	125.4	0.07	
		11.0	1.90	8.11	145	86.9	12.04	125.5	0.07	
		11.5	1.93	8.10	145	86.9	12.04	125.9	0.07	
		12.0	1.93	8.11	145	87.0	12.05	126.9	0.07	
		12.5	1.94	8.10	145	87.0	12.05	126.4	0.07	
		13.0	1.96	8.11	145	87.0	12.04	127.1	0.07	
		13.5	1.97	8.10	145	87.0	12.04	127.2	0.07	
		14.0	1.96	8.11	145	87.0	12.04	127.5	0.07	
		14.5	1.97	8.10	145	87.0	12.03	127.5	0.07	
		15.0	1.97	8.10	145	87.0	12.04	127.6	0.07	
		15.5	1.98	8.10	146	87.0	12.03	128.4	0.07	
30-Sep-09	19.00	0.5	7.60	8.01	170	99.3	11.84	133.2	0.08	- Secchi depth = 7.6 m
		1.0	7.60	7.98	170	96.3	11.52	133.7	0.08	- Sediment very hard here and extremely hard to get sediment
		1.5	7.58	7.97	170	94.9	11.34	134.2	0.08	grabs; several tries did not even snap the ponar
		2.0	7.56	7.96	170	93.7	11.22	134.3	0.08	
		2.5	7.56	7.95	170	93.1	11.14	134.6	0.08	
		3.0	7.55	7.94	170	92.5	11.07	134.9	0.08	
		3.5	7.54	7.94	170	92.0	11.01	135.2	0.08	
		4.0	7.54	7.93	170	91.8	10.99	135.7	0.08	
		4.5	7.55	7.93	170	91.7	10.98	135.6	0.08	
		5.0	7.54	7.93	170	91.5	10.96	135.8	0.08	
		5.5	7.54	7.93	170	91.4	10.94	136.3	0.08	
		6.0	7.54	7.93	170	91.3	10.93	136.7	0.08	
		6.5	7.54	7.92	170	91.2	10.92	136.9	0.08	
		7.0	7.54	7.92	170	91.1	10.91	137.0	0.08	
		7.5	7.54	7.92	170	91.1	10.91	137.3	0.08	
		8.0	7.54	7.92	170	91.1	10.91	137.9	0.08	
		8.5	7.54	7.92	170	91.1	10.91	137.9	0.08	
		9.0	7.54	7.92	170	91.0	10.90	138.2	0.08	
		9.5	7.54	7.92	170	91.0	10.90	138.4	0.08	
		10.0	7.54	7.91	170	91.0	10.90	139.8	0.08	
		10.5	7.54	7.91	170	91.0	10.90	139.6	0.08	
		11.0	7.54	7.91	170	91.0	10.90	139.4	0.08	
		11.5	7.53	7.91	170	90.9	10.88	139.7	0.08	
		12.0	7.53	7.91	170	90.9	10.88	139.9	0.08	
		12.5	7.53	7.91	170	90.9	10.88	140.4	0.08	
		13.0	7.53	7.90	170	90.9	10.88	140.7	0.08	
		13.5	7.53	7.90	170	90.9	10.89	141.2	0.08	
		14.0	7.53	7.90	170	90.8	10.87	141.5	0.08	
		14.5	7.53	7.90	170	90.8	10.87	141.7	0.08	
		15.0	7.53	7.90	170	90.8	10.87	142.0	0.08	
		15.5	7.53	7.90	170	90.8	10.87	142.3	0.08	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E8 Long - 1 (LL-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
19-Mar-08	6.90	0.5	ICE							- sampled gen. chem & radionukes (4L) at 4 m
11:30		1.0	0.55	7.77	310	-	12.75	199.8	-	- sampled replicate gen. chem. LL-002
		1.5	1.27	7.74	309	-	9.50	202.2	-	- Routine of LL-002 from 2nd grab
		2.0	1.67	7.72	310	-	7.34	202.2	-	- Radionukes made up of 2nd & 3rd grab of van dorn
		2.5	2.10	7.56	311	-	6.89	207.8	-	- waypoint 429
		3.0	2.31	7.57	311	-	6.89	207.7	-	
		3.5	2.58	7.55	311	-	6.56	208.9	-	
		4.0	2.63	7.54	311	-	6.72	209.0	-	
		4.5	2.66	7.56	311	-	6.45	208.9	-	
		5.0	2.67	7.54	311	-	6.53	209.3	-	
		5.5	2.68	7.54	311	-	6.05	210.0	-	
		6.0	2.69	7.51	311	-	6.24	211.9	-	
		6.5	2.70	7.50	312	-	5.99	211.5	-	
6-Oct-08	5.90	0.5	7.55	8.06	503	98.2	11.74	40.6	0.24	- total depth 5.9 m from YSI
		1.0	7.55	8.06	503	97.5	11.66	42.1	0.24	- total depth is 6.5 m with depth sounder
		1.5	7.54	8.06	503	97.0	11.60	44.2	0.24	- LL-01 is the original station on Long Lake
		2.0	7.54	8.06	503	96.5	11.54	47.2	0.24	- Secchi depth = 2.0 m
		2.5	7.54	8.06	503	96.2	11.51	49.3	0.24	- ORP reads very different (lower) here than LL-02 - meter
		3.0	7.36	8.04	504	95.1	11.44	52.5	0.24	problem?
		3.5	7.12	8.01	506	93.6	11.32	53.7	0.24	- sampled General chemistry only here
		4.0	7.11	8.01	506	92.6	11.19	55.3	0.24	
		4.5	7.09	8.00	506	92.1	11.14	56.8	0.24	
		5.0	7.04	8.00	506	91.7	11.10	58.3	0.25	
		5.5	7.04	8.00	506	91.3	11.05	59.5	0.25	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E9 Long -2 (LL-02) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
6-Oct-08	16.00	0.5	7.51	8.08	504	90.6	10.84	129.4	0.24	- total depth is from depth sounder
		1.0	7.52	8.09	505	90.6	10.84	129.2	0.24	- raining
		1.5	7.49	8.10	505	90.6	10.84	129.0	0.24	- LL-02 is new station on Long Lake approx. 335 m SE of original
		2.0	7.49	8.10	504	90.5	10.84	129.3	0.24	(LL-01)
		2.5	7.48	8.10	505	90.5	10.84	129.3	0.24	- sampled general chemistry & radionuclides here
		3.0	7.45	8.10	505	90.4	10.83	129.5	0.24	
		3.5	7.46	8.09	505	90.4	10.83	130.2	0.24	
		4.0	7.29	8.07	507	89.6	10.79	131.2	0.25	
		4.5	7.27	8.07	507	89.6	10.79	131.6	0.25	
		5.0	7.26	8.07	507	89.5	10.77	132.2	0.25	
		5.5	7.26	8.07	507	89.5	10.79	132.4	0.25	
		6.0	7.24	8.07	507	89.5	10.79	133.1	0.25	
		6.5	7.19	8.07	507	89.6	10.80	133.2	0.25	
		7.0	7.18	8.07	507	89.5	10.80	133.4	0.25	
		7.5	7.18	8.06	507	89.5	10.80	133.8	0.25	
		8.0	7.17	8.06	507	89.5	10.80	134.3	0.25	
		8.5	7.17	8.06	507	89.5	10.80	134.8	0.25	
		9.0	7.15	8.05	507	89.4	10.79	135.0	0.25	
		9.5	7.14	8.05	507	89.2	10.78	135.3	0.25	
		10.0	7.14	8.05	507	89.1	10.76	135.5	0.25	
		10.5	7.13	8.05	507	89.0	10.75	136.2	0.25	
		11.0	7.12	8.04	507	88.9	10.74	136.5	0.25	
		11.5	7.10	8.03	507	88.5	10.70	137.2	0.25	
		12.0	7.10	8.03	507	88.4	10.68	137.8	0.25	
		12.5	7.10	8.03	507	88.4	10.69	138.1	0.25	
		13.0	7.09	8.02	507	88.6	10.71	138.5	0.25	
		13.5	7.09	8.02	507	88.6	10.71	139.2	0.25	
		14.0	7.09	8.02	507	88.4	10.70	139.3	0.25	
		14.5	7.08	8.02	507	88.3	10.68	139.6	0.25	
		15.0	6.85	7.10	577	4.8	0.54	-107.8	0.28	
15-Mar-09	14.80	0.5	ICE							- used secchi disc to determine total depth
15:30		0.7	0.42	7.54	252	70.0	10.09	96.5	0.12	- last 2 readings with YSI (15.0 m & 15.5 m) were in the sediment
		1.0	1.14	7.55	249	69.7	9.85	95.9	0.12	- Ice thickness = 0.65 m
		1.5	2.01	7.55	246	69.3	9.58	95.9	0.12	
		2.0	2.57	7.54	246	69.3	9.42	95.8	0.12	
		2.5	2.87	7.53	244	68.4	9.23	96.1	0.12	
		3.0	3.03	7.53	245	68.1	9.16	96.3	0.12	
		3.5	3.08	7.53	244	67.8	9.09	96.6	0.12	
		4.0	3.09	7.52	244	67.4	9.03	96.9	0.12	
		4.5	3.11	7.53	244	67.0	8.98	97.1	0.12	
		5.0	3.12	7.52	244	66.0	8.85	97.5	0.12	
		5.5	3.13	7.51	244	63.2	8.46	98.5	0.12	
		6.0	3.14	7.49	244	61.9	8.28	99.0	0.12	
		6.5	3.18	7.49	244	61.0	8.17	99.1	0.12	
		7.0	3.20	7.48	244	59.7	7.97	99.6	0.12	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		7.5	3.18	7.47	244	58.6	7.85	100.1	0.12	
		8.0	3.20	7.47	244	57.3	7.63	100.5	0.12	
		8.5	3.22	7.45	244	56.1	7.49	101.0	0.12	
		9.0	3.23	7.45	244	54.8	7.32	101.2	0.12	
		9.5	3.25	7.44	244	53.7	7.16	101.8	0.12	
		10.0	3.28	7.42	244	51.5	6.84	102.4	0.12	
		10.5	3.29	7.40	244	47.7	6.35	103.0	0.12	
		11.0	3.32	7.39	244	46.2	6.16	103.2	0.12	
		11.5	3.35	7.37	244	44.2	5.86	103.9	0.12	
		12.0	3.38	7.36	245	41.0	5.41	104.3	0.12	
		12.5	3.44	7.33	245	34.8	4.50	105.4	0.12	
		13.0	3.41	7.33	246	29.9	4.15	104.7	0.12	
		13.5	3.49	7.31	246	29.5	3.86	105.5	0.12	
		14.0	3.56	7.29	247	27.0	3.58	105.8	0.12	
		14.5	3.73	7.32	301	7.2	0.91	-147.0	0.14	
		15.0	3.82	7.15	378	33.0	0.42	-185.9	0.18	
		15.5	3.83	7.12	454	1.9	0.25	-194.9	0.22	
25-Jun-09	15.50	0.5	17.15	8.18	220	108.9	10.49	131.2	0.10	-sampled gen chem, radios & phyto (1 m)
19:30		1.0	16.76	8.25	220	107.4	10.40	131.1	0.10	
		1.5	16.43	8.29	220	105.7	10.34	131.3	0.10	
		2.0	15.24	8.31	220	99.8	10.00	132.2	0.10	
		2.5	13.98	8.32	221	96.7	9.96	133.4	0.11	
		3.0	13.71	8.32	220	95.8	9.94	133.9	0.10	
		3.5	13.33	8.31	220	94.1	9.84	134.9	0.11	
		4.0	13.02	8.28	219	93.1	9.80	135.5	0.10	
		4.5	12.78	8.27	220	91.9	9.72	136.4	0.10	
		5.0	12.61	8.25	220	91.0	9.66	137.4	0.11	
		5.5	11.92	8.19	222	87.6	9.46	139.2	0.11	
		6.0	10.78	8.13	224	82.9	9.21	142.3	0.11	
		6.5	9.56	8.06	227	78.8	8.98	145.4	0.11	
		7.0	7.79	7.98	229	74.6	8.82	149.0	0.11	
		7.5	6.50	7.91	232	70.7	8.65	152.0	0.11	
		8.0	5.94	7.88	233	68.7	8.54	153.6	0.11	
		8.5	5.64	7.84	233	67.0	8.42	154.7	0.11	
		9.0	5.38	7.79	235	64.1	8.07	156.6	0.11	
		9.5	5.18	7.74	237	60.2	7.61	158.1	0.11	
		10.0	5.08	7.71	237	58.6	7.43	159.0	0.11	
		10.5	4.95	7.67	238	54.3	6.94	160.1	0.11	
		11.0	4.84	7.62	241	48.1	6.10	161.9	0.11	
		11.5	4.79	7.58	240	44.4	5.68	162.3	0.11	
		12.0	4.74	7.56	241	43.0	5.52	162.8	0.11	
		12.5	4.71	7.55	242	41.7	5.34	163.4	0.11	
		13.0	4.63	7.54	243	39.0	5.02	164.2	0.12	
		13.5	4.60	7.51	244	34.8	4.49	164.9	0.12	
		14.0	4.51	7.48	245	31.4	3.95	166.1	0.12	
		14.5	4.46	7.41	247	12.0	1.56	115.4	0.12	
		15.0	4.44	7.39	248	10.2	1.30	10.0	0.12	
11-Sep-09	14.80	0.5	13.46	8.29	223	90.3	9.41	133.6	0.11	- Secchi depth = 3.6 m
		1.0	13.44	8.30	223	88.5	9.24	133.6	0.11	
		1.5	13.37	8.30	223	87.0	9.09	133.7	0.11	
		2.0	13.34	8.30	223	86.1	9.00	134.1	0.11	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		2.5	13.18	8.29	223	84.6	8.88	134.7	0.11	
		3.0	13.15	8.30	223	84.1	8.83	134.7	0.11	
		3.5	13.13	8.30	223	83.8	8.80	135.1	0.11	
		4.0	13.12	8.30	223	83.6	8.78	135.1	0.11	
		4.5	13.12	8.30	223	83.5	8.77	135.7	0.11	
		5.0	13.12	8.30	223	83.4	8.76	135.7	0.11	
		5.5	13.10	8.30	223	83.2	8.74	136.0	0.11	
		6.0	13.07	8.29	223	82.9	8.71	136.3	0.11	
		6.5	13.04	8.29	223	82.5	8.68	136.6	0.11	
		7.0	13.01	8.28	223	82.1	8.65	137.0	0.11	
		7.5	12.64	8.21	224	78.8	8.39	139.3	0.11	
		8.0	11.68	8.04	227	69.5	7.54	145.1	0.11	
		8.5	9.17	7.64	234	48.6	5.58	157.1	0.11	
		9.0	6.49	7.49	234	31.8	3.87	163.3	0.11	
		9.5	5.96	7.40	237	22.4	2.79	165.3	0.11	
		10.0	5.58	7.35	237	15.6	1.95	166.2	0.11	
		10.5	5.36	7.32	237	12.8	1.61	161.0	0.11	
		11.0	5.22	7.31	239	8.8	1.11	-16.7	0.11	
		11.5	5.04	7.29	240	8.2	1.04	-45.8	0.11	
		12.0	4.93	7.28	242	7.7	0.98	-92.1	0.12	
		12.5	4.81	7.28	244	7.3	0.93	-109.3	0.12	
		13.0	4.72	7.28	248	6.9	0.88	-131.0	0.12	
		13.5	4.64	7.27	252	6.6	0.85	-150.0	0.12	
		14.0	4.55	7.22	262	6.3	0.81	-158.5	0.12	
		14.5	4.49	7.17	272	6.2	0.80	-159.0	0.13	
14-Apr-10	>15.2	0.5	ICE							- Ice thickness = 0.69 m
		0.75	0.89	7.67	335	60.2	8.57	130.8	0.16	- took UN-15 field blank here
		1.0	0.87	7.65	332	59.7	8.51	131.5	0.16	- Avalon has been drilling on the west half of Long Lake through the late winter/early spring and on the south ridge of Long Lake (pump shack on Long)
		1.5	1.61	7.61	329	55.9	7.80	133.3	0.16	
		2.0	2.02	7.58	325	54.5	7.51	133.8	0.15	
		2.5	2.45	7.55	323	51.8	7.17	135.0	0.15	
		3.0	2.67	7.53	323	51.2	6.94	135.6	0.15	
		3.5	2.84	7.52	322	49.5	6.69	136.2	0.15	
		4.0	2.89	7.51	322	49.1	6.62	136.8	0.15	
		4.5	2.92	7.50	322	47.5	6.39	137.4	0.15	
		5.0	2.95	7.48	322	45.2	6.09	138.2	0.15	
		5.5	2.94	7.48	322	44.3	5.96	138.8	0.15	
		6.0	2.99	7.46	322	42.8	5.75	139.4	0.15	
		6.5	3.00	7.45	322	41.2	5.54	140.0	0.15	
		7.0	3.01	7.44	322	39.4	5.29	140.7	0.15	
		7.5	3.02	7.42	322	37.9	5.09	141.7	0.15	
		8.0	3.02	7.42	323	37.8	5.09	142.1	0.15	
		8.5	3.02	7.41	324	34.3	4.61	142.8	0.15	
		9.0	3.01	7.39	324	34.0	4.57	143.5	0.15	
		9.5	3.00	7.39	325	34.5	4.64	143.7	0.15	
		10.0	3.00	7.39	325	34.4	4.63	144.0	0.15	
		10.5	3.02	7.38	325	32.4	4.35	144.6	0.15	
		11.0	3.04	7.37	326	30.2	4.06	145.4	0.16	
		11.5	3.03	7.36	326	30.1	4.05	145.8	0.16	
		12.0	3.03	7.35	327	28.8	3.86	146.4	0.16	
		12.5	3.06	7.33	330	25.2	3.39	147.2	0.16	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		13.0	3.06	7.31	333	20.5	2.73	147.9	0.16	
		13.5	3.08	7.27	338	13.3	1.79	149.0	0.16	
		14.0	3.14	7.23	359	7.5	0.99	145.3	0.17	
		14.5	3.27	7.24	397	3.3	0.44	-146.4	0.19	
		15.0	3.39	7.09	486	2.5	0.34	-186.3	0.23	
		15.2	3.42	7.09	503	2.2	0.30	-189.7	0.24	
9-Jun-10	14.40	0.5	13.69	8.26	261	101.9	10.56	111.9	0.12	- Chlorophyll a sample was 975 mL
		1.0	13.69	8.26	261	101.8	10.56	112.6	0.12	- Zooplankton taxonomy sample was 250 mL
		1.5	13.67	8.27	261	101.6	10.54	113.5	0.12	
		2.0	13.62	8.26	261	101.7	10.56	115.6	0.12	
		2.5	13.59	8.26	261	101.7	10.57	115.4	0.12	
		3.0	13.56	8.27	261	101.6	10.56	115.9	0.12	
		3.5	13.55	8.27	261	101.7	10.57	116.4	0.12	
		4.0	13.10	8.26	263	100.1	10.54	119.5	0.13	
		4.5	9.91	8.08	262	96.3	10.81	127.2	0.13	
		5.0	9.00	8.00	261	95.0	10.97	131.7	0.13	
		5.5	8.24	7.99	261	93.7	11.03	132.8	0.13	
		6.0	7.21	7.98	262	89.1	10.75	132.3	0.13	
		6.5	6.59	7.91	263	85.9	10.50	134.4	0.13	
		7.0	6.40	7.90	263	83.5	10.29	136.1	0.13	
		7.5	6.19	7.87	263	81.9	10.12	138.3	0.13	
		8.0	6.08	7.86	263	81.4	10.10	138.9	0.13	
		8.5	6.02	7.84	263	80.6	10.02	140.9	0.13	
		9.0	5.86	7.83	264	79.3	9.88	140.5	0.13	
		9.5	5.56	7.85	264	77.2	9.71	140.3	0.13	
		10.0	5.34	7.80	265	75.9	9.60	142.5	0.13	
		10.5	5.20	7.79	265	74.4	9.44	143.8	0.13	
		11.0	5.11	7.79	265	72.4	9.21	144.5	0.13	
		11.5	5.03	7.76	265	70.9	9.02	145.9	0.13	
		12.0	4.99	7.75	266	68.2	8.71	145.4	0.13	
		12.5	4.90	7.75	266	66.3	8.49	145.6	0.13	
		13.0	4.84	7.70	266	63.0	8.08	146.6	0.13	
		13.5	4.80	7.70	267	60.6	7.76	147.4	0.13	
		14.0	4.76	7.69	267	55.7	7.12	148.8	0.13	
2-Sep-10	15.15	0.5	13.93	8.23	273	101.4	10.45	126.7	0.13	- Secchi depth = 4.4 m
		1.0	13.95	8.22	275	101.4	10.45	129.3	0.13	- Collected replicate sample TL-08 here for water, chl a,
		1.5	13.95	8.23	274	101.6	10.47	129.4	0.13	phytoplankton, zooplankton & sediment
		2.0	13.94	8.23	275	101.4	10.46	130.0	0.13	- Chlorophyll a sample volume for LL-02 and TL-08 not recorded on
		2.5	13.93	8.23	274	101.4	10.45	131.4	0.13	datasheet - was recorded on samples however
		3.0	13.93	8.24	275	101.5	10.47	132.4	0.13	- Zooplankton sample LL-02 was 275 mL
		3.5	13.92	8.25	275	101.5	10.47	132.9	0.13	- Zooplankton sample TL-08 was 275 mL
		4.0	13.91	8.26	275	101.3	10.45	134.1	0.13	- Collected 6 grabs per station for benthos
		4.5	13.91	8.25	275	101.3	10.48	135.1	0.13	
		5.0	13.89	8.26	275	100.9	10.41	135.6	0.13	
		5.5	13.87	8.25	275	100.8	10.41	137.1	0.13	
		6.0	13.71	8.24	275	97.5	10.11	138.6	0.13	
		6.5	13.53	8.20	275	96.7	10.07	140.9	0.13	
		7.0	13.28	8.16	275	93.6	9.80	143.1	0.13	
		7.5	12.12	8.00	273	88.2	9.47	148.6	0.13	
		8.0	8.10	7.80	274	74.0	8.75	158.4	0.13	
		8.5	6.55	7.44	273	62.0	7.60	176.1	0.13	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		9.0	6.04	7.22	271	43.2	5.37	183.9	0.13	
		9.5	5.77	7.13	271	29.4	3.68	187.4	0.13	
		10.0	5.44	7.06	272	18.1	2.28	189.8	0.13	
		10.5	5.26	7.03	272	14.9	1.89	190.4	0.13	
		11.0	5.14	6.99	271	6.5	0.82	191.0	0.13	
		11.5	5.02	6.97	271	3.4	0.43	191.1	0.13	
		12.0	5.01	6.96	272	1.1	0.14	188.2	0.13	
		12.5	4.97	7.04	274	0.6	0.08	32.5	0.13	
		13.0	4.90	6.97	276	0.5	0.07	-13.4	0.13	
		13.5	4.79	6.95	278	0.5	0.07	-24.4	0.13	
		14.0	4.72	6.95	286	0.5	0.07	-80.7	0.14	
		14.5	4.64	6.97	307	0.4	0.05	-133.5	0.15	
		15.0	4.58	6.93	368	0.3	0.04	-164.2	0.18	
5-Oct-10	15.6	0.5	7.95	7.72	278	87.4	10.35	142.1	0.13	- Total depth measurment from sounder
		1.0	7.94	7.69	277	87.2	10.33	145.8	0.13	- Could not get reading at 15.5 m as YSI cord only 15 m
		1.5	7.94	7.69	277	87.4	10.36	147.4	0.13	
		2.0	7.92	7.70	277	87.2	10.34	147.7	0.13	
		2.5	7.93	7.70	277	87.1	10.33	148.5	0.13	
		3.0	7.91	7.71	277	86.8	10.30	149.2	0.13	
		3.5	7.91	7.73	277	86.9	10.31	149.3	0.13	
		4.0	7.90	7.83	277	86.7	10.28	145.3	0.13	
		4.5	7.91	7.75	277	86.9	10.30	149.8	0.13	
		5.0	7.87	7.73	277	85.9	10.19	151.2	0.13	
		5.5	7.86	7.73	277	85.3	10.13	150.7	0.13	
		6.0	7.82	7.72	277	84.9	10.09	153.1	0.13	
		6.5	7.71	7.72	277	84.9	10.10	154.1	0.13	
		7.0	7.80	7.70	277	84.8	10.09	154.6	0.13	
		7.5	7.80	7.71	277	84.4	10.04	154.6	0.13	
		8.0	7.79	7.70	277	84.0	9.99	155.6	0.13	
		8.5	7.78	7.69	277	83.8	9.98	156.6	0.13	
		9.0	7.76	7.71	277	82.9	9.86	156.3	0.13	
		9.5	7.75	7.68	277	82.5	9.83	157.5	0.13	
		10.0	7.71	7.68	277	82.0	9.78	157.7	0.13	
		10.5	7.66	7.65	277	80.8	9.64	158.8	0.13	
		11.0	7.55	7.60	277	76.2	9.11	160.3	0.13	
		11.5	6.59	7.24	276	27.6	3.46	169.0	0.13	
		12.0	5.60	7.09	275	2.6	0.32	160.0	0.13	
		12.5	5.24	7.06	279	0.7	0.09	-75.0	0.13	
		13.0	4.95	7.04	284	0.6	0.07	-115.6	0.14	
		13.5	4.83	7.02	293	0.4	0.06	-136.9	0.14	
		14.0	4.76	6.97	304	0.4	0.06	-147.7	0.15	
		14.5	4.73	7.01	314	0.4	0.05	-157.1	0.15	
		15.0	4.70	6.94	341	0.3	0.04	-167.6	0.15	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E10 North Tardiff Lake (NT-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
19-Mar-08	1.25	0.5	ICE							-water highly coloured (brown / yellow) with strong smell (sewage) - sampled by hand just below ice; could not use van dorn - waypoint 430
14:00		1.0	0.94	6.78	256	-	0.80	-14.0	-	
5-Oct-08	0.90	0.25	8.71	7.46	181	94.7	11.02	127.4	0.09	- Shallow lake, tea colored water, bottom very soft
		0.5	8.67	7.43	180	94.4	11.00	128.4	0.09	- Secchi depth = 0.6 m
		0.75	8.65	7.41	180	93.5	10.90	128.5	0.09	- sampled by hand at 0.5 m
17-Mar-09	1.09	0.5	ICE							- sample depth = 0.7 (by hand)
12:30		0.7	0.27	6.69	248	3.2	0.47	-74.7	0.12	- Avalon drilled and pumped water on this lake earlier in March/February
		1.0	0.95	6.64	280	2.6	0.38	-78.1	0.13	- Ice thickness = 0.70 m
25-Jun-09	1.20	0.3	20.96	7.44	70	101.7	9.16	130.0	0.03	Sampled by hand
17:00		0.5	16.92	7.43	70	90.8	8.72	133.1	0.03	Went back on June 27 to re-sample for zooplankton
		0.8	15.22	7.24	68	74.2	7.37	142.8	0.03	
		1.0	14.39	6.92	63	52.1	5.32	146.3	0.03	
13-Sep-09	1.15	0.25	12.06	7.29	77	87.7	9.43	126.3	0.04	-secchi depth= 0.55 m
		0.50	12.04	7.23	77	85.8	9.24	125.4	0.04	- sampled by hand
		0.75	11.96	7.21	77	84.7	9.13	125.2	0.04	
		1.00	11.91	7.15	77	83.1	8.97	105.2	0.04	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E11 South Tardiff Lake (ST-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
19-Mar-08	1.50	0.5	ICE							- water coloured brown/yellow - not as dark as NT-01
14:40		1.0	1.20	6.71	261	-	0.45	7.3	-	- sampled at 0.5 m b/c could not use van dorn; waypoint 431
5-Oct-08	1.00	0.25	8.00	7.64	208	93.3	11.04	95.2	0.10	- water sampled by hand at 0.5 m
		0.5	8.00	7.61	208	93.5	11.06	99.6	0.10	- bottom very soft, water tea stained
		0.75	7.99	7.60	208	93.6	11.08	101.2	0.10	- Secchi depth = 1.0 m (bottom)
17-Mar-09	1.30	0.5	ICE							- sample depth = 0.7 m (by hand)
11:45		0.7	0.67	6.85	234	4.3	0.62	-52.5	0.11	- Avalon drilling ~ 25 m to the E, pump shack located ~30 m to the W
		1.0	1.73	6.84	244	3.4	0.48	-64.4	0.11	- have been pumping 28 L/min from the lake for several days (for the drill; source = driller)
		1.25	2.17	6.86	259	2.8	0.38	-79.4	0.12	- Ice thickness = 0.65 m
25-Jun-09	1.40	0.25	18.64	7.73	81	101.2	9.46	123.9	0.04	Sampled by hand
		0.50	18.75	7.60	81	99.3	9.29	127.4	0.04	Went back on June 27 to re-sample for zooplankton
		0.75	16.11	7.50	82	89.4	8.81	133.4	0.04	
		1.00	15.50	7.42	81	81.1	8.07	123.7	0.04	
		1.25	14.52	7.19	81	70.0	7.04	127.9	0.04	
13-Sep-09	1.25	0.25	13.33	7.46	92	86.8	9.08	133.6	0.04	- Secchi depth= 1.25 m
		0.50	13.31	7.45	91	86.3	9.03	134.6	0.04	- sampled by hand
		0.75	13.26	7.44	91	85.9	8.98	136.4	0.04	
		1.00	13.15	7.44	91	84.8	8.91	136.4	0.04	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

28-Jun-09	7.70	0.5	16.14	8.51	257	116.5	11.14	57.0	0.12	- Raining during profile & sample collection
1900 10:45:00 AM		1.0	15.94	8.52	258	113.3	11.17	57.5	0.12	
		1.5	15.82	8.50	259	112.1	11.09	59.4	0.12	
		2.0	15.59	8.51	259	110.7	11.01	60.0	0.12	
		2.5	15.37	8.50	259	109.4	10.93	61.3	0.12	
		3.0	15.17	8.50	259	108.3	10.87	62.5	0.12	
		3.5	14.99	8.49	259	107.3	10.81	63.6	0.12	
		4.0	14.77	8.47	260	106.0	10.73	65.4	0.12	
		4.5	14.54	8.47	260	104.5	10.63	66.8	0.12	
		5.0	14.42	8.46	260	103.9	10.61	67.9	0.12	
		5.5	14.06	8.44	262	102.0	10.49	69.5	0.12	
		6.0	11.57	8.34	271	87.0	9.50	75.3	0.13	
		6.5	10.73	8.25	273	83.6	9.31	79.2	0.13	
		7.0	9.94	8.18	277	80.7	9.09	82.3	0.13	
		7.5	9.20	8.07	283	75.4	8.67	86.3	0.14	

Table E12 Thor - 1 (TL-01) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
18-Mar-08	3.00	0.5	ICE							- Waypoint 426
14:00		1.0	0.20	7.85	219	-	6.85	187.0	-	- Sampled gen. chem at 1.5 m
		2.0	1.69	7.78	227	-	6.47	185.9	-	- sampled radionuclides at surface (0.5 m)
		2.5	2.03	7.58	229	-	6.11	178.7	-	- equipment freezing up; windchill is a problem - re-do
20-Mar-08	3.00	0.5	ICE							- Bottom at 3 m; ice depth just < 1 m
18:15		1.0	0.49	7.56	288	-	7.42	136.0	-	- Re-sampled radionukes (4L) at 1.5 m
		1.5	1.42	7.57	289	-	6.87	138.3	-	- Did Ra266 split (TL-011)
		2.0	1.91	7.45	291	-	6.54	144.6	-	- Waypoint 426 (same hole as first TL-001)
		2.5	2.28	7.60	294	-	6.36	141.7	-	
6-Oct-08	2.50	0.25	7.38	8.40	538	103.1	12.38	38.2	0.26	- original station
		0.5	7.38	8.40	538	103.0	12.37	39.9	0.26	- total depth 2.5 m from YSI
		0.75	7.38	8.40	538	103.0	12.36	41.2	0.26	- total depth is 3.5 m on depth sounder
		1.0	7.38	8.40	538	102.9	12.36	42.3	0.26	- sampled gen. chem only
		1.25	7.39	8.40	538	102.9	12.35	43.4	0.26	- did not sample radionuclides - sampled at new station TL-07
		1.5	7.38	8.41	538	102.8	12.34	44.8	0.26	
		1.75	7.38	8.40	538	102.8	12.34	45.9	0.26	
		2.0	7.38	8.40	538	102.8	12.33	46.8	0.26	
		2.25	7.38	8.40	538	102.8	12.34	47.1	0.26	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

7.70	0.5	16.14	8.51	257	116.5	11.14	57.0	0.12	profile & sample collection
	1.0	15.94	8.52	258	113.3	11.17	57.5	0.12	
	1.5	15.82	8.50	259	112.1	11.09	59.4	0.12	
	2.0	15.59	8.51	259	110.7	11.01	60.0	0.12	
	2.5	15.37	8.50	259	109.4	10.93	61.3	0.12	
	3.0	15.17	8.50	259	108.3	10.87	62.5	0.12	
	3.5	14.99	8.49	259	107.3	10.81	63.6	0.12	
	4.0	14.77	8.47	260	106.0	10.73	65.4	0.12	
	4.5	14.54	8.47	260	104.5	10.63	66.8	0.12	
	5.0	14.42	8.46	260	103.9	10.61	67.9	0.12	
	5.5	14.06	8.44	262	102.0	10.49	69.5	0.12	
	6.0	11.57	8.34	271	87.0	9.50	75.3	0.13	
	6.5	10.73	8.25	273	83.6	9.31	79.2	0.13	
	7.0	9.94	8.18	277	80.7	9.09	82.3	0.13	
	7.5	9.20	8.07	283	75.4	8.67	86.3	0.14	

Table E13 Thor - 2 (TL-02) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
18-Mar-08	4.75	0.5	ICE							- Waypoint 427
17:30		1.0	0.13	8.17	170	-	13.81	161.0	-	- hit & scooped bottom with Van Dorn when went to sample - left
		2.0	0.05	7.96	169	-	14.75	161.4	-	site & will re-sample
		2.5	0.09	7.78	175	-	15.01	161.3	-	- not sure on D.O. #'s! YSI meter cup was frozen before this site
		3.0	2.23	7.66	216	-	6.60	161.6	-	(unthawed before use though)
		4.0	2.90	7.54	238	-	5.68	156.4	-	
19-Mar-08	4.75	0.5	ICE							- Bottom at 4.75 m
9:30		1.0	0.00	ICE	ICE	-	ICE	ICE	-	- Sampled gen. chem. & radionukes (4L) at 3 m
		1.5	1.53	7.61	335	-	6.85	215.9	-	- Radionuke sample composed of 1st and 2nd grabs with van dorn
		2.0	2.02	7.65	336	-	6.60	211.3	-	- waypoint 427
		2.5	2.43	7.54	338	-	5.98	213.1	-	
		3.0	2.53	7.57	339	-	6.12	210.6	-	
		3.5	2.69	7.45	340	-	5.50	212.1	-	
		4.0	2.75	7.42	341	-	5.05	210.6	-	
		4.5	2.80	7.38	343	-	5.15	208.5	-	
6-Oct-08	3.40	0.5	7.41	8.37	536	103.0	12.36	47.3	0.26	- original station
		1.0	7.41	8.38	536	102.7	12.33	49.2	0.26	- sampled gen. chem only
		1.5	7.41	8.38	536	102.6	12.31	50.3	0.26	- did not sample radionuclides - sampled at new station TL-06
		2.0	7.41	8.38	536	102.4	12.29	51.4	0.26	- bottom very clayey (on anchor when pulled up)
		2.5	7.41	8.38	536	102.5	12.29	53.8	0.26	
		3.0	7.40	8.39	536	102.4	12.29	55.3	0.26	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E14 Thorn Lake (TL-03) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
22-Mar-08	4.90	0.5	ICE							- Ice thickness = 0.59 m
16:30		1.0	0.43	7.45	212	-	5.93	156.3	-	- Corixids present
		1.5	1.02	7.43	215	-	5.54	158.4	-	
		2.0	1.55	7.42	218	-	5.05	158.5	-	
		2.5	1.96	7.32	221	-	1.37	158.9	-	
		3.0	2.26	7.27	223	-	0.84	160.2	-	
		3.5	2.38	7.27	224	-	0.76	159.6	-	
		4.0	2.84	7.27	230	-	0.46	159.8	-	
		4.5	3.36	7.42	259	-	0.37	-3.1	-	
4-Oct-08	4.50	0.5	6.64	8.11	463	95.7	11.71	60.0	0.22	- Secchi depth = 2.12 m
		1.0	6.63	8.10	463	95.8	11.72	63.2	0.22	- bottom feels soft
		1.5	6.63	8.10	463	95.7	11.71	65.3	0.22	
		2.0	6.61	8.09	463	95.6	11.71	67.2	0.22	
		2.5	6.60	8.09	463	95.4	11.68	68.3	0.22	
		3.0	6.58	8.09	464	95.5	11.70	70.1	0.22	
		3.5	6.58	8.09	463	95.5	11.70	71.3	0.22	
		4.0	6.54	8.01	464	91.4	11.21	25.4	0.22	
17-Mar-09	4.80	0.5	ICE							- sample depth = 2.25 m
10:30		0.6	0.68	7.24	257	37.2	5.32	129.6	0.12	- sampled ~2.3 m NW of TL-03 wypt
		1.0	1.25	7.27	249	35.5	5.01	129.7	0.12	- Ice thickness = 0.56 m
		1.5	2.01	7.30	246	34.9	4.82	129.5	0.12	
		2.0	2.48	7.34	245	33.1	4.52	129.1	0.12	
		2.5	2.87	7.30	246	12.8	1.73	129.7	0.12	
		3.0	3.29	7.29	246	4.4	0.58	129.3	0.12	
		3.5	3.71	7.29	250	2.0	0.27	57.9	0.12	
		4.0	3.90	7.31	250	1.6	0.22	-62.5	0.12	
		4.5	4.12	7.51	275	1.9	0.25	-209.0	0.13	
27-Jun-09	4.80	0.5	15.93	8.29	200	112.1	11.08	112.2	0.09	sampled general chemistry, radios, phyto (1 m)
9:30		1.0	15.92	8.30	199	110.0	10.86	112.4	0.09	and zoo (vertical tow)
		1.5	15.90	8.31	199	108.6	10.73	112.3	0.09	
		2.0	15.89	8.30	199	107.4	10.61	113.4	0.09	
		2.5	14.75	8.08	201	97.0	9.77	120.1	0.10	
		3.0	12.71	7.89	209	81.1	8,59	128.0	0.10	
		3.5	10.80	7.78	217	67.4	7.44	133.3	0.10	
		4.0	9.30	7.65	224	54.0	6.09	137.9	0.11	
		4.5	8.34	7.49	232	25.4	2.96	-79.7	0.11	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
23-Sep-09	4.40	0.5	11.21	7.67	226	94.5	10.36	174.3	0.11	- Secchi depth = 2.6 m
10:00		1.0	11.18	7.70	226	93.3	10.23	174.0	0.11	
		1.5	11.18	7.71	226	92.8	10.18	173.8	0.11	
		2.0	11.18	7.71	226	92.5	10.16	173.6	0.11	
		2.5	11.17	7.71	226	92.5	10.15	173.8	0.11	
		3.0	11.16	7.72	226	92.4	10.14	173.7	0.11	
		3.5	11.15	7.73	226	92.3	10.14	173.7	0.11	
		4.0	11.15	7.73	226	92.1	10.12	173.7	0.11	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E15 Ring Lake (TL-04) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
21-Mar-08	1.50	0.50	ICE							- Ice thickness = 0.60 m - sampled just under ice at approx. 0.6 - 0.7 m with Van Dorn; waypoint 440 - Gen. chem replicate (TL-006)
12:00		1.00	0.44	7.22	405	-	1.50	-11.7	-	
		1.25	1.32	7.20	418	-	1.20	-41.5	-	
7-Oct-08	1.10	0.25	7.12	8.54	491	97.1	11.74	96.8	0.24	- whole lake is very shallow (< 2m) - did field blank here (TL-08) - total depth 1.1 m from YSI - total depth is 1.8 m on depth sounder - sampled by hand
		0.50	7.13	8.54	491	97.4	11.77	97.0	0.24	
		0.75	7.13	8.54	491	97.3	11.76	97.1	0.24	
14-Mar-09	1.30	0.50	ICE							- sample depth = 0.7 m (by hand) - Ice thickness = 0.63 m
17:00		0.70	0.49	7.41	613	6.8	0.95	-133.2	0.29	
		1.00	1.44	7.40	607	4.2	0.59	-137.1	0.29	
		1.25	1.72	7.36	605	3.2	0.44	-138.6	0.29	
24-Jun-09	1.23	0.25	14.76	8.79	176	103.8	10.48	99.0	0.08	Sampled by hand Sampled TKN in 250ml clear glass jar (no preservaties) No zooplankton net, did not sample; sampled general chemistry, radionuclides, phytoplankton (chl and tax)
14:20		0.50	14.78	8.79	176	101.0	10.21	99.5	0.08	
		0.75	14.76	8.79	176	100.8	10.13	99.2	0.08	
		1.00	14.75	8.78	176	99.2	10.03	99.4	0.08	
9-Sep-09	1.30	0.25	11.71	8.37	197	79.9	8.65	148.9	0.09	- sampled by hand - Secchi depth = total depth (1.30 m)
		0.50	11.70	8.42	197	77.6	8.41	147.9	0.09	
		0.75	11.70	8.43	196	76.4	8.29	147.8	0.09	
		1.00	11.70	8.42	196	75.4	8.19	6.9	0.09	
		1.25	12.14	7.03	235	20.5	2.20	-49.3	0.11	
13-Apr-10	1.25	0.50	ICE							- Ice thickness = 0.64 m - Brought up sediment with YSI after profile - Strong sulfur smell present - Sampled by hand just below ice - Avalon has drilled on Ring Lake approx. 2 weeks before we sampled - drill spot approx. 100 m SE of station
		0.75	0.84	6.87	575	6.6	0.93	-149.7	0.27	
		1.00	1.41	6.87	572	5.3	0.74	-148.4	0.27	
14-Jun-10	1.3	0.25	16.49	8.88	194	98.4	9.61	94.6	0.09	- Collected field blank TL-09 here (general chemistry, radionuclides and Chl a samples only) - Chlorophyll a samples were 990 mL (TL-04) & 1000 mL (TL-09) - Zooplankton taxonomy sample was 475 mL (TL-04)
		0.50	16.49	8.88	194	98.4	9.61	94.8	0.09	
		0.75	16.50	8.88	194	98.5	9.62	94.9	0.09	
		1.00	16.48	8.88	194	98.5	9.62	95.1	0.09	
		1.25	16.51	7.05	220	6.3	0.59	-51.0	0.10	

4-Sep-10	1.17	0.25	14.02	7.97	241	92.8	9.55	155.7	0.11	- Secchi depth = total depth; sampled by hand - Chlorophyll a sample was 1050 mL - Zooplankton sample was 250 mL - NOTE: collected samples after nets pulled and driving around lake; also had to re-anchor at the sampling station
		0.50	14.02	7.99	241	93.0	9.97	155.3	0.11	
		0.75	14.01	8.02	241	93.0	9.58	155.2	0.11	
		1.00	14.02	8.03	242	91.4	9.42	154.3	0.12	
7-Oct-10	1.10	0.25	6.89	7.82	256	90.4	10.99	149.1	0.12	- sampled at 0.5 m by hand - total depth with sounder was 1.5 m
		0.50	6.91	7.82	257	90.3	10.98	149.5	0.12	
		0.75	6.92	7.83	257	90.3	10.98	149.5	0.12	
		1.00	6.92	7.83	257	90.2	10.96	149.4	0.12	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E16 Megan Lake (TL-05) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
20-Mar-08	5.75	0.5	ICE							- Gen. chem from 1st grab; radionukes (4L) from 1st & 2nd grab
15:00		1.0	1.34	7.75	438	-	2.31	155.5	-	- Waypoint 436
		1.5	1.88	7.71	441	-	2.38	157.5	-	
		2.0	2.39	7.73	447	-	1.65	159.1	-	
		2.5	2.60	7.68	452	-	0.91	163.8	-	
		3.0	2.65	7.84	456	-	0.81	165.2	-	
		3.5	2.71	7.62	461	-	0.69	156.7	-	
		4.0	2.83	7.62	472	-	0.40	83.0	-	
		4.5	2.96	7.63	478	-	0.30	30.0	-	
		5.0	3.38	7.63	488	-	0.21	-82.1	-	
		5.5	3.69	7.94	519	-	0.14	-188.5	-	
5-Oct-08	5.10	0.5	6.92	8.49	843	95.7	11.63	94.7	0.42	- Secchi depth = 2.12 m
		1.0	6.91	8.52	843	94.8	11.51	94.2	0.41	- sampled at wypt TL-051, approx. 55 m E of original TL-05 station
		1.5	6.91	8.53	840	94.8	11.51	94.2	0.41	
		2.0	6.91	8.53	841	94.8	11.50	94.2	0.41	
		2.5	6.90	8.53	841	94.8	11.51	94.3	0.41	
		3.0	6.88	8.53	842	94.7	11.50	94.1	0.41	
		3.5	6.89	8.53	842	94.7	11.50	94.5	0.41	
		4.0	6.88	8.52	841	94.8	11.51	94.8	0.41	
		4.5	6.88	8.52	840	94.9	11.52	94.7	0.41	
		5.0	6.89	8.30	845	72.6	8.87	-	0.42	
14-Mar-09	5.30	0.5	ICE							- sample depth = 2.5 m
11:45		0.7	0.94	7.74	553	6.1	0.84	31.6	0.26	- Ice thickness = 0.68 m
		1.0	1.70	7.79	557	3.1	0.43	11.4	0.37	
		1.5	2.34	7.81	545	2.5	0.34	-1.1	0.26	
		2.0	2.81	7.83	544	1.8	0.24	-40.4	0.26	
		2.5	2.94	7.83	548	1.7	0.23	-126.3	0.26	
		3.0	3.15	7.86	555	1.4	0.19	-134.6	0.27	
		3.5	3.28	7.85	562	1.4	0.19	-151.5	0.27	
		4.0	3.49	7.86	570	1.4	0.18	-170.4	0.27	
		4.5	3.75	7.92	576	1.3	0.18	-211.8	0.28	
		5.0	4.06	7.98	594	1.3	0.17	-249.1	0.29	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
25-Jun-09	5.30	0.5	16.42	8.66	351	107.1	10.46	150.7	0.17	
12:00		1.0	16.08	8.66	351	106.2	10.45	149.3	0.17	
		1.5	15.71	8.67	351	104.8	10.41	147.9	0.17	
		2.0	15.39	8.65	351	101.8	10.17	147.9	0.17	
		2.5	15.03	8.64	351	98.4	9.90	147.3	0.17	
		3.0	14.78	8.64	353	97.3	9.84	146.8	0.17	
		3.5	14.64	8.62	354	95.7	9.69	146.7	0.17	
		4.0	14.42	8.58	357	92.7	9.44	147.4	0.17	
		4.5	13.87	8.42	370	79.9	8.25	151.0	0.18	
		5.0	11.80	7.95	423	49.2	5.32	163.5	0.20	
14-Sep-09	5.30	0.5	13.84	8.56	399	73.9	7.65	108.2	0.19	- Secchi depth= 2.4 m
		1.0	13.39	8.56	398	72.4	7.56	108.7	0.19	
		1.5	13.36	8.56	399	72.0	7.51	108.8	0.19	
		2.0	13.25	8.56	398	71.5	7.49	109.1	0.19	
		2.5	13.23	8.56	398	71.4	7.48	109.3	0.19	
		3.0	13.06	8.56	399	70.6	7.42	109.7	0.19	
		3.5	13.04	8.56	398	70.6	7.42	110.0	0.19	
		4.0	13.02	8.56	398	70.6	7.42	110.0	0.19	
		4.5	12.93	8.55	398	69.5	7.32	110.6	0.19	
		5.0	12.83	8.53	399	68.1	7.19	111.2	0.19	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E17 Thor West (TL-06) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
6-Oct-08	12.1	0.5	7.46	8.37	536	102.3	12.25	94.6	0.26	- New station on Thor Lake - approx. 452 m W of TL-02
		1.0	7.46	8.38	536	102.1	12.24	95.0	0.26	- total depth 12.1 m from YSI
		1.5	7.46	8.38	536	101.6	12.17	96.3	0.26	- total depth is 14 m with depth sounder
		2.0	7.47	8.37	536	101.6	12.17	96.7	0.26	- Secchi depth = 1.9 m
		2.5	7.46	8.38	536	101.6	12.18	96.8	0.26	- drifted approx. 30 m W (from wypt) at 1.5 m depth from 0.5 m depth
		3.0	7.46	8.38	536	101.6	12.17	97.1	0.26	
		3.5	7.47	8.38	536	101.5	12.16	97.5	0.26	
		4.0	7.44	8.38	536	101.6	12.17	97.7	0.26	
		4.5	7.43	8.38	536	101.5	12.17	98.3	0.26	
		5.0	7.42	8.38	536	101.6	12.18	98.8	0.26	
		5.5	7.43	8.38	536	101.6	12.18	99.3	0.26	
		6.0	7.45	8.38	536	101.5	12.17	99.4	0.26	
		6.5	7.47	8.38	536	101.7	12.19	100.0	0.26	
		7.0	7.48	8.38	536	101.6	12.17	100.2	0.26	
		7.5	7.43	8.38	536	101.5	12.18	100.3	0.26	
		8.0	7.43	8.38	536	101.7	12.19	100.5	0.26	
		8.5	7.44	8.38	536	101.7	12.19	101.1	0.26	
		9.0	7.43	8.38	536	101.6	12.18	101.2	0.26	
		9.5	7.44	8.38	536	101.7	12.19	101.4	0.26	
		10.0	7.44	8.38	536	101.6	12.18	101.7	0.26	
		10.5	7.43	8.38	536	101.7	12.20	102.0	0.26	
		11.0	7.44	8.37	536	101.7	12.19	102.3	0.26	
		11.5	7.44	8.37	536	101.7	12.19	102.9	0.26	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
17-Mar-09	12.50	0.5	ICE							- Ice thickness = 0.73 m
15:30		0.8	0.53	7.58	293	55.0	7.91	14.1	0.14	- new station (deeper, in October 2008); replaced TL-02
		1.0	1.15	7.57	287	53.0	7.48	16.3	0.14	
		1.5	2.03	7.56	281	52.2	7.19	18.1	0.13	
		2.0	2.60	7.53	280	51.5	7.00	23.1	0.13	
		2.5	2.91	7.52	279	51.1	6.89	25.5	0.13	
		3.0	3.07	7.49	280	46.7	6.27	28.9	0.13	
		3.5	3.11	7.46	282	41.6	5.58	32.6	0.13	
		4.0	3.13	7.45	285	41.0	5.50	34.1	0.14	
		4.5	3.11	7.45	287	42.2	5.66	35.9	0.14	
		5.0	3.16	7.43	288	38.5	5.14	37.5	0.14	
		5.5	3.17	7.43	290	37.6	5.03	38.1	0.14	
		6.0	3.15	7.44	291	37.5	5.03	38.6	0.14	
		6.5	3.17	7.43	292	36.9	4.95	39.3	0.14	
		7.0	3.15	7.43	295	36.1	4.84	40.3	0.14	
		7.5	3.15	7.42	297	36.3	4.86	41.4	0.14	
		8.0	3.14	7.42	298	36.5	4.89	41.9	0.14	
		8.5	3.16	7.41	299	35.7	4.77	42.6	0.14	
		9.0	3.18	7.40	300	33.3	4.46	37.6	0.14	
		9.5	3.18	7.40	301	32.6	4.36	44.0	0.14	
		10.0	3.21	7.39	302	32.1	4.30	44.5	0.14	
		10.5	3.27	7.37	303	27.2	3.60	45.7	0.14	
		11.0	3.32	7.35	304	20.5	2.73	46.3	0.14	
		11.5	3.36	7.34	306	18.1	2.41	46.7	0.15	
		12.0	3.36	7.34	308	18.6	2.50	44.9	0.15	
24-Jun-09	12.00	0.5	14.29	8.48	232	98.00	10.02	78.3	0.11	sampled TKN in 250ml clear glass jar
10:00		1.0	14.29	8.48	233	97.20	9.95	79.3	0.11	(no preservaties)
		1.5	14.29	8.48	232	96.80	9.91	80.1	0.11	no zooplankton net, did not sample on June 24
		2.0	14.30	8.49	233	96.30	9.85	81.6	0.11	sampled general chemistry, radionucliodes,
		2.5	14.30	8.49	232	96.10	9.83	82.3	0.11	phytoplankton (chl and tax)
		3.0	14.30	8.50	233	95.90	9.82	82.6	0.11	
		3.5	14.30	8.48	233	95.70	9.80	83.9	0.11	
		4.0	14.30	8.49	233	95.70	9.79	84.7	0.11	
		4.5	14.30	8.49	233	95.60	9.78	85.2	0.11	
		5.0	14.29	8.49	232	95.30	9.76	85.7	0.11	
		5.5	14.29	8.49	233	95.00	9.72	87.1	0.11	
		6.0	14.29	8.49	233	95.00	9.72	87.6	0.11	
		6.5	14.28	8.49	233	95.00	9.72	88.0	0.11	
		7.0	14.29	8.49	233	94.9	9.72	88.2	0.11	
		7.5	14.28	8.49	233	94.80	9.71	88.9	0.11	
		8.0	14.28	8.49	233	94.70	9.69	89.4	0.11	
		8.5	14.26	8.48	233	94.50	9.67	90.2	0.11	
		9.0	14.23	8.46	233	94.00	9.63	90.8	0.11	
		9.5	12.20	8.47	233	93.60	8.59	91.1	0.11	
		10.0	14.18	8.46	233	93.40	9.58	92.2	0.11	
		10.5	14.17	8.46	233	93.10	9.56	92.2	0.11	
		11.0	14.14	8.46	233	93.00	9.54	92.9	0.11	
		11.5	13.90	8.32	235	86.80	8.97	96.2	0.11	
		12.0	13.74	8.24	237	83.80	8.69	-174.0	0.11	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
6-Sep-09	12.3	0.5	14.12	8.29	286	93.6	9.61	113.0	0.14	
		1.0	14.13	8.27	286	91.3	9.35	114.1	0.14	
		1.5	14.13	8.27	285	90.0	9.24	114.5	0.14	
		2.0	14.13	8.27	286	89.0	9.14	115.3	0.14	
		2.5	14.13	8.26	286	88.0	9.03	115.0	0.14	
		3.0	14.13	8.26	286	87.3	8.95	115.1	0.14	
		3.5	14.13	8.27	286	86.3	8.86	114.8	0.14	
		4.0	14.13	8.27	286	85.7	8.79	114.8	0.14	
		4.5	14.13	8.28	286	85.0	8.72	114.4	0.14	
		5.0	14.13	8.29	285	84.7	8.69	114.4	0.14	
		5.5	14.13	8.28	286	84.4	8.67	114.3	0.14	
		6.0	14.13	8.28	286	84.2	8.65	114.7	0.14	
		6.5	14.13	8.29	285	84.0	8.62	114.7	0.14	
		7.0	14.13	8.29	286	83.8	8.60	114.6	0.14	
		7.5	14.13	8.29	286	83.6	8.58	114.4	0.14	
		8.0	14.13	8.29	286	83.4	8.56	115.0	0.14	
		8.5	14.12	8.29	286	83.2	8.55	115.0	0.14	
		9.0	14.12	8.29	286	83.1	8.54	114.9	0.14	
		9.5	14.08	8.30	285	83.0	8.53	114.6	0.14	
		10.0	14.06	8.30	286	82.9	8.53	115.0	0.14	
		10.5	14.05	8.31	285	82.9	8.53	114.7	0.14	
		11.0	14.04	8.31	286	82.8	8.53	114.7	0.14	
		11.5	14.06	8.31	285	82.8	8.52	114.9	0.14	
		12.0	14.04	8.31	285	82.9	8.52	114.8	0.14	
13-Apr-10	12.3	0.5	ICE							- Ice thickness = 0.84 m
		1.0	1.21	7.55	384	46.1	6.50	50.5	0.18	- Station is situated on an ice road to the east side of Thor Lake -
		1.5	2.27	7.52	378	42.5	6.19	53.4	0.18	ice is thicker here since exposed, no snow covering
		2.0	2.86	7.50	373	44.0	5.94	54.8	0.18	- Did not put up tent
		2.5	3.30	7.49	372	43.5	5.81	55.7	0.18	
		3.0	3.44	7.47	373	40.1	5.29	56.8	0.18	
		3.5	3.52	7.45	374	33.8	4.41	57.7	0.18	
		4.0	3.55	7.52	374	27.6	3.65	58.6	0.18	
		4.5	3.55	7.41	376	26.9	3.57	59.5	0.18	
		5.0	3.53	7.40	378	24.9	3.30	60.7	0.18	
		5.5	3.50	7.38	381	23.8	3.14	61.8	0.18	
		6.0	3.57	7.38	381	22.2	2.93	62.2	0.18	
		6.5	3.52	7.37	383	21.2	2.81	62.4	0.18	
		7.0	3.52	7.37	384	20.9	2.76	62.7	0.18	
		7.5	3.53	7.37	385	19.3	2.55	63.3	0.18	
		8.0	3.51	7.37	387	19.7	2.61	63.5	0.18	
		8.5	3.53	7.37	388	20.0	2.65	63.9	0.19	
		9.0	3.55	7.35	389	19.1	2.53	64.6	0.19	
		9.5	3.63	7.35	390	15.7	2.06	64.9	0.19	
		10.0	3.65	7.34	392	13.5	1.76	65.2	0.19	
		10.5	3.67	7.33	393	10.8	1.40	65.3	0.19	
		11.0	3.70	7.33	395	9.1	1.20	64.1	0.19	
		11.5	3.75	7.32	398	7.1	0.92	65.2	0.19	
		12.0	3.79	7.31	403	5.2	0.67	65.0	0.19	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
9-Jun-10	12.1	0.5	14.34	8.65	264	103.3	10.55	76.7	0.13	- Chlorophyll a sample was 1000 mL
		1.0	14.35	8.65	264	103.2	10.54	77.9	0.13	- Zooplankton taxonomy sample was 225 mL
		1.5	14.33	8.65	264	103.0	10.53	78.9	0.13	
		2.0	14.31	8.65	264	102.8	10.51	80.7	0.13	
		2.5	14.30	8.64	264	102.6	10.49	82.7	0.13	
		3.0	14.30	8.65	264	102.5	10.49	83.9	0.13	
		3.5	14.30	8.64	264	102.7	10.50	87.1	0.13	
		4.0	14.30	8.64	264	102.5	10.49	89.5	0.13	
		4.5	14.31	8.64	264	102.6	10.49	92.0	0.13	
		5.0	14.32	8.64	264	102.6	10.49	95.5	0.13	
		5.5	14.31	8.64	264	102.5	10.49	96.9	0.13	
		6.0	14.30	8.64	264	102.5	10.49	97.8	0.13	
		6.5	14.28	8.64	264	102.2	10.46	99.1	0.13	
		7.0	13.81	8.61	264	99.9	10.33	100.3	0.13	
		7.5	13.69	8.61	264	99.3	10.30	101.0	0.13	
		8.0	13.68	8.61	264	99.0	10.26	101.9	0.13	
		8.5	13.42	8.58	264	97.5	10.17	102.9	0.13	
		9.0	13.32	8.57	264	96.8	10.12	103.5	0.13	
		9.5	12.92	8.51	265	94.3	9.95	105.0	0.13	
		10.0	10.62	8.16	269	76.5	8.49	115.1	0.13	
		10.5	7.63	7.96	268	68.3	8.15	121.8	0.13	
		11.0	6.33	7.92	267	67.4	8.30	123.5	0.13	
		11.5	6.09	7.89	267	65.5	8.13	124.3	0.13	
		12.0	6.02	7.83	268	59.0	7.33	125.4	0.13	
1-Sep-10	12.4	0.5	13.93	8.39	283	106.3	10.96	109.4	0.14	- Secchi depth = 2.6 m (3.15 m with polarised glasses)
		1.0	13.91	8.40	283	106.1	10.95	111.6	0.14	- Chlorophyll a sample was 1025 mL
		1.5	13.89	8.42	283	105.9	10.93	113.1	0.14	- Zooplankton sample was 350 mL
		2.0	13.88	8.39	283	105.9	10.94	117.0	0.14	
		2.5	13.85	8.41	283	105.8	10.93	117.1	0.14	- NOTE: similar to TL-07, sampled water with van Dorn with clean
		3.0	13.83	8.42	283	105.8	10.93	118.9	0.14	nitrile glove plugging hole where spout broke off
		3.5	13.81	8.42	283	105.9	10.95	119.7	0.14	
		4.0	13.80	8.42	283	105.5	10.91	120.9	0.14	
		4.5	13.76	8.41	283	105.1	10.84	122.4	0.14	
		5.0	13.69	8.41	283	103.7	10.75	123.9	0.14	
		5.5	13.68	8.39	283	103.2	10.71	125.6	0.14	
		6.0	13.65	7.40	283	103.2	10.71	12.6	0.14	
		6.5	13.64	8.38	283	103.6	10.76	129.3	0.14	
		7.0	13.62	8.41	283	103.7	10.77	128.4	0.14	
		7.5	13.62	8.39	283	103.8	10.78	130.9	0.14	
		8.0	13.62	8.37	283	102.6	10.65	131.6	0.14	
		8.5	13.61	8.35	283	102.5	10.65	133.0	0.14	
		9.0	13.53	8.31	284	100.4	10.45	135.0	0.14	
		9.5	13.49	8.27	284	96.5	10.06	136.2	0.14	
		10.0	13.48	8.24	284	95.8	9.97	137.6	0.14	
		10.5	13.40	8.20	285	90.9	9.49	138.9	0.14	
		11.0	13.34	8.12	285	87.5	9.14	141.3	0.14	
		11.5	13.26	8.04	286	83.9	8.78	144.6	0.14	
		12.0	13.18	7.85	287	74.4	7.80	10.0	0.14	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
5-Oct-10	12.0	0.5	7.48	8.31	286	99.4	11.91	72.3	0.14	- Total depth with sounder was 12.6 m
		1.0	7.47	8.32	286	99.1	11.88	73.8	0.14	
		1.5	7.48	8.31	286	99.1	11.88	75.1	0.14	
		2.0	7.48	8.32	286	99.1	11.88	75.5	0.14	
		2.5	7.47	8.32	286	99.0	11.87	76.3	0.14	
		3.0	7.47	8.32	286	99.1	11.88	77.3	0.14	
		3.5	7.46	8.32	286	99.0	11.87	78.4	0.14	
		4.0	7.47	8.32	286	99.0	11.87	79.5	0.14	
		4.5	7.47	8.32	286	98.9	11.86	79.9	0.14	
		5.0	7.43	8.31	286	98.8	11.86	81.5	0.14	
		5.5	7.43	8.31	286	98.5	11.82	81.5	0.14	
		6.0	7.42	8.30	286	98.4	11.81	83.8	0.14	
		6.5	7.42	8.31	286	98.3	11.80	83.3	0.14	
		7.0	7.42	8.31	286	98.2	11.79	83.6	0.14	
		7.5	7.41	8.30	286	98.5	11.82	84.9	0.14	
		8.0	7.41	8.31	286	98.3	11.80	85.1	0.14	
		8.5	7.40	8.31	286	98.5	11.82	85.9	0.14	
		9.0	7.40	8.31	286	98.4	11.82	86.5	0.14	
		9.5	7.40	8.30	286	98.2	11.78	87.5	0.14	
		10.0	7.40	8.29	286	98.0	11.76	88.8	0.14	
		10.5	7.39	8.30	286	98.1	11.78	89.3	0.14	
		11.0	7.39	8.29	286	97.8	11.75	90.4	0.14	
		11.5	7.39	8.29	286	97.7	11.74	90.5	0.14	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E18 Thor East (TL-07) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
6-Oct-08	8.3	0.5	7.86	8.36	535	104.2	12.36	40.3	0.26	- new station; approx. 573 m NW of TL-01
		1.0	7.88	8.36	534	103.1	12.23	42.4	0.26	- approx. 15 m S of large cliffs (15 m tall cliffs with vertical drop into Thor Lake)
		1.5	7.81	8.37	535	102.8	12.22	43.8	0.26	
		2.0	7.80	8.37	535	102.6	12.19	44.8	0.26	- total depth 8.3 m from YSI
		2.5	7.78	8.37	535	102.5	12.18	46.0	0.26	- total depth is 9.6 m on depth sounder
		3.0	7.77	8.37	535	102.4	12.17	47.1	0.26	
		3.5	7.79	8.37	535	102.3	12.16	48.6	0.26	
		4.0	7.75	8.37	535	102.2	12.16	50.3	0.26	
		4.5	7.75	8.37	535	102.2	12.16	51.3	0.26	
		5.0	7.73	8.37	535	102.1	12.16	52.3	0.26	
		5.5	7.72	8.38	535	103.5	12.31	54.3	0.26	
		6.0	7.71	8.37	535	102.5	12.20	55.3	0.26	
		6.5	7.72	8.37	535	102.1	12.17	56.4	0.26	
		7.0	7.72	8.38	535	102.1	12.16	57.6	0.26	
		7.5	7.70	8.38	535	102.1	12.16	58.7	0.26	
		8.0	7.70	8.35	535	101.0	11.87	-46.4	0.26	
17-Mar-09	8.20	0.5	ICE							- new station (deeper, in October 2008); replaced TL-01
		0.7	0.57	7.50	293	55.4	7.96	25.4	0.14	- Ice thickness = 0.69 m
		1.0	1.10	7.52	289	54.4	7.71	26.1	0.14	
		1.5	1.89	7.51	2865	54.0	7.48	26.7	0.14	
		2.0	2.55	7.51	285	53.0	7.22	27.9	0.13	
		2.5	2.74	7.50	284	50.0	6.77	29.5	0.13	
		3.0	2.40	7.46	285	44.4	6.00	31.6	0.13	
		3.5	3.08	7.44	284	39.2	5.27	33.0	0.13	
		4.0	3.16	7.41	284	36.7	4.91	34.6	0.14	
		4.5	3.17	7.39	286	32.7	4.73	36.5	0.14	
		5.0	3.18	7.37	287	29.0	3.88	38.8	0.14	
		5.5	3.21	7.35	289	23.2	3.10	38.8	0.14	
		6.0	3.21	7.35	292	22.8	3.05	39.2	0.14	
		6.5	3.19	7.36	293	22.9	3.07	39.7	0.14	
		7.0	3.21	7.35	294	21.0	2.71	40.6	0.14	
		7.5	3.23	7.35	296	20.1	2.69	41.4	0.14	
		8.0	3.28	7.32	297	16.8	2.25	-51.9	0.14	
20-Mar-09	-	6.0	3.30	7.64	294	39.8	5.31	100.9	0.14	- YSI reading when sampled for Hold Time Samples TL-07-1, TL-07-2 & TL-07-3 (@ 08:30)

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
24-Jun-09	7.70	0.5	14.12	8.51	233	98.00	10.01	58.9	0.11	sampled TKN in 250ml clear glass jar
11:00		1.0	14.12	8.50	232	96.00	9.85	60.6	0.11	(no preservaties)
		1.5	14.12	8.50	232	95.60	9.81	61.8	0.11	no zooplankton net, did not sample on June 24
		2.0	14.12	8.50	233	95.20	9.78	63.2	0.11	sampled general chemistry, radionucliodes,
		2.5	14.11	8.49	233	95.10	9.77	64.6	0.11	phytoplankton (chl and tax)
		3.0	14.11	8.50	232	94.90	9.76	65.0	0.11	
		3.5	14.11	8.50	232	94.80	9.74	66.0	0.11	
		4.0	14.12	8.50	232	94.70	9.73	66.7	0.11	
		4.5	14.11	8.50	232	94.60	9.72	67.8	0.11	
		5.0	14.09	8.50	232	94.50	9.71	68.6	0.11	
		5.5	14.08	8.51	232	94.40	9.71	69.5	0.11	
		6.0	14.09	8.50	232	94.40	9.70	70.1	0.11	
		6.5	14.10	8.50	232	94.30	9.69	71.2	0.11	
		7.0	14.11	8.50	232	94.20	9.68	71.4	0.11	
		7.5	14.03	8.02	236	83.80	8.11	-189.1	0.11	
6-Sep-09	9.80	0.5	14.33	8.24	286	88.1	9.01	129.3	0.14	- Secchi depth = 2.4 m
		1.0	14.34	8.25	287	86.7	8.85	128.1	0.14	- Sampled for TKN in 500 mL plastic benthos jar - transferred to 250
		1.5	14.34	8.26	286	85.5	8.77	127.2	0.14	mL amber glass bottles back at camp
		2.0	14.34	8.25	286	85.1	8.70	127.0	0.14	- Sampled for total metals out of radionuclides bottle
		2.5	14.31	8.26	287	84.7	8.66	126.1	0.14	- Preserved all samples back at camp
		3.0	14.33	8.27	286	83.0	8.47	125.5	0.14	
		3.5	14.28	8.27	286	81.5	8.34	125.3	0.14	
		4.0	14.25	8.27	286	81.0	8.29	124.5	0.14	
		4.5	14.26	8.27	286	80.7	8.26	124.9	0.14	
		5.0	14.28	8.27	286	80.5	8.23	124.4	0.14	
		5.5	14.28	8.27	286	80.1	8.20	124.2	0.14	
		6.0	14.27	8.27	286	79.9	8.18	124.2	0.14	
		6.5	14.29	8.27	286	79.6	8.14	124.0	0.14	
		7.0	14.29	8.28	287	79.6	8.14	123.4	0.14	
		7.5	14.30	8.28	286	79.4	8.11	123.3	0.14	
		8.0	14.29	8.28	286	79.2	8.10	123.0	0.14	
		8.5	14.24	8.28	286	78.9	8.08	122.9	0.14	
		9.0	14.22	8.29	286	78.8	8.07	122.4	0.14	
		9.5	14.20	8.29	286	78.7	8.06	122.4	0.14	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
13-Apr-10	8.3	0.5	ICE							- Ice thickness = 0.67 m
		0.75	0.53	7.27	398	41.8	6.00	98.2	0.19	- missed D.O. (mg/L) reading at 3.0 m
		1.0	0.93	7.30	395	40.0	5.69	97.6	0.19	
		1.5	1.73	7.30	389	39.1	5.44	97.0	0.18	
		2.0	2.27	7.30	385	38.0	5.19	96.6	0.18	
		2.5	2.81	7.30	383	35.3	4.77	96.2	0.18	
		3.0	3.18	7.30	382	31.6	-	95.7	0.18	
		3.5	3.32	7.30	382	29.7	3.96	95.4	0.18	
		4.0	3.39	7.28	383	24.3	3.15	95.9	0.18	
		4.5	3.35	7.28	386	19.3	2.56	95.8	0.18	
		5.0	3.36	7.28	387	17.4	2.31	95.7	0.18	
		5.5	3.42	7.27	389	13.8	1.82	95.5	0.19	
		6.0	3.43	7.27	391	12.8	1.70	95.1	0.19	
		6.5	3.43	7.27	393	12.5	1.67	94.8	0.19	
		7.0	3.44	7.27	395	12.4	1.65	94.6	0.19	
		7.5	3.46	7.27	397	12.9	1.72	94.5	0.19	
		8.0	3.59	7.26	398	10.4	1.35	94.5	0.19	
9-Jun-10	-	0.5	14.51	8.65	263	104.1	10.60	102.7	0.13	- Strong winds - we were moving; had to re-anchor and start again
		1.0	14.49	8.66	263	103.8	10.58	103.2	0.13	(see below)
		1.5	14.50	8.66	264	103.5	10.54	103.7	0.13	
		2.0	14.50	8.66	263	103.5	10.55	104.3	0.13	
		2.5	14.46	8.66	263	103.2	10.53	105.7	0.13	
		3.0	14.44	8.66	263	103.2	10.53	106.4	0.13	
9-Jun-10	-	0.5	14.56	8.67	263	104.2	10.60	104.5	0.13	- Ended up in very shallow area - moved again
		1.0	14.52	8.67	263	103.9	10.58	104.9	0.13	
		1.5	14.50	8.66	263	103.8	10.58	105.2	0.13	
		2.0	14.47	8.66	263	103.4	10.55	106.1	0.13	
		2.5	14.45	8.66	263	103.6	10.56	109.4	0.13	
		3.0	14.39	8.66	263	103.3	10.54	112.9	0.13	
9-Jun-10	9.0	0.5	14.63	8.66	264	103.9	10.56	~ 50	0.13	- ORP at 0.5 m approximate - missed measurement
		1.0	14.65	8.66	264	104.2	10.58	66.1	0.13	- ORP in general is much lower here than other TL-07 spots
		1.5	14.64	8.66	264	103.8	10.54	72.4	0.13	(above) - unsure why
		2.0	14.65	8.65	264	103.9	10.55	75.8	0.13	- Chlorophyll a sample was 1000 mL
		2.5	14.65	8.65	264	103.8	10.54	76.7	0.13	- Zooplankton taxonomy sample was 300 mL
		3.0	14.64	8.65	264	103.8	10.54	81.6	0.13	
		3.5	14.63	8.65	264	103.4	10.51	85.7	0.13	
		4.0	14.54	8.65	264	103.2	10.50	89.3	0.13	
		4.5	14.41	8.65	264	102.8	10.50	92.2	0.13	
		5.0	14.35	8.65	264	102.7	10.50	93.1	0.13	
		5.5	14.32	8.65	264	102.4	10.47	94.3	0.13	
		6.0	14.28	8.64	263	102.4	10.48	94.9	0.13	
		6.5	14.17	8.64	264	102.0	10.46	95.9	0.13	
		7.0	14.16	8.64	263	101.7	10.44	96.6	0.13	
		7.5	14.15	8.64	264	101.7	10.44	97.7	0.13	
		8.0	14.12	8.64	264	101.1	10.38	99.0	0.13	
		8.5	14.09	8.63	264	100.8	10.36	99.8	0.13	
		9.0	12.65	7.67	290	3.9	0.43	-137.1	0.14	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
1-Sep-10	8.2	0.5	13.70	8.21	283	104.0	10.78	86.3	0.14	- Secchi depth = 2.825 m (2.8 m)
		1.0	13.69	7.97	283	103.8	10.77	107.4	0.14	- Chlorophyll a sample was 1010 mL
		1.5	13.69	7.91	283	103.9	10.77	112.1	0.14	- Zooplankton sample was 400 mL
		2.0	13.68	7.92	283	103.6	10.75	113.1	0.14	- Lost ~250 mL of unsieved benthos sample - plug came out of
		2.5	13.69	7.93	283	103.8	10.76	115.0	0.14	sieve box while sieving
		3.0	13.68	7.92	283	103.9	10.77	116.6	0.14	
		3.5	13.69	7.91	283	103.8	10.76	118.2	0.14	- NOTE: prior to sampling, noticed 1 spout of van Dorn sampler had
		4.0	13.68	7.91	283	103.8	10.77	119.4	0.14	broken off. Could not repair in the field so had to plug hole with
		4.5	13.68	7.91	283	103.6	10.74	120.4	0.14	clean nitrile glove (used for sampling TL-07 & TL-06). Repaired
		5.0	13.68	7.91	283	103.6	10.74	122.1	0.14	spout with Shoe Goo in evening (only adhesive available).
		5.5	13.68	7.92	283	103.6	10.74	122.4	0.14	
		6.0	13.68	7.91	283	103.6	10.75	123.8	0.14	
		6.5	13.68	7.91	283	103.6	10.74	124.4	0.14	
		7.0	13.68	7.92	283	103.8	10.76	125.3	0.14	
		7.5	13.67	7.92	283	103.8	10.76	126.2	0.14	
		8.0	13.66	7.93	283	102.0	10.60	34.3	0.14	
7-Oct-10	8.9	0.5	7.37	8.28	285	98.8	11.87	104.8	0.14	- Total depth with sounder was 9.2 m
		1.0	7.39	8.28	285	99.0	11.89	107.3	0.14	
		1.5	7.37	8.29	285	98.9	11.89	107.6	0.14	
		2.0	7.37	8.28	285	98.9	11.88	108.8	0.14	
		2.5	7.38	8.28	285	98.9	11.88	110.1	0.14	
		3.0	7.37	8.28	285	98.9	11.88	111.5	0.14	
		3.5	7.37	8.28	285	98.8	11.88	112.2	0.14	
		4.0	7.37	8.28	285	98.9	11.89	113.5	0.14	
		4.5	7.37	8.28	285	98.9	11.89	114.7	0.14	
		5.0	7.38	8.28	285	98.9	11.89	115.8	0.14	
		5.5	7.38	8.28	285	98.9	11.88	116.4	0.14	
		6.0	7.38	8.28	285	98.9	11.89	117.1	0.14	
		6.5	7.38	8.28	285	98.9	11.88	117.8	0.14	
		7.0	7.38	8.26	285	98.9	11.89	119.5	0.14	
		7.5	7.38	8.25	285	99.0	11.90	121.4	0.14	
		8.0	7.38	8.23	285	99.0	11.89	123.0	0.14	
		8.5	7.39	8.23	285	98.8	11.87	123.7	0.14	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E19 Wasp Lake (UN-04) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
23-Mar-08	1.50	0.5	ICE							- Ice thickness = 0.67 m
12:00		1.0	0.75	7.40	447	-	0.51	-41.1	-	- sampled at approx. 0.75 m with Van Dorn; waypoint 447
		1.3	1.75	7.48	461	-	0.25	-63.5	-	
4-Oct-08	1.20	0.5	7.60	8.24	568	97.4	11.63	117.7	0.28	- entire lake very shallow (< 1.5 m) - most of shoreline (to ~5-10 m out) has rooted veg floating at surface - Secchi depth = total depth (1.2 m)
		1.0	7.66	7.88	570	66.0	8.05	118.3	0.28	- Bottom very soft & muddy; shoreline primarily grass & black spruce - sampled by hand
14-Mar-09	1.40	0.5	ICE							- sample depth = 0.75 m (with van Dorn)
12:45		0.7	1.07	7.62	638	18.3	2.54	-165.8	0.31	- amphipods came up with auger
		1.0	1.97	7.61	634	12.6	1.75	-175.8	0.31	- smelly lake
		1.25	2.47	7.60	610	9.2	1.23	-176.9	0.29	- Ice thickness = 0.67 m
26-Jun-09	1.20	0.25	16.83	8.85	206	120.4	11.64	78.3	0.10	- Sampled by hand
17:30		0.50	16.86	8.85	206	118.3	11.45	78.4	0.10	
		0.75	16.84	8.85	206	117.3	11.36	78.0	0.10	
		1.00	16.86	8.85	206	116.6	11.29	78.6	0.10	
23-Sep-09	1.00	0.25	10.03	8.15	257	102.1	11.50	133.7	0.12	- Sampled by hand
		0.50	10.02	8.15	257	100.8	11.36	133.1	0.12	
		0.75	10.03	8.16	257	100.2	11.30	132.6	0.12	
		1.00	10.04	8.16	257	99.9	11.25	132.6	0.12	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E20 Pistol Lake (UN-05) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
23-Mar-08	1.25	0.5	ICE							- Ice thickness = 0.65 m - sampled just below ice by hand; could not use Van Dorn
13:00		1.0	0.16	7.47	549		1.01	-73.7		- waypoint 448 - Amphipods present, Chaoborus observed
3-Oct-08	0.65	0.25	7.79	8.47	533	102.5	12.18	77.6	0.26	- On heli fly-over entire lake appeared very shallow; did pass of lake
		0.5	7.78	8.47	533	102.5	12.19	77.6	0.26	on boat & all is very shallow (< 2m)
15-Mar-09	1.00	0.5	ICE							- Sampled by hand just below ice
12:15		0.7	0.55	7.42	710	7.3	1.05	-172.2	0.34	- Ice thickness = 0.64 m
		0.9	1.08	7.33	648	4.6	0.64	-169.1	0.31	
26-Jun-09	1.00	0.25	17.05	8.92	180	121.5	11.71	119.5	0.09	- Sampled by hand
16:00		0.50	17.06	8.93	180	119.9	11.55	119.4	0.09	
		0.75	17.06	8.93	180	118.0	11.38	118.3	0.09	
18-Sep-09	1.00	0.25	11.38	8.28	235	94.9	10.36	142.1	0.11	- moved sampling station ~ 77 m from original UN-05 to deepest
		0.50	11.39	8.29	235	93.8	10.25	141.9	0.11	basin
		0.75	11.39	8.28	235	93.1	10.17	141.9	0.11	- sampled by hand

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E21 Porkchop Lake (UN-07) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
22-Mar-08	4.25	0.5	ICE							- Ice thickness = 0.71 m
11:30		1.0	-0.02	7.68	197	-	9.34	181.8	-	- sampled gen. chem at 2.5 m
		1.5	0.57	7.67	199	-	9.00	183.4	-	- Waypoint 443
		2.0	1.29	7.64	202	-	8.41	184.7	-	
		2.5	1.56	7.61	203	-	8.66	185.2	-	
		3.0	1.80	7.59	204	-	8.17	185.3	-	
		3.5	1.98	7.58	205	-	8.12	185.0	-	
		4.0	2.05	7.56	205	-	8.09	185.4	-	
3-Oct-08	8.80	0.5	6.68	8.19	470	92.3	11.27	66.6	0.23	- New station approx. 130 m SW of original UN-07
		1.0	6.68	8.19	470	92.2	11.27	69.2	0.23	- Secchi depth = 2.2 m
		1.5	6.66	8.19	470	92.2	11.28	71.6	0.23	- Fish in lake - jumping
		2.0	6.64	8.19	469	92.1	11.26	72.8	0.23	
		2.5	6.65	8.19	470	92.1	11.27	74.5	0.23	
		3.0	6.65	8.19	470	92.2	11.27	75.5	0.23	
		3.5	6.61	8.19	469	91.9	11.26	77.3	0.23	
		4.0	6.57	8.18	469	91.8	11.25	78.7	0.23	
		4.5	6.57	8.18	470	91.8	11.25	79.7	0.23	
		5.0	6.55	8.19	469	91.8	11.25	81.3	0.23	
		5.5	6.56	8.19	469	91.8	11.25	82.5	0.23	
		6.0	6.55	8.19	469	91.9	11.26	83.6	0.23	
		6.5	6.55	8.19	469	91.8	11.26	84.2	0.23	
		7.0	6.55	8.19	469	91.8	11.26	85.4	0.23	
		7.5	6.54	8.19	469	91.7	11.25	86.2	0.23	
		8.0	6.54	8.19	469	91.7	11.25	87.1	0.23	
		8.5	6.54	8.19	469	91.8	11.25	88.2	0.23	
3-Oct-08	4.20	0.5	6.68	8.16	469	93.1	11.38	-	0.23	- Original location at Porkchop Lake
		1.0	6.67	8.17	469	92.7	11.33	-	0.23	- Profile only, no sampling
		1.5	6.67	8.17	469	92.6	11.31	-	0.23	
		2.0	6.67	8.18	469	92.6	11.32	-	0.23	
		2.5	6.66	8.18	469	92.6	11.32	-	0.23	
		3.0	6.66	8.18	469	92.6	11.32	-	0.23	
		3.5	6.65	8.18	469	92.5	11.31	-	0.23	
		4.0	6.65	8.18	469	91.7	11.20	-	0.23	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
15-Mar-09	9.40	0.5	ICE							- Ice thickness = 0.67 m
16:00		0.7	0.65	7.63	247	74.8	10.71	74.0	0.12	
		1.0	1.21	7.63	238	73.9	10.42	74.5	0.11	
		1.5	1.84	7.62	234	73.5	10.19	75.6	0.11	
		2.0	2.37	7.61	239	73.0	9.97	76.3	0.11	
		2.5	2.63	7.59	231	71.5	9.70	77.4	0.11	
		3.0	2.77	7.59	230	70.7	9.57	79.1	0.11	
		3.5	2.82	7.57	230	70.2	9.49	80.1	0.11	
		4.0	2.84	7.56	230	68.8	9.29	81.4	0.11	
		4.5	2.86	7.54	230	65.6	8.85	83.1	0.11	
		5.0	2.86	7.52	230	64.1	8.65	84.4	0.11	
		5.5	2.86	7.51	231	63.4	8.57	86.2	0.11	
		6.0	2.87	7.49	231	62.9	8.50	87.4	0.11	
		6.5	2.89	7.49	230	62.2	8.39	88.2	0.11	
		7.0	2.89	7.48	231	61.3	8.27	89.0	0.11	
		7.5	2.90	7.47	231	59.9	8.08	89.8	0.11	
		8.0	2.91	7.46	231	58.2	7.84	90.8	0.11	
		8.5	2.92	7.45	231	57.4	7.73	91.3	0.11	
		9.0	2.94	7.44	231	56.3	7.57	91.8	0.11	
26-Jun-09	9.30	0.5	15.75	8.30	201	103.5	10.26	95.4	0.10	- possibly moving due to strong wind from the east
19:00		1.0	15.74	8.30	201	103.2	10.24	96.4	0.10	- sampled general chemistry, radios, phyto and zoo
		1.5	15.73	8.30	201	103.2	10.24	97.3	0.10	
		2.0	15.73	8.30	201	103.1	10.23	98.3	0.10	
		2.5	15.72	8.30	201	103.0	10.22	100.3	0.10	
		3.0	15.62	8.30	201	102.8	10.22	101.3	0.10	
		3.5	13.89	8.24	201	94.9	9.81	105.3	0.10	
		4.0	12.93	8.20	203	89.3	9.44	107.5	0.10	
		4.5	11.37	8.08	204	81.9	8.99	113.2	0.10	
		5.0	7.92	7.88	207	71.9	8.52	121.8	0.10	
		5.5	6.27	7.78	207	68.3	8.43	126.1	0.10	
		6.0	6.03	7.75	208	67.4	8.38	127.3	0.10	
		6.5	5.63	7.73	209	65.1	8.16	128.5	0.10	
		7.0	5.47	7.69	209	64.0	8.06	130.2	0.10	
		7.5	5.33	7.68	210	63.1	7.97	131.1	0.10	
		8.0	5.23	7.66	211	62.0	7.84	132.0	0.10	
		8.5	5.08	7.62	213	59.9	7.60	133.2	0.10	
		9.0	5.03	7.61	213	58.0	7.39	133.9	0.10	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
24-Sep-09	16.00	0.5	11.07	7.70	226	75.9	8.35	204.6	0.11	- Secchi depth = 2.60 m
		1.0	11.06	7.86	225	75.3	8.29	202.3	0.11	'- had to return to shore to pick up additional rock for anchor; re-started profile at 10.0 m; checked profile data at 7.5 m
		1.5	11.05	7.94	225	74.9	8.25	200.6	0.11	
		2.0	11.05	7.99	225	74.8	8.24	199.7	0.11	
		2.5	11.05	8.02	225	74.8	8.23	198.9	0.11	
		3.0	11.05	8.05	225	74.7	8.23	197.2	0.11	
		3.5	11.05	8.06	225	74.8	8.23	196.9	0.11	
		4.0	11.05	8.06	225	74.8	8.23	197.2	0.11	
		4.5	11.05	8.08	225	74.9	8.24	196.2	0.11	
		5.0	11.05	8.08	225	75.0	8.26	195.6	0.11	
		5.5	11.05	8.08	225	74.8	8.25	195.9	0.11	
		6.0	10.80	7.97	226	69.8	7.77	198.0	0.11	
		6.5	10.36	7.83	228	61.0	6.82	101.0	0.11	
		7.0	9.55	7.51	231	36.9	4.24	209.2	0.11	
		7.5	7.44	7.32	239	17.6	2.13	218.6	0.11	
		8.0	6.06	7.04	241	7.9	0.98	226.8	0.11	
		8.5	5.50	6.99	243	7.1	0.90	225.3	0.12	
		9.0	5.03	6.94	245	6.6	0.84	192.1	0.12	
		9.5	4.85	6.89	247	6.1	0.78	71.9	0.12	
		10.0	4.95	7.05	246	7.6	0.97	58.0	0.12	
		10.5	4.72	6.98	249	6.0	0.77	11.0	0.12	
		11.0	4.48	6.94	252	5.6	0.72	4.9	0.12	
		11.5	4.37	6.92	255	5.2	0.67	-33.5	0.12	
		12.0	4.28	6.91	258	4.9	0.63	-57.5	0.12	
		12.5	4.21	6.90	260	4.6	0.60	-74.5	0.12	
		13.0	4.12	6.89	265	4.4	0.57	-95.5	0.13	
		13.5	4.07	6.90	268	4.2	0.55	-109.3	0.13	
		14.0	4.04	6.90	270	4.0	0.53	-119.6	0.13	
		14.5	4.02	6.91	271	3.9	0.51	-126.6	0.13	
		15.0	4.01	6.92	272	3.8	0.49	-130.1	0.13	
		15.5	4.00	6.89	276	3.7	0.48	-132.8	0.13	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E22 Kinnikinnick Lake (UN-08) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
20-Mar-08	8.90	0.5	ICE							- Ice thickness = 1.0 m
16:15		1.0	0.25	7.46	163	-	9.77	108.6	-	- Waypoint 437
		1.5	0.77	7.48	164	-	9.38	113.8	-	
		2.0	1.36	7.41	166	-	9.08	117.3	-	
		2.5	1.78	7.43	167	-	8.92	117.8	-	
		3.0	2.15	7.41	168	-	8.65	120.7	-	
		3.5	2.42	7.39	169	-	8.45	122.0	-	
		4.0	2.53	7.42	171	-	8.14	121.3	-	
		4.5	2.65	7.45	171	-	7.95	119.8	-	
		5.0	2.66	7.44	171	-	7.62	121.9	-	
		5.5	2.71	7.41	171	-	8.04	123.6	-	
		6.0	2.76	7.39	172	-	8.01	124.8	-	
		6.5	2.80	7.40	171	-	7.63	125.3	-	
		7.0	2.82	7.37	171	-	6.90	126.2	-	
		7.5	2.85	7.35	172	-	6.95	126.8	-	
		8.0	2.89	7.35	172	-	6.36	127.7	-	
		8.5	2.90	7.39	172	-	6.68	124.5	-	
4-Oct-08	>15.5	0.5	7.12	8.03	328	94.9	11.48	63.3	0.16	- sampled at original location
		1.0	7.12	8.03	328	94.9	11.48	65.4	0.16	- loons calling!
		1.5	7.11	8.03	328	94.9	11.47	66.9	0.16	- UN-08 called Kinnickinnick Lake
		2.0	7.10	8.02	328	94.9	11.48	67.8	0.16	- YSI shut off at 14 m, halfway through measurement
		2.5	7.09	8.02	328	94.8	11.46	69.9	0.16	- Secchi depth = 3.33 m
		3.0	7.09	8.02	328	94.9	11.48	72.0	0.16	
		3.5	7.09	8.02	328	94.9	11.48	73.5	0.16	
		4.0	7.09	8.02	328	94.9	11.48	75.5	0.16	
		4.5	7.09	8.02	328	94.8	11.48	77.6	0.16	
		5.0	7.08	8.02	328	94.9	11.48	79.0	0.16	
		5.5	7.08	8.02	328	94.8	11.49	80.3	0.16	
		6.0	7.08	8.02	328	94.9	11.48	81.7	0.16	
		6.5	7.08	8.02	328	94.8	11.47	82.9	0.16	
		7.0	7.08	8.02	328	94.8	11.48	84.4	0.16	
		7.5	7.08	8.02	328	94.9	11.49	85.8	0.16	
		8.0	7.08	8.02	328	94.9	11.48	86.6	0.16	
		8.5	7.08	8.02	328	94.9	11.49	88.0	0.16	
		9.0	7.08	8.02	328	94.9	11.49	89.1	0.16	
		9.5	7.08	8.02	328	94.9	11.49	89.9	0.16	
		10.0	7.08	8.02	328	94.9	11.49	91.0	0.16	
		10.5	7.08	8.02	328	94.9	11.49	92.3	0.16	
		11.0	7.08	8.02	328	94.9	11.49	94.3	0.16	
		11.5	7.08	8.02	328	95.0	11.50	95.1	0.16	
		12.0	7.08	8.02	328	95.1	11.51	96.5	0.16	
		12.5	7.08	8.02	328	95.1	11.52	97.8	0.16	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		13.0	7.08	8.02	328	95.1	11.51	98.9	0.16	
		13.5	7.08	8.02	328	95.1	11.51	99.3	0.16	
		14.0	7.07	8.02	329	95.5	11.56	101.8	0.16	
		14.5	7.07	8.02	329	95.1	11.51	102.4	0.16	
		15.0	7.07	8.02	329	95.1	11.51	103.8	0.16	
		15.5	7.08	8.02	329	95.2	11.52	104.8	0.16	
15-Mar-09	17.50	0.5	ICE							- used secchi disc to determine total depth
11:00		1.0	0.40	6.81	172	79.2	11.42	152.9	0.08	- sampled ~30 m from UN-08 wypt
		1.5	0.82	6.92	168	78.7	11.23	150.3	0.08	- Ice thickness = 0.90 m
		2.0	1.17	7.02	166	78.6	11.11	148.5	0.08	
		2.5	1.36	7.10	165	78.5	11.04	147.6	0.08	
		3.0	1.51	7.15	165	78.5	11.00	146.9	0.08	
		3.5	1.64	7.21	164	78.5	10.95	146.3	0.08	
		4.0	1.71	7.24	164	78.2	10.89	146.3	0.08	
		4.5	1.80	7.28	163	76.5	10.63	146.1	0.08	
		5.0	1.82	7.30	163	76.4	10.61	146.3	0.08	
		5.5	1.86	7.31	162	76.1	10.55	146.2	0.08	
		6.0	1.94	7.32	162	73.9	10.23	146.8	0.08	
		6.5	1.97	7.33	162	72.2	9.96	147.2	0.08	
		7.0	2.01	7.34	162	69.6	9.59	147.9	0.08	
		7.5	2.05	7.33	162	67.3	9.28	148.1	0.08	
		8.0	2.08	7.33	162	65.3	8.99	148.7	0.08	
		8.5	2.09	7.33	162	64.3	8.87	148.7	0.08	
		9.0	2.11	7.33	162	64.2	8.85	148.9	0.08	
		9.5	2.12	7.33	163	63.7	8.77	149.0	0.08	
		10.0	2.13	7.33	163	62.7	8.64	149.0	0.08	
		10.5	2.14	7.33	163	62.6	8.63	149.1	0.08	
		11.0	2.15	7.33	163	62.3	8.58	149.2	0.08	
		11.5	2.15	7.33	163	62.1	8.55	149.2	0.08	
		12.0	2.16	7.33	163	61.6	8.47	149.3	0.08	
		12.5	2.18	7.33	163	60.0	8.24	149.6	0.08	
		13.0	2.19	7.32	163	57.9	7.95	150.0	0.08	
		13.5	2.20	7.32	163	55.9	7.67	150.3	0.08	
		14.0	2.20	7.32	163	53.7	7.36	150.5	0.08	
		14.5	2.22	7.31	163	53.1	7.29	150.5	0.08	
		15.0	2.24	7.31	164	53.7	7.38	150.7	0.08	
		15.5	2.26	7.30	164	53.5	7.35	150.8	0.08	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
26-Jun-09	>15m	0.5	13.60	8.16	145	101.6	10.56	123.4	0.07	- YSI depth meter frozen at 10.5 m; had to measure by hand
13:30		1.0	13.60	8.18	145	101.1	10.50	124.1	0.07	- Last measurment was more likely 15m instead of 13m - ran out of
		1.5	13.58	8.17	145	100.6	10.46	124.9	0.07	cord at "12.5 m" after measuring by hand
		2.0	13.54	8.17	145	100.3	10.44	125.1	0.07	- Sampled general chemistry, radios, phyto, Zoo (vertical tow @ 3 m
		2.5	13.50	8.16	145	99.9	10.40	126.0	0.07	x 2)
		3.0	13.44	8.16	145	99.70	10.40	127.3	0.07	
		3.5	13.41	8.16	145	99.50	10.39	127.9	0.07	
		4.0	13.35	8.16	145	99.50	10.40	128.0	0.07	
		4.5	13.30	8.15	145	99.30	10.38	128.1	0.07	
		5.0	13.11	8.15	145	98.50	10.36	128.9	0.07	
		5.5	12.91	8.14	145	97.40	10.29	129.2	0.07	
		6.0	11.74	8.09	145	92.00	10.00	132.8	0.07	
		6.5	11.61	8.03	146	92.00	10.03	134.9	0.07	
		7.0	10.98	8.00	146	90.00	9.93	136.8	0.07	
		7.5	10.61	7.97	146	88.40	9.84	138.0	0.07	
		8.0	10.30	7.94	147	87.10	9.74	139.6	0.07	
		8.5	9.13	7.86	148	81.40	9.36	143.2	0.07	
		9.0	8.53	7.75	148	79.50	9.30	147.0	0.07	
		9.5	8.39	7.72	149	79.00	9.33	147.9	0.07	
		10.0	8.12	7.70	150	76.40	8.93	149.3	0.07	
		10.5	8.51	7.74	150	74.10	8.62	147.8	0.07	
		11.0	8.43	7.74	150	69.80	8.12	148.1	0.07	
		11.5	8.36	7.73	151	65.70	7.68	148.3	0.07	
		12.0	8.36	7.72	151	63.20	7.41	149.0	0.07	
		12.5	8.27	7.70	151	61.90	7.28	149.3	0.07	
		13.0	-	-	-	-	-	-	0.07	
		13.5	-	-	-	-	-	-	0.07	
		14.0	-	-	-	-	-	-	0.07	
		14.5	-	-	-	-	-	-	0.07	
		15.0	8.27	7.71	151	7.15	7.15	149.9	0.07	
16-Sep-09	22.00	0.5	13.56	8.10	163	91.3	9.49	117.3	0.08	- YSI turned itself off at 12.5m
		1.0	13.57	8.10	163	91.0	9.46	117.0	0.08	- took field blank (UN-16) here: general chemistry, nutrients, t-met +
		1.5	13.55	8.10	163	90.7	9.44	117.4	0.08	d-met (DOC will use as filtration blank from camp)
		2.0	13.55	8.11	163	90.5	9.42	118.3	0.08	
		2.5	13.53	8.11	163	90.3	9.40	118.4	0.08	
		3.0	13.47	8.10	163	89.7	9.34	119.4	0.08	
		3.5	13.46	8.10	163	89.5	9.33	120.2	0.08	
		4.0	13.47	8.10	163	89.5	9.33	121.0	0.08	
		4.5	13,44	8.10	163	89.1	9.30	122.0	0.08	
		5.0	13.44	8.10	163	89.1	9.29	122.5	0.08	
		5.5	13.37	8.09	163	88.4	9.23	124.4	0.08	
		6.0	13.35	8.09	163	88.2	9.22	124.5	0.08	
		6.5	13.37	8.09	163	88.3	9.22	125.5	0.08	
		7.0	13.38	8.09	163	88.2	9.21	126.6	0.08	
		7.5	13.34	8.08	163	87.9	9.19	128.1	0.08	
		8.0	13.34	8.08	163	87.9	9.18	128.0	0.08	
		8.5	13.32	8.08	163	87.6	9.16	128.4	0.08	
		9.0	13.28	8.06	163	87.0	9.11	129.8	0.08	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
		9.5	13.09	8.01	163	84.5	8.89	131.6	0.08	
		10.0	12.91	7.94	164	81.4	8.59	133.8	0.08	
		10.5	12.85	7.90	164	80.5	8.51	134.5	0.08	
		11.0	12.85	7.89	164	80.4	8.50	135.0	0.08	
		11.5	12.84	7.87	164	80.3	8.48	135.6	0.08	
		12.0	12.84	7.87	164	80.2	8.48	136.3	0.08	
		12.5	12.13	7.74	164	73.1	7.86	140.8	0.08	
		13.0	10.61	7.50	167	53.7	5.96	149.4	0.08	
		13.5	6.74	7.37	173	30.5	3.63	157.0	0.08	
		14.0	5.72	7.29	173	21.8	2.74	159.2	0.08	
		14.5	5.44	7.23	173	18.2	2.29	160.6	0.08	
		15.0	5.37	7.19	173	16.5	2.08	161.7	0.08	
		15.5	5.27	7.14	174	15.1	1.91	163.3	0.08	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E23 Dinosaur Lake (UN-09) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
20-Mar-08	2.25	0.5	ICE							- Waypoint 433
10:45		1.0	0.50	6.92	255	-	1.67	85.9	-	- sampled at 1.25 m
		1.5	1.44	6.98	259	-	1.41	63.5	-	- Note: cap of preservative bottle H2SO4 fell into TKN bottle
		2.0	2.15	6.99	267	-	1.04	37.5	-	
3-Oct-08	3.70	0.5	6.17	8.39	344	101.2	12.54	49.5	0.16	- New station in slightly deeper basin of lake
		1.0	6.17	8.39	344	100.9	12.49	52.8	0.16	
		1.5	6.17	8.38	344	100.8	12.48	55.4	0.16	
		2.0	6.17	8.37	344	100.5	12.46	57.9	0.16	
		2.5	6.16	8.37	344	100.6	12.46	59.4	0.16	
		3.0	6.16	8.36	344	100.6	12.46	61.4	0.16	
		3.5	6.17	8.17	344	77.9	9.64	-108.4	0.16	
14-Mar-09	3.00	0.5	ICE							- sample depth = 1.5 m
15:40		0.7	0.54	7.30	302	8.3	1.17	-109.2	0.14	- problems with depth sensor on YSI (again); estimated depths
		1.0	1.43	7.29	298	4.2	0.58	-113.4	0.14	- slight smell to lake water
		1.5	3.29	7.23	297	2.6	0.34	-118.2	0.14	- Ice thickness = 0.66 m
		2.0	4.01	7.14	312	2.3	0.29	-117.5	0.15	
		2.5	4.29	7.04	323	1.9	0.25	-112.4	0.15	
		2.9	4.56	6.74	348	1.9	0.25	-105.9	0.17	
27-Jun-09	3.00	0.5	16.87	8.48	137	114.5	11.08	78.0	0.06	
13:15		1.0	16.70	8.48	137	111.6	10.84	79.5	0.06	
		1.5	16.68	8.49	137	110.6	10.75	79.5	0.06	
		2.0	16.67	8.48	137	110.1	10.71	80.6	0.06	
		2.5	16.66	8.50	137	109.4	10.64	81.6	0.06	
19-Sep-09	3.30	0.5	12.1	8.12	160	102.0	10.98	116.9	0.08	- Secchi depth = 0.8 m
		1.0	11.98	8.12	161	99.7	10.76	119.4	0.08	
		1.5	11.95	8.11	161	98.9	10.66	120.3	0.08	
		2.0	11.92	8.1	161	97.8	10.54	123.2	0.08	
		2.5	11.91	8.1	161	97.1	10.48	124.9	0.08	
		3.0	11.9	8.1	161	96.8	10.45	126.1	0.08	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E24 Murky Lake (UN-10) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
20-Mar-08	1.60	0.50	ICE							- Waypoint 435
12:30		1.00	1.44	7.14	364	-	0.89	85.0	-	- Appears to have a soft bottom; chaoborus or simuliidae larvae & algae/debris came to surface after hit with YSI meter
		1.50	2.37	6.98	391	-	0.68	66.0	-	- sampled by handjust below ice; could not use Van Dorn
3-Oct-08	1.20	0.50	6.63	8.46	483	101.0	12.35	2.2	0.23	- very shallow lake
		1.00	6.64	8.41	483	73.4	8.78	-4.3	0.23	- Profile & watersamples taken at new station UN-10
16-Mar-09	1.20	0.50	ICE							- sampled by hand - very smelly lake
		0.60	0.86	7.31	436	2.8	0.40	-146.3	0.21	- green algae came up with auger & in hole - possible on under surface of ice
		1.00	1.89	7.20	441	2.4	0.33	-135.1	0.21	- Ice thickness = 0.58 m
27-Jun-09	1.30	0.25	15.96	8.77	184	112.4	11.10	60.1	0.09	- Sampled by hand
12:00		0.50	15.96	8.78	184	110.9	10.95	60.1	0.09	
		0.75	15.98	8.78	184	110.0	10.86	60.5	0.09	
		1.00	15.98	8.78	184	110.5	10.89	22.7	0.09	
17-Sep-09	1.80	0.25	12.08	8.39	227	100.4	10.78	130.6	0.11	- Secchi depth = total depth (1.8 m)
		0.50	12.08	8.39	227	98.6	10.60	130.9	0.11	
		0.75	12.08	8.39	227	97.4	10.46	130.6	0.11	
		1.00	12.08	8.39	227	96.1	10.32	131.1	0.11	
		1.25	12.06	8.39	227	95.6	10.28	131	0.11	
		1.50	12.06	8.39	227	95.0	10.22	130.7	0.11	
		1.75	12.06	8.39	227	94.5	10.16	131.4	0.11	
13-Apr-10	1.4	0.50	ICE							- Ice thickness = 0.64 m - sampled by hand, just below ice
		0.75	0.76	7.13	506	9.8	1.36	-21.4	0.24	- Water v. turbid - possibly touched bottom or v. near bottom when augering
		1.00	1.52	7.09	507	6.4	0.89	-122.9	0.24	
		1.25	1.90	7.02	517	4.4	0.62	-119.1	0.25	- sulfur smell present
13-Jun-10	1.3	0.25	18.49	9.04	203	113.0	10.59	98.2	0.10	- Believe we hit the bottom slightly with the van Dorn when first attempted to sample at 0.75 m - moved up to 0.5 m
		0.50	18.50	9.06	203	114.0	10.68	149.8	0.10	
		0.75	18.48	9.06	203	114.4	10.72	152.3	0.10	- Chlorophyll a sample was 1000 mL
		1.00	18.49	9.06	203	114.8	10.75	157.3	0.10	- Zooplankton taxonomy sample was 300 mL
		1.25	18.16	7.91	215	13.7	1.28	-35.2	0.10	
5-Sep-10	1.2	0.25	14.89	8.07	258	94.3	9.52	129.7	0.12	- Secchi depth = total depth; sampled by hand
		0.50	14.77	8.09	258	94.0	9.50	129.2	0.12	- Collected field blank UN-15 here for water & chl a
		0.75	14.72	8.12	258	95.7	9.72	128.4	0.12	- Chlorophyll a samples were 910 mL (UN-10) and 1000 mL (UN-15)
		1.00	14.70	8.13	258	97.0	9.84	128.5	0.12	- Zooplankton sample was 375 mL (UN-10)
6-Oct-10	1.2	0.25	7.12	7.80	278	88.4	10.67	152.0	0.13	- Total depth with sounder was 1.4 m
		0.50	7.11	7.81	278	87.5	10.59	151.3	0.13	- Sampled at 0.5 m by hand
		0.75	6.99	7.81	277	87.4	10.60	151.5	0.13	- Collected replicate TL-08 here
		1.00	6.89	7.82	278	86.4	10.51	151.7	0.13	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E25 Egg Lake (UN-11) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
20-Mar-08	1.90	0.5	ICE							- Waypoint 434
11:45		1.0	1.21	7.04	213	-	0.81	177.3	-	- sampled at 1.25 m
		1.5	2.60	7.15	217	-	0.33	174.4	-	- Gen. chem from 1 st grab; radionukes (4L) from 1st & 2nd grab
3-Oct-08	8.70	0.5	6.18	8.28	335	99.7	12.34	33.8	0.16	- New station (UN-11)
		1.0	6.16	8.28	335	99.6	12.34	36.9	0.16	- YSI shut down at 4.5 m before measurements were taken
		1.5	6.14	8.28	335	99.7	12.34	38.5	0.16	- water samples taken here but labelled as UN-03
		2.0	6.17	8.28	335	99.7	12.34	40.2	0.16	
		2.5	6.17	8.28	335	99.7	12.35	41.4	0.16	
		3.0	6.18	8.27	335	99.7	12.34	42.7	0.16	
		3.5	6.17	8.27	335	99.7	12.34	43.7	0.16	
		4.0	6.15	8.28	335	99.6	12.35	44.5	0.16	
		4.5	6.16	8.29	336	100.1	12.41	47.0	0.16	
		5.0	6.13	8.29	336	99.7	12.35	48.3	0.16	
		5.5	6.14	8.29	336	99.6	12.34	49.4	0.16	
		6.0	6.14	8.29	336	99.6	12.34	50.4	0.16	
		6.5	6.15	8.29	336	99.6	12.34	51.7	0.16	
		7.0	6.15	8.29	336	99.6	12.34	52.6	0.16	
		7.5	6.12	8.28	336	99.5	12.33	53.5	0.16	
		8.0	6.12	8.28	336	99.5	12.33	54.3	0.16	
		8.5	6.15	8.29	336	99.6	12.34	54.7	0.16	
3-Oct-08	2.20	0.5	6.38	8.26	336	101.7	12.56	9.9	0.16	- UN-03 is original location
		1.0	6.36	8.27	336	100.0	12.31	15.5	0.16	- UN-11 is the new location - sampled
		1.5	6.39	8.29	336	100.0	12.31	37.8	0.16	- Secchi depth = 1.82 m
		2.0	6.40	8.11	338	80.7	9.93	-	0.16	
15-Mar-09	8.40	0.5	ICE							- YSI shut off at 2.0 m
13:15		0.7	0.73	7.44	214	14.8	2.11	-12.5	0.10	- sampled at new station (UN-11 in Oct 08)
		1.0	1.64	7.35	209	9.6	1.30	-12.9	0.10	- Ice thickness = 0.65 m
		1.5	2.54	7.33	207	7.8	1.05	-13.6	0.10	
		2.0	3.04	7.23	209	6.4	0.85	-17.5	0.10	
		2.5	3.13	7.27	211	5.4	0.71	-21.4	0.10	
		3.0	3.19	7.24	218	4.4	0.59	-30.9	0.10	
		3.5	3.26	7.23	223	3.8	0.51	-37.1	0.11	
		4.0	3.27	7.23	226	3.5	0.46	-40.3	0.11	
		4.5	3.30	7.22	230	3.2	0.42	-45.9	0.11	
		5.0	3.31	7.22	234	2.9	0.39	-53.1	0.11	
		5.5	3.33	7.21	238	2.6	0.35	-67.1	0.11	
		6.0	3.37	7.20	247	2.4	0.32	-91.9	0.10	
		6.5	3.41	7.22	253	2.3	0.30	-115.9	0.12	
		7.0	3.52	7.29	266	2.1	0.28	-116.2	0.13	
		7.5	3.63	7.32	282	2.0	0.26	-167.9	0.13	
		8.0	3.90	7.12	316	1.8	0.23	-149.8	0.15	

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
27-Jun-09	8.90	0.5	15.58	8.54	141	108.2	10.76	94.7	0.07	- Lost chl a sample, bottle broke in transit between UN-11 & UN-09
10:30		1.0	15.57	8.55	141	106.5	10.60	94.1	0.07	
		1.5	15.54	8.55	141	105.6	10.52	94.0	0.07	
		2.0	15.54	8.56	141	105.0	10.46	94.6	0.07	
		2.5	15.54	8.56	141	104.6	10.42	94.6	0.07	
		3.0	15.54	8.57	141	104.3	10.39	94.2	0.07	
		3.5	15.52	8.55	141	104.0	10.37	95.5	0.07	
		4.0	15.51	8.56	141	103.8	10.35	95.1	0.07	
		4.5	15.51	8.57	141	103.5	10.32	95.3	0.07	
		5.0	15.51	8.56	141	103.3	10.30	95.9	0.07	
		5.5	15.47	8.54	141	102.8	10.26	96.8	0.07	
		6.0	12.86	8.17	144	79.0	8.34	110.8	0.07	
		6.5	9.95	7.82	152	55.7	6.29	124.3	0.07	
		7.0	7.65	7.57	152	42.9	5.14	131.5	0.07	
		7.5	5.98	7.14	206	19.4	2.35	-67.3	0.10	
		8.0	5.64	7.01	289	11.3	1.40	-121.1	0.14	
		8.5	5.43	6.98	356	9.3	1.17	-142.1	0.17	
22-Sep-09	9.10	0.5	10.68	7.94	162	93.9	10.41	152.9	0.08	- Secchi depth = 1.9 m
		1.0	10.68	7.96	162	91.2	10.13	152.8	0.08	
		1.5	10.67	7.96	162	90.8	10.08	152.5	0.08	
		2.0	10.64	7.95	162	89.9	10.00	152.9	0.08	
		2.5	10.62	7.96	162	88.2	9.80	153.1	0.08	
		3.0	10.60	7.93	162	88.5	9.84	154.3	0.08	
		3.5	10.59	7.9	163	87.5	9.73	156.4	0.08	
		4.0	10.57	7.91	162	86.5	9.63	155.8	0.08	
		4.5	10.54	7.94	162	86.7	9.66	154.5	0.08	
		5.0	10.51	7.94	162	86.3	9.62	154.5	0.08	
		5.5	10.50	7.94	162	86.2	9.61	154.9	0.08	
		6.0	10.50	7.94	162	86.0	9.59	155.4	0.08	
		6.5	10.50	7.93	162	85.5	9.54	156.1	0.08	
		7.0	10.40	7.88	163	84.0	9.38	157.9	0.08	
		7.5	10.35	7.83	163	82.8	9.27	159.2	0.08	
		8.0	10.36	7.82	163	81.6	9.13	159.3	0.08	
		8.5	10.33	7.8	163	81.5	9.12	160.3	0.08	
		9.0	10.40	6.36	275	26.1	2.86	-58.4	0.08	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E26 Buck Lake (UN-12) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
10-Sep-09	1.70	0.25	12.06	8.13	185	98.2	10.51	137.9	0.09	- Secchi depth = 1.2 m
		0.50	12.07	8.15	185	93.8	10.06	137.7	0.09	- completed water quality following lake bathymetry
		0.75	12.06	8.15	185	91.2	9.82	137.5	0.09	
		1.00	12.05	8.16	185	90.1	9.69	137.8	0.09	
		1.25	12.05	8.16	185	89.0	9.58	137.9	0.09	
		1.50	12.05	8.17	185	89.1	9.60	137.4	0.09	
13-Apr-10	1.70	0.50	ICE							- Ice thickness = 0.63 m
		0.75	0.60	7.02	463	8.0	1.13	-114.6	0.22	- Sulfer smell present
		1.00	1.47	6.99	465	5.9	0.82	-111.6	0.22	- Sampled with van Dorn
		1.25	2.00	6.97	470	4.5	0.62	-106.8	0.22	- Avalon drilled on Buck Lake approx. 2 weeks before we sampled -
		1.50	2.63	6.94	470	4.1	0.55	-107.1	0.22	drill location approx. 50 m S of station
13-Jun-10	1.60	0.25	18.76	9.05	190	109.3	10.18	84.3	0.09	- Collected replicate sample TL-08 here
		0.50	18.78	9.05	190	109.6	10.21	85.7	0.09	- Chlorophyll a samples were 980 mL (UN-12) & 975 mL (TL-08)
		0.75	18.76	9.06	190	109.5	10.20	86.0	0.09	- Zooplankton taxonomy samples were 425 mL (UN-12) & 450 mL
		1.00	18.76	9.05	190	109.5	10.20	85.8	0.09	(TL-08)
		1.25	18.76	9.05	190	109.3	10.18	87.4	0.09	- NOTE: green algal mass ended up in UN-12 phytoplankton
		1.50	18.75	9.05	190	109.4	10.19	88.3	0.09	taxonomy bottle
4-Sep-10	1.70	0.25	14.70	8.12	224	101.4	10.28	114.9	0.11	- Secchi depth = total depth
		0.50	14.70	8.16	224	101.4	10.28	114.6	0.11	- Chlorophyll a sample was 950 mL
		0.75	14.70	8.18	224	101.4	10.28	114.6	0.11	- Zooplankton sample was 200 mL
		1.00	14.70	8.21	224	101.4	10.28	114.6	0.11	- NOTE: water level has dropped since September 2009 - rock/reef
		1.25	14.71	8.21	224	101.4	10.28	114.9	0.11	in middle of lake is now emergent (approx. 15 cm)
		1.50	14.72	8.21	224	101.3	10.27	115.3	0.11	
6-Oct-10	1.35	0.25	7.56	8.09	233	101.2	12.10	115.1	0.11	- Total depth with sounder was 1.6 m
		0.50	7.57	8.09	233	101.2	12.10	115.4	0.11	- Water level still low
		0.75	7.57	8.08	232	101.2	12.10	116.1	0.11	
		1.00	7.58	8.08	232	101.3	12.12	116.3	0.11	
		1.25	7.57	8.08	232	101.4	12.13	109.1	0.11	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E27 Drizzle Lake (UN-13) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
19-Sep-09	1.90	0.25	11.56	7.99	226	98.8	10.75	149	0.11	- Secchi depth = 1.6 m
		0.50	11.56	7.98	226	94.7	10.28	149	0.11	- aquatic plants surround sampling station
		0.75	11.56	7.98	226	93.1	10.12	149.3	0.11	
		1.00	11.56	7.97	226	92.2	10.03	149.5	0.11	
		1.25	11.56	7.96	226	91.3	9.93	149.7	0.11	
		1.50	11.56	7.97	226	90.8	9.87	150	0.11	
		1.75	11.58	7.94	226	90.5	9.82	149.6	0.11	
13-Apr-10	2.10	0.50	ICE							- Ice thickness = 0.65 m
		0.75	1.11	7.34	462	13.7	1.88	-126.7	0.22	- Slight sulfur smell here
		1.00	2.13	7.28	467	5.8	0.78	-138.3	0.22	
		1.50	3.16	7.19	498	4.3	0.58	-166.5	0.24	
		2.00	3.74	7.06	555	3.8	0.50	-161.4	0.27	
13-Apr-10	2.10	0.50	ICE							- Completed second profile after the first - took readings every 0.25
		0.75	1.08	7.28	455	4.3	0.60	-156.2	0.22	m instead
		1.00	1.57	7.27	455	3.8	0.53	-152.7	0.22	- sampled with van Dorn
		1.25	2.49	7.22	470	3.3	0.45	-157.5	0.23	- Took replicate UN-16 here
		1.50	3.09	7.17	496	3.1	0.42	-180.7	0.24	- Lost UN-13 DOC full bottle down hole
		1.75	3.64	7.12	529	3.0	0.39	-172.4	0.25	
		2.00	3.87	7.02	568	3.0	0.39	-166.8	0.27	
13-Jun-10	2.00	0.25	18.15	9.32	197	115.2	10.87	70.1	0.09	- Chlorophyll a sample was 1000 mL
		0.50	18.16	9.32	197	115.6	10.90	70.3	0.09	- Zooplankton taxonomy sample was 375 mL
		0.75	18.15	9.32	197	115.6	10.90	70.3	0.09	
		1.00	18.15	9.32	197	115.4	10.89	70.2	0.09	
		1.25	18.16	9.32	197	115.5	10.90	70.3	0.09	
		1.50	18.16	9.32	197	115.7	10.92	70.4	0.09	
		1.75	18.16	9.32	197	116.0	10.93	70.8	0.09	
5-Sep-10	1.50	0.25	14.57	8.51	238	99.0	10.08	129.1	0.11	- Secchi depth = total depth (1.50 m)
		0.50	14.55	8.52	238	99.1	10.08	128.4	0.11	- Chlorophyll a sample was 975 mL
		0.75	14.44	8.53	237	99.6	10.17	129.1	0.11	- Zooplankton sample was 350 mL
		1.00	14.41	8.54	237	100.0	10.22	129.0	0.11	
		1.25	14.41	8.55	237	100.4	10.25	129.1	0.11	
6-Oct-10	1.50	0.25	7.21	8.24	249	100.8	12.15	108.4	0.12	- Total depth with sounder was 1.8 m
		0.50	7.21	8.24	249	100.7	12.16	109.2	0.12	
		0.75	7.20	8.24	249	100.7	12.16	109.9	0.12	
		1.00	7.17	8.26	249	101.2	12.22	109.8	0.12	
		1.25	7.17	8.25	249	101.4	12.25	110.7	0.12	

NOTE:
- Shaded rows implies sample depth unless otherwise noted in Comments

Table E28 Redemption Lake (UN-14) Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
28-Sep-09	13.00	0.5	9.97	7.79	153	80.3	9.06	132.6	0.07	- New lake & station - potential reference lake - Secchi depth = 1.8 m - Collected replicate UN-16 here: general chemistry and radionuclides (WQ)
		1.0	9.97	7.78	153	79.4	8.97	132.9	0.07	
		1.5	9.97	7.77	153	79.2	8.94	133.8	0.07	
		2.0	9.96	7.76	153	78.7	8.89	134.8	0.07	
		2.5	9.97	7.75	153	78.7	8.89	135.9	0.07	
		3.0	9.96	7.75	153	78.9	8.86	136.4	0.07	
		3.5	9.97	7.74	153	78.4	8.86	137.5	0.07	
		4.0	9.96	7.75	153	78.4	8.86	137.6	0.07	
		4.5	9.97	7.73	153	78.4	8.85	138.7	0.07	
		5.0	9.97	7.75	153	78.4	8.86	138.5	0.07	
		5.5	9.96	7.75	153	78.4	8.85	139.1	0.07	
		6.0	9.96	7.74	153	78.4	8.86	139.9	0.07	
		6.5	9.94	7.74	153	78.1	8.83	140.7	0.07	
		7.0	9.92	7.73	153	77.6	8.77	141.4	0.07	
		7.5	9.88	7.73	153	77.3	8.75	142.2	0.07	
		8.0	9.81	7.73	153	77.2	8.76	143.8	0.07	
		8.5	9.74	7.69	153	75.0	8.51	145.8	0.07	
		9.0	9.68	7.65	154	72.1	8.21	147.9	0.07	
		9.5	9.34	7.57	155	63.0	7.18	151.1	0.07	
		10.0	6.43	7.23	165	12.6	1.53	-87.6	0.08	
		10.5	6.06	7.17	165	10.0	1.24	-96.3	0.08	
		11.0	5.79	7.12	168	8.5	1.06	-104.8	0.08	
		11.5	5.72	7.09	168	7.8	0.97	-109.6	0.08	
		12.0	5.65	7.08	169	7.4	0.92	-113.3	0.08	
		12.5	5.62	7.06	171	7.1	0.89	-116.5	0.08	
		13.0	5.57	7.05	174	6.9	0.86	-120.3	0.08	

12-Apr-10	12.8	0.5	ICE							- Ice thickness = 0.76 m
		1.0	0.77	7.44	197	66.6	9.48	198.6	0.09	- Appears from ice along shore that water level of lake has dropped
		1.5	1.14	7.41	195	64.2	9.07	196.7	0.09	during the winter - slumping of ice on shore; see pictures
		2.0	1.65	7.39	194	62.9	8.77	195.1	0.09	
		2.5	1.96	7.39	190	63.0	8.71	192.8	0.09	- NOTE: D.O. Charge was approx. 99 - 100 through April sampling
		3.0	2.11	7.39	189	62.6	8.62	192.3	0.09	event but meter calibrated okay
		3.5	2.29	7.38	188	60.1	8.24	191.5	0.09	
		4.0	2.38	7.37	188	56.8	7.63	191.5	0.09	
		4.5	2.44	7.35	189	49.9	6.77	191.6	0.09	
		5.0	2.47	7.33	189	44.4	6.03	191.5	0.09	
		5.5	2.51	7.31	190	41.2	5.62	191.5	0.09	
		6.0	2.54	7.30	190	39.6	5.38	191.4	0.09	
		6.5	2.55	7.28	191	36.5	4.95	191.5	0.09	
		7.0	2.55	7.27	192	34.4	4.68	191.4	0.09	
		7.5	2.61	7.26	192	32.3	4.40	191.2	0.09	
		8.0	2.66	7.24	193	27.3	3.65	191.6	0.09	
		8.5	2.68	7.22	194	20.4	2.72	191.8	0.09	
		9.0	2.71	7.20	195	14.6	1.92	192.3	0.09	
		9.5	2.67	7.17	200	8.7	1.16	192.5	0.09	
		10.0	2.73	7.14	222	6.0	0.80	192.6	0.11	
		10.5	2.80	7.15	241	4.3	0.59	191.1	0.11	
		11.0	2.93	7.16	250	4.0	0.53	187.5	0.12	
		11.5	3.04	7.16	265	3.7	0.50	-79.6	0.13	
		12.0	3.15	7.25	289	3.4	0.46	-139.8	0.14	
		12.5	3.29	7.22	315	3.3	0.45	-156.6	0.15	
13-Jun-10	12.9	0.5	16.59	8.20	162	103.2	10.05	107.3	0.08	- Water level appears to have dropped approx. 0.5 m since
		1.0	16.56	8.20	162	103.1	10.06	109.9	0.08	September 2009
		1.5	16.54	8.20	162	102.9	10.04	111.8	0.08	- Chlorophyll a sample was 1000 mL
		2.0	16.54	8.19	161	102.9	10.04	114.3	0.08	- Zooplankton taxonomy sample was 400 mL
		2.5	16.43	8.18	162	102.9	10.05	116.2	0.08	
		3.0	16.22	8.17	161	102.5	10.07	118.5	0.08	
		3.5	15.37	8.13	161	101.7	10.20	122.6	0.08	
		4.0	12.65	8.01	161	93.5	9.98	129.9	0.08	
		4.5	9.55	7.88	159	86.5	9.87	137.9	0.08	
		5.0	7.80	7.82	160	80.2	9.50	142.4	0.08	
		5.5	6.85	7.75	159	73.8	8.96	145.5	0.08	
		6.0	6.22	7.74	160	70.8	8.77	148.4	0.08	
		6.5	6.06	7.71	159	68.8	8.53	150.2	0.08	
		7.0	5.92	7.65	159	63.3	7.90	151.2	0.08	
		7.5	5.81	7.64	159	62.5	7.82	153.5	0.08	
		8.0	5.77	7.63	159	63.0	7.89	155.0	0.08	
		8.5	5.70	7.62	159	63.1	7.92	155.6	0.08	
		9.0	5.68	7.60	159	63.0	7.90	157.2	0.08	
		9.5	5.65	7.59	159	62.9	7.89	158.1	0.08	
		10.0	5.59	7.56	158	62.3	7.83	158.5	0.07	
		10.5	5.47	7.55	158	60.3	7.57	159.5	0.07	
		11.0	5.46	7.55	158	57.5	7.24	160.4	0.07	
		11.5	5.46	7.52	158	57.1	7.20	161.6	0.07	
		12.0	5.46	7.53	158	56.7	7.25	162.6	0.07	
		12.5	5.41	7.50	159	53.2	6.72	163.5	0.07	

6-Sep-10	13.1	0.5	15.15	8.03	170	96.5	9.70	138.9	0.08	- Secchi depth = 2.2 m
		1.0	15.01	8.02	170	96.1	9.68	139.9	0.08	- Chlorophyll a sample was not recorded on datasheet - was
		1.5	14.75	8.00	170	94.4	9.56	141.5	0.08	recorded on sample however
		2.0	14.48	7.96	170	92.1	9.39	144.3	0.08	- Zooplankton sample was 350 mL
		2.5	14.28	7.88	170	88.9	9.11	148.7	0.08	
		3.0	14.23	7.87	169	87.6	8.98	149.7	0.08	- NOTE: lost 1 top flap of ponar - had to improvise in field with
		3.5	14.18	7.81	169	86.7	8.90	153.6	0.08	plastic cut-out
		4.0	14.02	7.31	169	83.5	8.59	182.5	0.08	
		4.5	13.98	7.25	169	82.5	8.49	186.3	0.08	- NOTE: water level has dropped approx. 1 m since September
		5.0	13.75	7.22	169	77.7	8.04	189.2	0.08	2009 - perhaps returning to 'normal' levels? (e.g. beaver dam let
		5.5	13.50	7.16	169	71.8	7.48	192.7	0.08	go?)
		6.0	13.06	7.06	169	59.9	6.30	196.8	0.08	
		6.5	12.17	6.92	168	37.0	4.01	201.3	0.08	
		7.0	9.84	6.77	169	1.6	0.70	128.4	0.08	
		7.5	8.07	6.76	169	1.2	0.14	-17.1	0.08	
		8.0	7.27	6.70	169	0.7	0.09	-45.1	0.08	
		8.5	6.58	6.70	169	0.9	0.11	-48.1	0.08	
		9.0	6.26	6.70	171	0.7	0.09	-52.9	0.08	
		9.5	6.07	6.69	175	0.7	0.08	-63.6	0.08	
		10.0	5.92	6.69	177	0.5	0.07	-77.7	0.08	
		10.5	5.87	6.70	178	0.5	0.07	-83.1	0.08	
		11.0	5.82	6.71	179	0.5	0.06	-87.1	0.08	
		11.5	5.72	6.72	182	0.5	0.07	-95.9	0.09	
		12.0	5.69	6.72	183	0.4	0.05	-102.9	0.09	
		12.5	5.66	6.74	184	0.4	0.05	-108.9	0.09	
		13.0	5.63	6.61	187	0.3	0.04	-110.1	0.09	
6-Oct-10	12.1	0.5	7.76	7.68	171	83.1	9.90	152.8	0.08	- Total depth with sounder was 12.0 m
		1.0	7.74	7.64	171	82.9	9.88	154.9	0.08	
		1.5	7.73	7.60	171	82.6	9.85	157.4	0.08	
		2.0	7.74	7.57	171	82.6	9.85	158.7	0.08	
		2.5	7.73	7.58	171	82.4	9.82	159.5	0.08	
		3.0	7.72	7.57	171	82.3	9.81	159.7	0.08	
		3.5	7.72	7.57	171	82.3	9.81	160.2	0.08	
		4.0	7.72	7.55	171	82.2	9.80	161.1	0.08	
		4.5	7.71	7.55	171	82.1	9.79	162.5	0.08	
		5.0	7.71	7.54	171	82.2	9.80	163.4	0.08	
		5.5	7.71	7.52	171	82.1	9.79	164.6	0.08	
		6.0	7.71	7.53	171	82.0	9.78	165.2	0.08	
		6.5	7.71	7.53	171	81.7	9.74	166.4	0.08	
		7.0	7.71	7.51	171	81.9	9.76	167.1	0.08	
		7.5	7.71	7.51	171	81.9	9.77	168.6	0.08	
		8.0	7.71	7.48	170	81.9	9.76	170.2	0.08	
		8.5	7.70	7.48	171	81.8	9.75	170.6	0.08	
		9.0	7.70	7.48	171	81.8	9.75	170.7	0.08	
		9.5	7.70	7.49	171	81.6	9.73	170.9	0.08	
		10.0	7.70	7.48	171	81.7	9.74	172.4	0.08	
		10.5	7.70	7.46	171	81.7	9.75	174.3	0.08	
		11.0	7.70	7.46	171	81.7	9.74	174.5	0.08	
		11.5	7.69	7.46	171	81.4	9.71	174.9	0.08	

NOTE:

- Shaded rows implies sample depth unless otherwise noted in Comments

Table E29 U-Lake Surface Water *In situ* Water Quality
Avalon Rare Metals Ltd. Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Date	Total Depth (approx. m)	Depth (m)	Temperature (°C)	pH	Conductivity (µS/cm)	D.O. (%)	D.O. (mg/L)	ORP (mV)	Salinity (ppt)	Comments
15-Mar-09	6.90	0.7	0.63	7.66	467	11.3	1.62	105.9	0.22	- did not sample
15:30		1.0	1.32	7.66	461	10.6	1.49	104.9	0.22	- did profile for potential Fisheries reference Lake
		1.5	2.34	7.65	457	6.4	1.33	103.8	0.22	- Ice thickness = 0.70 m
		2.0	2.88	7.63	454	5.1	1.10	103.7	0.22	
		2.5	3.10	7.61	459	1.8	0.24	-5.9	0.22	
		3.0	3.19	7.59	464	1.7	0.22	-54.5	0.22	
		3.5	3.27	7.60	467	1.5	0.20	-62.9	0.22	
		4.0	3.30	7.60	470	1.3	0.18	-94.8	0.23	
		4.5	3.37	7.60	473	1.3	0.17	-114.9	0.23	
		5.0	3.29	7.60	477	1.3	0.17	-129.7	0.23	
		5.5	3.37	7.60	480	1.2	0.16	-143.9	0.23	
		6.0	3.41	7.61	490	1.1	0.15	-153.8	0.24	
		6.5	3.66	7.66	501	1.2	0.15	-197.5	0.24	

APPENDIX F

Water Chemistry Data

Table F3-1

Blachford Lake (BL-01) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 21-Mar-08	October 2008 4-Oct-08	March 2009 14-Mar-09	June 2009 27-Jun-09	September 2009 21-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	310	249	296	246	250
Hardness (as $CaCO_3$)	mg/L	2	-	-	156	128	158	123	124
pH	pH	0.01	-	-	8.15	8.32	8.14	8.17	8.31
Total Suspended Solids	mg/L	3.0	-	-	3.5	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	175	134	169	141	132
Turbidity	NTU	0.1	-	-	2.39	0.95	0.29	1.68	1.88
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	156	130	164	126	125
Ammonia as N	mg/L	0.02	-	-	-	0.023	<0.020	0.024	0.021
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.05	<0.05
Chloride (Cl)	mg/L	0.5	-	600	3.94	3.20	4.08	3.15	3.29
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.337	0.277	0.34	0.22	0.268
Sulfate (SO_4)	mg/L	0.5	-	100	7.03	5.83	7.00	5.88	5.74
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0339	<0.005	0.0379	<0.005	<0.005
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	<0.005	0.0379	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.001	<0.001	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.481	0.298	0.313	0.301	0.341
Ortho Phosphate as P	mg/L	0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphate as P	mg/L	0.002	-	-	0.0155	0.0078	0.0088	0.0068	0.0108
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	8.13	-		-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	7.02	7.59	6.83	7.26
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	26.9	21.8	<7	45.8	82.7
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	0.2	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.78	0.8	0.8	0.6	0.7
Barium (Ba)	µg/L	0.05	-	5000	32.1	26.3	32.5	26.5	29.1
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	39	29	36	30	36
Cadmium (Cd)	µg/L	**	0.044[i]	0.044	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	15[k]	1.22	0.66	<0.9	1.0	0.85
Iron (Fe)	µg/L	30	300	1000	39	<30	<30	42	49
Lead (Pb)	µg/L	0.05	1 - 7[l]	123[m]	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	6	<5	6	<5	<5
Manganese (Mn)	µg/L	0.05	-	2059[n]	3.76	4.13	1.9	3.3	4.48
Mercury (Hg)	µg/L	0.05	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.511	0.383	0.491	0.438	0.453
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.015
Strontium (Sr)	µg/L	0.1	-	-	73.9	51.4	63.3	50.6	60.1
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					21-Mar-08	4-Oct-08	14-Mar-09	27-Jun-09	21-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.420	0.292	0.429	0.364	0.332
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	30	69[q]	2.7	<1	1.4	<4	1.2
Calcium (Ca)	mg/L	0.05	-	-	33.7	26.9	32.6	24.8	26.3
Magnesium (Mg)	mg/L	0.1	-	-	17.6	14.9	17.6	13.5	14.3
Potassium (K)	mg/L	2	-	-	3.2	3	3.2	2.4	2.8
Silicon (Si)	mg/L	0.05	-	-	1.65	1.22	1.53	1.09	1.38
Sodium (Na)	mg/L	2	-	-	6.6	5.5	5.9	4.7	5.2
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	2.1	<1	1.8	2.9
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	0.78	0.83	0.63	0.63
Barium (Ba)	µg/L	0.05	-	-	-	25.6	31.9	24.1	25
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	30	35	28	30
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	**	-	-	-	<0.5	<1	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.55	0.69	0.63	0.54
Iron (Fe)	µg/L	30	-	350	-	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	5.7	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.062	0.68	<0.05	0.176
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.38	0.5	0.393	0.355
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	51.8	65.3	46.1	51.6
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.308	0.403	0.336	0.287
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	<1	1.4	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	26.6	34	26.2	26.3
Magnesium (Mg)	mg/L	0.1	-	-	-	15	17.8	14	14.1
Potassium (K)	mg/L	2	-	-	-	3	3.1	2.4	2.6
Silicon (Si)	mg/L	0.05	-	-	-	1.2	1.58	1.06	1.27
Sodium (Na)	mg/L	2	-	-	-	5.6	5.6	4.8	4.8
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	-	<0.02	0.04	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	-	<0.005	<0.005	0.006
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	0.14	-	<0.02	<0.02	<0.01
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	-	0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	-	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	0.626	1.42
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.379

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$

Average hardness = 138 mg/L

Cadmium Guideline = 0.044 µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L

3 µg/L when [CaCO3] is 120 - 180 mg/L

4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness = 138 mg/L

Copper Guideline = 15 µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L

4 µg/L when [CaCO3] is 120 - 180 mg/L

7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)

= e(1.273 x [ln(hardness)] - 1.460)

Average hardness = 138 mg/L

Lead Guideline = 123 µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness = 138

Manganese Guideline = 2.059 mg/L

= 2059 µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L

110 µg/L when [CaCO3] is 120 - 180 mg/L

150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L

3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness = 138 mg/L

Zinc Guideline = 69 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

Table F2-1

Blachford Lake (BL-01) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	246	310	270	250	30	14	11	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	123	158	138	128	18	8	13	0	0	0
pH	pH	5	8.14	8.32	8.22	8.17	0.09	0.04	1	0	0	0
Total Suspended Solids	mg/L	5	1.5	3.5	1.9	1.5	0.9	0.4	47	4	0	0
Total Dissolved Solids	mg/L	5	132	175	150	141	20	9	14	0	0	0
Turbidity	NTU	5	0.3	2.4	1.4	1.7	0.8	0.4	57	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	125	164	140	130	18	8	13	0	0	0
Ammonia as N	mg/L	4	0.01	0.02	0.02	0.02	0.01	0.00	33	1	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	3.2	4.1	3.5	3.3	0.4	0.2	13	0	0	0
Fluoride (F)	mg/L	5	0.22	0.34	0.29	0.28	0.05	0.02	18	0	0	0
Sulfate (SO_4)	mg/L	5	5.7	7.0	6.3	5.9	0.7	0.3	10	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.038	0.016	0.003	0.018	0.008	116	3	0	0
Nitrate (as N)	mg/L	2	0.003	0.038	0.020	0.020	0.025	0.018	124	1	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.000	0.001	0.000	0.000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.30	0.48	0.35	0.31	0.08	0.03	22	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.000	0.001	0.000	0.000	0	5	0	0
Total Phosphate as P	mg/L	5	0.007	0.016	0.010	0.009	0.003	0.002	35	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	8.1	8.1	8.1	8.1	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	6.83	7.59	7.18	7.14	0.33	0.16	5	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	3.5	82.7	36.1	26.9	30.1	13.4	83	1	0	0
Antimony (Sb)	µg/L	5	0.05	0.21	0.08	0.05	0.07	0.03	87	4	0	0
Arsenic (As)	µg/L	5	0.62	0.80	0.74	0.78	0.08	0.03	10	0	0	0
Barium (Ba)	µg/L	5	26.3	32.5	29.3	29.1	3.0	1.3	10	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	29	39	34	36	4	2	13	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.45	1.22	0.83	0.85	0.29	0.13	35	1	0	0
Iron (Fe)	µg/L	5	15	49	32	39	16	7	50	2	0	0
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	6.0	3.9	2.5	1.9	0.9	49	3	0	0
Manganese (Mn)	µg/L	5	1.9	4.5	3.5	3.8	1.0	0.5	29	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	0.383	0.511	0.455	0.453	0.050	0.022	11	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.53	0.31	0.25	0.13	0.06	41	4	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.015	0.007	0.005	0.004	0.002	64	4	0	0
Strontium (Sr)	µg/L	5	50.6	73.9	59.9	60.1	9.6	4.3	16	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.292	0.429	0.367	0.364	0.058	0.026	16	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	2.7	1.6	1.4	0.8	0.4	53	2	0	0
Calcium (Ca)	mg/L	5	24.8	33.7	28.9	26.9	4.0	1.8	14	0	0	0
Magnesium (Mg)	mg/L	5	13.5	17.6	15.6	14.9	1.9	0.9	12	0	0	0
Potassium (K)	mg/L	5	2.4	3.2	2.9	3.0	0.3	0.1	11	0	0	0
Silicon (Si)	mg/L	5	1.09	1.65	1.37	1.38	0.23	0.10	16	0	0	0
Sodium (Na)	mg/L	5	4.7	6.6	5.6	5.5	0.7	0.3	13	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	0.5	2.9	1.8	2.0	1.0	0.5	55	1	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.63	0.83	0.72	0.71	0.10	0.05	14	0	0	0
Barium (Ba)	µg/L	4	24.1	31.9	26.7	25.3	3.6	1.8	13	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	28	35	31	30	3	1	10	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.50	0.31	0.25	0.13	0.06	40	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.54	0.69	0.60	0.59	0.07	0.04	12	0	0	0
Iron (Fe)	µg/L	4	15	15	15	15	0	0	0	4	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	5.7	3.3	2.5	1.6	0.8	48	3	0	0
Manganese (Mn)	µg/L	4	0.025	0.680	0.236	0.119	0.303	0.152	129	1	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.355	0.468	0.399	0.387	0.049	0.024	12	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	46.1	65.3	53.7	51.7	8.2	4.1	15	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.287	0.403	0.334	0.322	0.050	0.025	15	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	1.4	0.7	0.5	0.5	0.2	62	3	0	0
Calcium (Ca)	mg/L	4	26.2	34.0	28.3	26.5	3.8	1.9	14	0	0	0
Magnesium (Mg)	mg/L	4	14.0	17.8	15.2	14.6	1.8	0.9	12	0	0	0
Potassium (K)	mg/L	4	2.4	3.1	2.8	2.8	0.3	0.2	12	0	0	0
Silicon (Si)	mg/L	4	1.06	1.58	1.28	1.24	0.22	0.11	17	0	0	0
Sodium (Na)	mg/L	4	4.8	5.6	5.2	5.2	0.5	0.2	9	0	0	0
Radionuclides												
Lead-210 (210Pb)	Bq/L	4	0.01	0.04	0.02	0.01	0.02	0.01	86	3	0	0
Radium-226 (226Ra)	Bq/L	4	0.003	0.006	0.003	0.003	0.002	0.001	52	3	0	0
Radium-228 (228Ra)	Bq/L	4	0.01	0.14	0.04	0.01	0.07	0.03	160	3	0	0
Thorium-230 (230Th)	Bq/L	4	0.005	0.010	0.006	0.005	0.003	0.001	40	3	0	0
Thorium-232 (232Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll a	µg/L	2	0.626	1.420	1.023	1.023	0.561	0.397	55	-	-	-
Pheopigments	µg/L	1	0.379	0.379	0.379	0.38	-	-	-	-	-	-

Table F3-2

Elbow Lake (EL-01 & EL-02) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008		March 2009		June 2009		September 2009	
					19-Mar-08	21-Mar-08	1-Oct-08		16-Mar-09		28-Jun-09		30-Sep-09	29-Sep-09
					EL-01	EL-02	EL-01	EL-02	EL-01	EL-02	EL-01	EL-02	EL-01	EL-02
Physicals														
Conductivity	µS/cm	0.5	-	-	359	395	322	312	358	377	311	309	327	324
Hardness (as $CaCO_3$)	mg/L	2	-	-	196	205	181	183	206	215	176	175	182	181
pH	pH	0.01	-	-	8.16	7.91	8.36	8.35	8.13	8.15	8.30	8.34	8.13	7.58
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	200	215	186	186	211	225	194	195	189	184
Turbidity	NTU	0.1	-	-	0.43	0.67	0.60	0.49	0.37	0.43	0.92	0.90	1.30	1.05
Anions														
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	222	213	179	180	216	230	185	178	171	160
Ammonia as N	mg/L	0.02	-	-	-	-	<0.02	<0.02	<0.02	0.097	0.024	<0.02	<0.02	0.02
Bromide (Br)	mg/L	0.05	-	-	<0.05	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Cl)	mg/L	0.5	-	600	1.75	2.03	1.6	1.58	1.93	2.04	1.57	1.53	1.62	1.65
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.65	1.83	1.55	1.55	1.7	1.79	1.41	1.4	1.47	1.49
Sulfate (SO_4)	mg/L	0.5	-	100	0.57	0.59	<0.50	<0.50	0.62	0.62	0.58	0.55	<0.5	<0.5
Nutrients														
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.104	0.0956	<0.0050	<0.0050	0.1	0.121	<0.0050	<0.0050	-	-
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	-	<0.0050	<0.0050	0.1	0.121	-	-	<0.005	<0.005
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	-	<0.0010	<0.0010	<0.0010	<0.0010	-	-	<0.001	<0.001
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.469	0.076	0.418	1.730	0.371	0.408	0.445	0.428	0.444	0.470
Ortho Phosphate as P	mg/L	0.001	-	-	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001
Total Phosphate as P	mg/L	0.002	-	-	0.0078	0.0318	0.0087	0.0092	0.0061	0.0083	0.0175	0.0073	0.0085	0.008
Organics														
Total Organic Carbon (TOC)	mg/L	0.5	-	-	11.3	12.2	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	-	11.7	11.8	10.5	11.1	11.2	11.4	11.5	11.6
Total Metals														
Aluminum (Al)	µg/L	**[f]	100[g]	-	1.1	1.3	1.1	1	<1	<1	<6	<7	<4	<5
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.17	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.9	1.07	0.99	0.99	0.91	0.97	0.74	0.77	0.83	0.79
Barium (Ba)	µg/L	0.05	-	5000	85.8	101.0	72.8	71.5	80.3	86.5	63.8	66.8	88.9	88.9
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	23	24	24	22	26	27	24	24	31	31
Cadmium (Cd)	µg/L	**	0.058[i]	0.058	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.017	<0.017
Chromium (Cr)	µg/L	**	8.9	8.9	<0.5	<0.5	<0.5	<1	<1	<1	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	2 - 4[j]	20[k]	0.45	0.27	1.58	0.7	0.26	0.24	0.48	0.5	0.29	0.26
Iron (Fe)	µg/L	30	300	1000	<30	<30	45	32	<30	<30	<30	32	57	<30
Lead (Pb)	µg/L	0.05	1 - 7[l]	185[m]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	5.4	6.3	5.7	5.1	6.5	6.4	5.1	5.4	5.4	5.8
Manganese (Mn)	µg/L	**	-	2680[n]	15	37.5	31.2	20.3	12.7	23	14.5	14.3	59.4	22.6
Mercury (Hg)	µg/L	0.05	0.026	0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	3.94	4.34	3.98	3.90	4.23	4.52	3.79	4.03	4.07	4.23
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	62.9	69.3	53.3	51.8	62.2	63.9	47.7	51.1	59.6	61.8
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.461	0.503	0.395	0.415	0.548	0.584	0.538	0.557	0.464	0.492
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	108[q]	<1	<1	<1	<1	<1	<1	<3	**40.3**	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	38.9	41.4	36.4	36.6	40.7	43.7	33.4	34	34.3	33.9
Magnesium (Mg)	mg/L	0.1	-	-	24.1	24.7	22.8	22.9	25	26.7	20.4	20.7	22.3	22
Potassium (K)	mg/L	2	-	-	2.7	3	2.9	3	2.7	2.9	2.2	2.2	2.6	2.6
Silicon (Si)	mg/L	0.05	-	-	4.04	4.26	3.95	3.92	4.46	4.77	2.99	3.02	3.59	3.51
Sodium (Na)	mg/L	2	-	-	5.3	5.3	5	5.2	4.6	4.9	4.1	4.2	4.8	4.7
Dissolved Metals														
Aluminum (Al)	µg/L	1	-	100[r]	-	-	<1	2.4	<1	<1	1.3	1.7	2.3	<1
Antimony (Sb)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	-	0.96	0.92	0.86	0.94	0.83	0.88	0.8	0.84
Barium (Ba)	µg/L	0.05	-	-	-	-	71.0	69.7	79.2	86.3	63.9	64.2	81.2	83.0
Beryllium (Be)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	-	24	23	24	25	22	22	25	26
Cadmium (Cd)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.017	<0.017
Chromium (Cr)	µg/L	**	-	-	-	-	<0.5	7.96	<1	<1	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	-	1.11	0.78	0.24	0.26	0.24	0.27	0.17	0.17
Iron (Fe)	µg/L	30	-	350	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	-	5.8	5.3	6.2	6.1	5.1	<5	<5	5.3
Manganese (Mn)	µg/L	0.05	-	-	-	-	0.14	0.106	0.392	4.62	0.147	1.15	0.348	0.208
Mercury (Hg)	µg/L	**	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008		March 2009		June 2009		September 2009	
					19-Mar-08	21-Mar-08	1-Oct-08		16-Mar-09		28-Jun-09		30-Sep-09	29-Sep-09
					EL-01	EL-02	EL-01	EL-02	EL-01	EL-02	EL-01	EL-02	EL-01	EL-02
Molybdenum (Mo)	µg/L	0.05	-	-	-	-	3.95	3.99	4.27	4.54	3.76	3.76	3.7	3.84
Nickel (Ni)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	-	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	-	52.5	52.1	61.9	64.4	47.6	47.7	54.1	58.1
Thallium (Tl)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	-	<0.1	0.32	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	-	0.422	0.464	0.554	0.588	0.538	0.538	0.438	0.447
Vanadium (V)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	-	6.8	2.8	<1	<1	<1	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	-	35.6	36	41.3	42.9	35.2	35.3	34.7	34.6
Magnesium (Mg)	mg/L	0.1	-	-	-	-	22.3	22.6	25.1	26.2	21.4	21.2	23	23
Potassium (K)	mg/L	2	-	-	-	-	2.8	2.9	2.7	2.8	2.3	2.3	2.8	2.7
Silicon (Si)	mg/L	0.05	-	-	-	-	3.85	3.85	4.48	4.68	3.1	3.1	3.68	3.68
Sodium (Na)	mg/L	2	-	-	-	-	4.9	6	4.6	4.7	4.3	4.3	5	4.9
Radionuclides			GCDWQ MAC[s]											
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	0.007	<0.005	<0.005	<0.005	0.006	<0.005	0.009	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	<0.02	<0.02	<0.2	<0.07	<0.02	<0.02	<0.02	<0.02	0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota														
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	-	-	0.675	1.28	2.42	4.05
Pheopigments	µg/L	0.01	-	-	-	-	-	-	-	-	-	-	0.662	0.48

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{[0.86[Log(hardness)] - 3.2]}$
   Average hardness = 190 mg/L
   Cadmium Guideline = 0.058 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 190 mg/L
   Copper Guideline = 20 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = $_e$(1.273 x [LN(hardness)] - 1.460)
   Average hardness = 190 mg/L
   Lead Guideline = 185 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 194
   Manganese Guideline = 2.680 mg/L
   = 2680 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 190 mg/L
   Zinc Guideline = 108 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radio-activity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Data outlier, excluded from summary statistics

Table F2-2

Elbow Lake (EL-01 & EL-02) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value EL-01	Maximum Value EL-01	Mean Value EL-01	Median EL-01	Standard Deviation EL-01	Standard Error EL-01	Coefficient of Variation EL-01	No. < DL EL-01	No. > GL EL-01	% > GL EL-01	Minimum Value EL-02	Maximum Value EL-02	Mean Value EL-02	Median EL-02	Standard Deviation EL-02	Standard Error EL-02	Coefficient of Variation EL-02	No. < DL EL-02	No. > GL EL-02	% > GL EL-02
Physicals																						
Conductivity	uS/cm	5	311	359	335	327	22	10	7	0	0	0	309	395	343	324	40	18	12	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	176	206	188	182	12	6	7	0	0	0	175	215	192	183	17	8	9	0	0	0
pH	pH	5	8.13	8.36	8.22	8.16	0.11	0.05	1	0	0	0	7.58	8.35	8.07	8.15	0.33	0.15	4	0	0	0
Total Suspended Solids	mg/L	5	1.5	1.5	1.5	1.5	0.0	0.0	0	5	0	0	1.5	1.5	1.5	1.5	0.0	0.0	0	5	0	0
Total Dissolved Solids	mg/L	5	186	211	196	194	10	4	5	0	0	0	184	225	201	195	18	8	9	0	0	0
Turbidity	NTU	5	0.37	1.30	0.72	0.60	0.39	0.17	53	0	0	0	0.43	1.05	0.71	0.67	0.26	0.12	37	0	0	0
Anions																						
Alkalinity, Total (as $CaCO_3$)	mg/L	5	171	222	195	185	23	10	12	0	0	0	160	230	192	180	28	13	15	0	0	0
Ammonia as N	mg/L	4	0.010	0.024	0.014	0.01	0.01	0.00	52	3	0	0	0.010	0.097	0.034	0.02	0.04	0.02	123	2	0	0
Bromide (Br)	mg/L	4	0.025	0.025	0.025	0.025	0.000	0.00	0	4	0	0	0.025	0.025	0.025	0.025	0.000	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	1.57	1.93	1.69	1.62	0.15	0.07	9	0	0	0	1.53	2.04	1.77	1.65	0.25	0.11	14	0	0	0
Fluoride (F)	mg/L	5	1.41	1.70	1.56	1.55	0.12	0.05	8	0	0	0	1.40	1.83	1.61	1.55	0.19	0.08	12	0	0	0
Sulfate (SO_4)	mg/L	5	0.25	0.62	0.45	0.57	0.19	0.08	41	2	0	0	0.25	0.62	0.45	0.55	0.19	0.08	41	2	0	0
Nutrients																						
Nitrate and Nitrite as N	mg/L	4	0.0025	0.1040	0.0523	0.0513	0.0575	0.0287	110	2	0	0	0.0025	0.1210	0.0554	0.0491	0.0620	0.0310	112	2	0	0
Nitrate (as N)	mg/L	3	0.0025	0.1000	0.0350	0.0025	0.0563	0.0325	161	2	0	0	0.0025	0.1210	0.0420	0.0025	0.0684	0.0395	163	2	0	0
Nitrite (as N)	mg/L	3	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	3	0	0	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	3	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.371	0.469	0.429	0.444	0.037	0.017	9	0	0	0	0.076	1.730	0.622	0.428	0.639	0.286	103	0	0	0
Ortho Phosphate as P	mg/L	5	0.0005	0.0012	0.0006	0.0005	0.0003	0.0001	49	4	0	0	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	5	0	0
Total Phosphate as P	mg/L	5	0.0061	0.0175	0.0097	0.0085	0.0045	0.0020	46	0	0	0	0.0073	0.0318	0.0129	0.0083	0.0106	0.0047	82	0	0	0
Organics																						
Total Organic Carbon (TOC)	mg/L	1	11.3	11.3	11.3	11.3	-	-	-	0	0	0	12.2	12.2	12.2	12.2	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	10.5	11.7	11.2	11.4	0.5	0.3	5	0	0	0	11.1	11.8	11.5	11.5	0.3	0.1	3	0	0	0
Total Metals																						
Aluminum (Al)	µg/L	5	0.5	3.0	1.5	1.1	1.0	0.4	63	3	0	0	0.5	3.5	1.8	1.3	1.2	0.5	69	3	0	0
Antimony (Sb)	µg/L	5	0.05	0.12	0.06	0.05	0.03	0.01	49	4	0	0	0.05	0.17	0.07	0.05	0.05	0.02	73	4	0	0
Arsenic (As)	µg/L	5	0.74	0.99	0.87	0.90	0.09	0.04	11	0	0	0	0.77	1.07	0.92	0.97	0.13	0.06	14	0	0	0
Barium (Ba)	µg/L	5	63.8	88.9	78.3	80.3	10.2	4.5	13	0	0	0	66.8	101.0	82.9	86.5	13.8	6.2	17	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	23	31	26	24	3	1	13	0	0	0	22	31	26	24	4	2	14	0	0	0
Cadmium (Cd)	µg/L	5	0.0085	0.0250	0.0217	0.0250	0.0074	0.0033	34	5	0	0	0.0085	0.0250	0.0217	0.0250	0.0074	0.0033	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.50	0.30	0.25	0.11	0.05	37	5	0	0	0.25	0.50	0.35	0.25	0.14	0.06	39	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.26	1.58	0.61	0.45	0.55	0.25	90	0	0	0	0.24	0.70	0.39	0.27	0.20	0.09	51	0	0	0
Iron (Fe)	µg/L	5	15	57	29	15	20	9	69	3	0	0	15	32	22	15	9	4	43	3	0	0
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	5.1	6.5	5.6	5.4	0.5	0.2	10	0	0	0	5.1	6.4	5.8	5.8	0.6	0.3	10	0	0	0
Manganese (Mn)	µg/L	5	12.7	59.4	26.6	15.0	19.8	8.9	75	0	0	0	14.3	37.5	23.5	22.6	8.5	3.8	36	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	3.79	4.23	4.00	3.98	0.16	0.07	4	0	0	0	3.90	4.52	4.20	4.23	0.25	0.11	6	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Strontium (Sr)	µg/L	5	47.7	62.9	57.1	59.6	6.5	2.9	11	0	0	0	51.1	69.3	59.6	61.8	7.9	3.5	13	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.395	0.548	0.481	0.464	0.063	0.028	13	0	0	0	0.415	0.584	0.510	0.503	0.065	0.029	13	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Calcium (Ca)	mg/L	5	33.4	40.7	36.7	36.4	3.1	1.4	8	0	0	0	33.9	43.7	37.9	36.6	4.4	2.0	12	0	0	0
Magnesium (Mg)	mg/L	5	20.4	25.0	22.9	22.8	1.8	0.8	8	0	0	0	20.7	26.7	23.4	22.9	2.3	1.1	10	0	0	0
Potassium (K)	mg/L	5	2.2	2.9	2.6	2.7	0.3	0.1	10	0	0	0	2.2	3.0	2.7	2.9	0.3	0.2	13	0	0	0
Silicon (Si)	mg/L	5	2.99	4.46	3.81	3.95	0.55	0.25	14	0	0	0	3.02	4.77	3.90	3.92	0.67	0.30	17	0	0	0
Sodium (Na)	mg/L	5	4.1	5.3	4.8	4.8	0.5	0.2	9	0	0	0	4.2	5.3	4.9	4.9	0.4	0.2	9	0	0	0
Dissolved Metals																						
Aluminum (Al)	µg/L	4	0.5	2.3	1.2	0.9	0.9	0.4	74	2	0	0	0.5	2.4	1.3	1.1	0.9	0.5	74	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.80	0.96	0.86	0.85	0.07	0.03	8	0	0	0	0.84	0.94	0.90	0.90	0.04	0.02	5	0	0	0
Barium (Ba)	µg/L	4	63.9	81.2	73.8	75.1	8.0	4.0	11	0	0	0	64.2	86.3	75.8	76.4	10.5	5.3	14	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	22	25	24	24	1	1	5	0	0	0	22	26	24	24	2	1	8	0	0	0
Cadmium (Cd)	µg/L	4	0.0085	0.0250	0.0209	0.0250	0.0083	0.0041	40	4	0	0	0.0085	0.0250	0.0209	0.0250	0.0083	0.0041	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.50	0.31	0.25	0.13	0.06	40	4	0	0	0.25	7.96	2.24	0.38	3.82	1.91	170	3	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Copper (Cu)	µg/L	4	0.17	1.11	0.44	0.24	0.45	0.22	102	0	0	0	0.17	0.78	0.37	0.27	0.28	0.14	75	0	0	0
Iron (Fe)	µg/L	4	15	15	15	15	0	0	0	4	0	0	15	15	15	15	0	0	0	4	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	6.2	4.9	5.5	1.7	0.8	34	1	0	0	2.5	6.1	4.8	5.3	1.6	0.8	33	1	0	0
Manganese (Mn)	µg/L	4	0.140	0.392	0.257	0.248	0.132	0.066	51	0	0	0	0.106	4.620	1.521	0.679	2.119	1.059	139	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0

Parameter	Units	n	Minimum Value EL-01	Maximum Value EL-01	Mean Value EL-01	Median EL-01	Standard Deviation EL-01	Standard Error EL-01	Coefficient of Variation EL-01	No. < DL EL-01	No. > GL EL-01	% > GL EL-01	Minimum Value EL-02	Maximum Value EL-02	Mean Value EL-02	Median EL-02	Standard Deviation EL-02	Standard Error EL-02	Coefficient of Variation EL-02	No. < DL EL-02	No. > GL EL-02	% > GL EL-02
Molybdenum (Mo)	µg/L	4	3.70	4.27	3.92	3.86	0.26	0.13	7	0	0	0	3.76	4.54	4.03	3.92	0.35	0.18	9	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Strontium (Sr)	µg/L	4	47.6	61.9	54.0	53.3	5.9	3.0	11	0	0	0	47.7	64.4	55.6	55.1	7.3	3.6	13	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0	0.05	0.32	0.12	0.05	0.14	0.07	115	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.422	0.554	0.49	0.488	0.068	0.034	14	0	0	0	0.447	0.588	0.51	0.501	0.066	0.033	13	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	6.8	2.1	0.5	3.2	1.6	152	3	0	0	0.5	2.8	1.1	0.5	1.2	0.6	107	3	0	0
Calcium (Ca)	mg/L	4	34.7	41.3	36.7	35.4	3.1	1.5	8	0	0	0	34.6	42.9	37.2	35.7	3.8	1.9	10	0	0	0
Magnesium (Mg)	mg/L	4	21.4	25.1	23.0	22.7	1.6	0.8	7	0	0	0	21.2	26.2	23.3	22.8	2.1	1.1	9	0	0	0
Potassium (K)	mg/L	4	2.3	2.8	2.7	2.8	0.2	0.1	9	0	0	0	2.3	2.9	2.7	2.8	0.3	0.1	10	0	0	0
Silicon (Si)	mg/L	4	3.10	4.48	3.78	3.77	0.57	0.28	15	0	0	0	3.10	4.68	3.83	3.77	0.65	0.33	17	0	0	0
Sodium (Na)	mg/L	4	4.3	5.0	4.7	4.8	0.3	0.2	7	0	0	0	4.3	6.0	5.0	4.8	0.7	0.4	15	0	0	0
Radionuclides																						
Lead-210 (210Pb)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	0	5	0	0	0.01	0.05	0.02	0.01	0.02	0.01	99	4	0	0
Radium-226 (226Ra)	Bq/L	5	0.0025	0.0090	0.0054	0.0060	0.0029	0.0013	53	2	0	0	0.0025	0.0025	0.0025	0.0025	0.0000	0.0000	0	5	0	0
Radium-228 (228Ra)	Bq/L	5	0.01	0.10	0.03	0.01	0.04	0.02	131	4	0	0	0.01	0.04	0.02	0.01	0.01	0.01	75	5	0	0
Thorium-230 (230Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Thorium-232 (232Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Biota																						
Chlorophyll a	µg/L	2	0.675	2.420	1.548	1.548	1.234	0.873	80	0	0	0	1.280	4.050	2.665	2.665	1.959	19.587	73	0	0	0
Pheopigments	µg/L	1	0.662	0.662	0.662	0.662	-	-	-	0	0	0	0.480	0.480	0.480	0.480	-	-	-	0	0	0

Table F3-3

Fred Lake (FL-01) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 18-Mar-08	October 2008 7-Oct-08	March 2009 13-Mar-09	June 2009 24-Jun-09	September 2009 5-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	401	305	391	268	299
Hardness (as $CaCO_3$)	mg/L	2	-	-	214	166	219	149	163
pH	pH	0.01	-	-	7.90	8.33	7.86	7.07	8.30
Total Suspended Solids	mg/L	3.0	-	-	6	<3.0	11	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	243	194	249	166	182
Turbidity	NTU	0.1	-	-	3.34	0.88	9.94	0.64	1.02
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	220	160	242	152	153
Ammonia as N	mg/L	0.02	-	-	-	<0.020	0.698	0.025	<0.020
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.05	<0.050
Chloride (Cl)	mg/L	0.5	-	600	5.18	4.19	4.87	3.63	4.16
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.36	1.14	1.29	0.918	1.05
Sulfate (SO_4)	mg/L	0.5	-	100	<0.5	0.71	<0.50	<0.50	<0.50
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0915	<0.0050	0.0399	<0.0050	-
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	<0.0050	0.0381	-	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	0.0018	-	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	1.3	0.921	1.2	0.588	0.718
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0109	0.0095	0.0086	0.0050	0.0069
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	19.7	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	19.2	16.3	14.6	16.8
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	7.8	11.7	<7	<6	<5
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	1.42	0.89	1.56	0.76	1.01
Barium (Ba)	µg/L	0.05	-	5000	95.5	50.3	129	44.6	72.4
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	25	23	19	21	28
Cadmium (Cd)	µg/L	0.05	0.055[i]	0.055	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	19[k]	1.29	0.52	<0.6	0.81	<0.6
Iron (Fe)	µg/L	30	300	1000	**1140**	38	**7860**	<30	<30
Lead (Pb)	µg/L	0.05	1 - 7[l]	175[m]	0.094	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	7.3	6.2	6.8	<5	5.3
Manganese (Mn)	µg/L	0.05	-	2548[n]	401	9.16	848	<12.4	25.4
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	2.26	2.04	1.64	1.82	2.42
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	75.5	53.6	67.9	43.1	66.2
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.511	0.439	0.312	0.401	0.320
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	102[q]	1	3.7	1.7	<2	1.2
Calcium (Ca)	mg/L	0.05	-	-	45.4	33.8	46.9	30.7	33.6
Magnesium (Mg)	mg/L	0.1	-	-	24.4	19.1	22.2	16.5	17.4
Potassium (K)	mg/L	2	-	-	2.7	2.2	2.5	<2.0	2.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 18-Mar-08	October 2008 7-Oct-08	March 2009 13-Mar-09	June 2009 24-Jun-09	September 2009 5-Sep-09
Silicon (Si)	mg/L	0.05	-	-	5.22	5.1	7.39	2.22	3.03
Sodium (Na)	mg/L	2	-	-	9.3	8	7.5	5.7	6.5
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	1.4	1.8	2.2	1.1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.04	1.59	0.89	0.92
Barium (Ba)	µg/L	0.05	-	-	-	46.2	121	42.6	70.3
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	22	19	19	25
Cadmium (Cd)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	**	-	-	-	<0.5	<1	<0.7	<2
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.29	0.15	0.52	0.39
Iron (Fe)	µg/L	30	-	350	-	<30	**6990**	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	5.3	6.9	<5	5.5
Manganese (Mn)	µg/L	0.05	-	-	-	0.468	766	3.79	0.401
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	1.8	1.63	1.7	2.16
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	49.3	67	40.6	60.7
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	0.15
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.391	0.315	0.185	0.306
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	2.1	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	34.5	49.5	31.4	35.3
Magnesium (Mg)	mg/L	0.1	-	-	-	19.3	23.1	17.1	18.1
Potassium (K)	mg/L	2	-	-	-	2.2	2.5	<2.0	2.2
Silicon (Si)	mg/L	0.05	-	-	-	5.11	7.46	2.29	3.17
Sodium (Na)	mg/L	2	-	-	-	7.9	7.5	5.8	6.8
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	**	0.6	-	-	0.008	0.02	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.03	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	0.294	1.77
Pheopigments	µg/L	0.01	-	-	-	-	-	-	1.39

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{[0.86[Log(hardness)] - 3.2]}$

Average hardness = 182 mg/L

Cadmium Guideline = 0.055 µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L

3 µg/L when [CaCO3] is 120 - 180 mg/L

4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness = 182 mg/L

Copper Guideline = 19 µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L

4 µg/L when [CaCO3] is 120 - 180 mg/L

7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)

= e(1.273 x [ln(hardness)] - 1.460)

Average hardness = 182 mg/L

Lead Guideline = 175 µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness = 182

Manganese Guideline = 2.548 mg/L

= 2548 µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L

110 µg/L when [CaCO3] is 120 - 180 mg/L

150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is ≤ 100 mg/L

3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness = 182 mg/L

Zinc Guideline = 102 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

Table F2-3

Fred Lake (FL-01) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	268	401	333	305	59	27	18	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	149	219	182	166	32	14	18	0	0	0
pH	pH	5	7.07	8.33	7.89	7.90	0.51	0.23	6	0	0	0
Total Suspended Solids	mg/L	5	1.5	11.0	4.3	1.5	4.2	1.9	98	3	0	0
Total Dissolved Solids	mg/L	5	166	249	207	194	37	17	18	0	0	0
Turbidity	NTU	5	0.6	9.9	3.2	1.0	3.9	1.8	125	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	152	242	185	160	42	19	23	0	0	0
Ammonia as N	mg/L	4	0.01	0.70	0.19	0.02	0.34	0.17	184	2	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	3.6	5.2	4.4	4.2	0.6	0.3	14	0	0	0
Fluoride (F)	mg/L	5	0.92	1.36	1.15	1.14	0.18	0.08	16	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	0.7	0.3	0.3	0.2	0.1	60	4	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	4	0.003	0.092	0.034	0.021	0.042	0.021	124	2	0	0
Nitrate (as N)	mg/L	3	0.003	0.038	0.014	0.003	0.021	0.012	143	2	0	0
Nitrite (as N)	mg/L	3	0.001	0.002	0.001	0.001	0.001	0.000	80	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.59	1.30	0.95	0.92	0.30	0.14	32	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	0	5	0	0
Total Phosphate as P	mg/L	5	0.005	0.011	0.008	0.009	0.002	0.001	28	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	19.7	19.7	19.7	19.7	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	14.60	19.20	16.73	16.55	1.90	0.95	11	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	2.5	11.7	5.7	3.5	4.0	1.8	70	3	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.76	1.56	1.13	1.01	0.35	0.15	31	0	0	0
Barium (Ba)	µg/L	5	44.6	129.0	78.4	72.4	34.7	15.5	44	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	19	28	23	23	3	2	15	0	0	0
Cadmium (Cd)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.30	1.29	0.64	0.52	0.42	0.19	65	2	0	0
Iron (Fe)	µg/L	5	15	7860	1814	38	3415	1527	188	2	2	40
Lead (Pb)	µg/L	5	0.025	0.094	0.039	0.025	0.031	0.014	80	4	0	0
Lithium (Li)	µg/L	5	2.5	7.3	5.6	6.2	1.9	0.8	34	1	0	0
Manganese (Mn)	µg/L	5	6.2	848.0	258.0	25.4	370.1	165.5	143	1	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	1.640	2.420	2.036	2.040	0.317	0.142	16	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Strontium (Sr)	µg/L	5	43.1	75.5	61.3	66.2	12.8	5.7	21	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.312	0.511	0.397	0.401	0.084	0.037	21	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	1.0	3.7	1.7	1.2	1.1	0.5	66	1	0	0
Calcium (Ca)	mg/L	5	30.7	46.9	38.1	33.8	7.5	3.3	20	0	0	0
Magnesium (Mg)	mg/L	5	16.5	24.4	19.9	19.1	3.3	1.5	17	0	0	0
Potassium (K)	mg/L	5	1.0	2.7	2.1	2.2	0.7	0.3	31	1	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Silicon (Si)	mg/L	5	2.22	7.39	4.59	5.10	2.03	0.91	44	0	0	0
Sodium (Na)	mg/L	5	5.7	9.3	7.4	7.5	1.4	0.6	19	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	1.1	2.2	1.6	1.6	0.5	0.2	29	0	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.89	1.59	1.11	0.98	0.33	0.16	29	0	0	0
Barium (Ba)	µg/L	4	42.6	121.0	70.0	58.3	36.1	18.1	52	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	19	25	21	21	3	1	14	0	0	0
Cadmium (Cd)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Chromium (Cr)	µg/L	4	0.25	1.00	0.53	0.43	0.33	0.17	63	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Copper (Cu)	µg/L	4	0.15	0.52	0.34	0.34	0.16	0.08	46	0	0	0
Iron (Fe)	µg/L	4	15	6990	1759	15	3488	1744	198	3	1	20
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	0	0	0
Lithium (Li)	µg/L	4	2.5	6.9	5.1	5.4	1.8	0.9	36	1	0	0
Manganese (Mn)	µg/L	4	0.401	766.000	192.665	2.129	382.227	191.113	198	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	1.630	2.160	1.823	1.750	0.236	0.118	13	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	40.6	67.0	54.4	55.0	11.8	5.9	22	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.15	0.08	0.05	0.05	0.03	67	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.185	0.391	0.299	0.311	0.085	0.043	28	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	2.1	0.9	0.5	0.8	0.4	89	3	0	0
Calcium (Ca)	mg/L	4	31.4	49.5	37.7	34.9	8.1	4.0	21	0	0	0
Magnesium (Mg)	mg/L	4	17.1	23.1	19.4	18.7	2.6	1.3	14	0	0	0
Potassium (K)	mg/L	4	1.0	2.5	2.0	2.2	0.7	0.3	34	1	0	0
Silicon (Si)	mg/L	4	2.29	7.46	4.51	4.14	2.29	1.15	51	0	0	0
Sodium (Na)	mg/L	4	5.8	7.9	7.0	7.2	0.9	0.5	13	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.020	0.008	0.005	0.008	0.004	100	2	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.02	0.01	0.01	0.00	0.00	22	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.010	0.006	0.005	0.003	0.001	40	3	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	0	0.294	1.770	1.032	1.032	1.044	10.437	101			
Pheopigments	µg/L	0	1.39	1.39	1.39	1.39	-	-	-			

Table F3-4

Cressy Lake (FL-02) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009 8-Sep-09	
					21-Mar-08	-	13-Mar-09	24-Jun-09	FL-02	Replicate
Physicals										
Conductivity	µS/cm	0.5	-	-	554	-	289	237	249	248
Hardness (as $CaCO_3$)	mg/L	2	-	-	156	-	165	137	139	139
pH	pH	0.01	-	-	7.95	-	7.93	7.78	8.15	8.14
Total Suspended Solids	mg/L	3.0	-	-	<3.0	-	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	182	-	182	154	158	158
Turbidity	NTU	0.1	-	-	2.4	-	0.37	1.15	1.14	1.16
Anions										
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	151	-	180	132	127	124
Ammonia as N	mg/L	0.02	-	-	-	-	0.023	0.035	0.024	0.23
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	0.74	-	0.83	0.65	0.64	0.66
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.1	-	1.14	0.875	0.960	0.965
Sulfate (SO_4)	mg/L	0.5	-	100	2.79	-	3.09	2.27	2.53	2.59
Nutrients										
Nitrate and Nitrite as N	mg/L	0.005	-	-	1.68	-	0.18	<0.0050	-	-
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	-	0.18	-	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	-	<0.0010	-	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	6.82	-	0.514	0.588	0.644	0.609
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.17	-	0.0063	0.0120	0.0138	0.0105
Organics										
Total Organic Carbon (TOC)	mg/L	0.5	-	-	16.2	-	-	-	-	
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	-	15.6	14.8	17.7	-
Total Metals										
Aluminum (Al)	µg/L	**[f]	100[g]	-	3.3	-	<4	12	<6	<6
Antimony (Sb)	µg/L	0.1	-	20	<0.1	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.95	-	1.02	1.05	1.48	1.35
Barium (Ba)	µg/L	0.05	-	5000	25.8	-	22.9	20.6	22.7	21.3
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	18	-	17	16	21	19
Cadmium (Cd)	µg/L	**	0.047[i]	0.047	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	16[k]	0.45	-	1.64	0.71	1.44	<0.8
Iron (Fe)	µg/L	30	300	1000	51	-	52	52	96	88
Lead (Pb)	µg/L	0.05	1 - 7[l]	136[m]	<0.05	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	9.2	-	8.6	7.8	8.2	7.5
Manganese (Mn)	µg/L	0.05	-	2185[n]	163	-	18	17.2	69.7	63.6
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.99	-	2.03	1.82	2.05	1.95
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	48.1	-	45.8	38.3	49.1	45.3
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	-	<0.1	<0.1	0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	2.67	-	2.8	2.19	2.1	2
Vanadium (V)	µg/L	1	-	6	<1	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	77[q]	2.6	-	2.2	<3	1.3	1.4
Calcium (Ca)	mg/L	0.05	-	-	33.4	-	33.7	26.4	29.8	26.9
Magnesium (Mg)	mg/L	0.1	-	-	17.7	-	17.6	14.9	16.2	15.6
Potassium (K)	mg/L	2	-	-	2.3	-	2.3	<2.0	2.5	2.4

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009 8-Sep-09	
					21-Mar-08	-	13-Mar-09	24-Jun-09	FL-02	Replicate
Silicon (Si)	mg/L	0.05	-	-	2.07	-	1.87	1.30	1.10	1.06
Sodium (Na)	mg/L	2	-	-	4	-	3.7	3.1	3.8	3.6
Dissolved Metals										
Aluminum (Al)	µg/L	1	-	100[r]	-	-	<1	5.9	<1	1.3
Antimony (Sb)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	-	1.04	1.17	1.23	1.13
Barium (Ba)	µg/L	0.05	-	-	-	-	23	19.2	19.6	18.8
Beryllium (Be)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	-	17	15	18	17
Cadmium (Cd)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	-	1.16	0.44	0.37	0.35
Iron (Fe)	µg/L	30	-	350	-	-	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	-	8.4	7.1	7.4	7.2
Manganese (Mn)	µg/L	0.05	-	-	-	-	10.7	3.2	0.848	0.779
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	-	1.89	1.59	1.67	1.53
Nickel (Ni)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	-	45	35.1	40.3	38.3
Thallium (Tl)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	-	2.67	1.92	1.83	1.78
Vanadium (V)	µg/L	1	-	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	-	3	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	-	35.9	29.3	29.6	29.6
Magnesium (Mg)	mg/L	0.1	-	-	-	-	18.2	15.4	15.8	15.8
Potassium (K)	mg/L	2	-	-	-	-	2.4	2.1	2.4	2.3
Silicon (Si)	mg/L	0.05	-	-	-	-	1.94	1.34	1.05	1.05
Sodium (Na)	mg/L	2	-	-	-	-	3.9	3.2	3.5	3.5
Radionuclides			**GCDWQ MAC[s]**							
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	-	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	-	<0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	-	-	<0.02	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	-	<0.01	<0.01	<0.01	<0.01
Biota										
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	0.637	3.75	3.02
Pheopigments	µg/L	0.01	-	-				-	1.32	1.08

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{[0.86[Log(hardness)] - 3.2]}$
   Average hardness = 149 mg/L
   Cadmium Guideline = 0.047 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 149 mg/L
   Copper Guideline = 16 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 149 mg/L
   Lead Guideline = 136 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 149
   Manganese Guideline = 2.185 mg/L
   = 2185 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 149 mg/L
   Zinc Guideline = 77 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Replicate result where precision threshold (RPD > 25%) was exceeded

Table F2-4

Cressy Lake (FL-02) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	4	237	554	332	269	150	75	45	0	0	0
Hardness (as $CaCO_3$)	mg/L	4	137	165	149	148	14	7	9	0	0	0
pH	pH	4	7.78	8.15	7.95	7.94	0.15	0.07	2	0	0	0
Total Suspended Solids	mg/L	4	1.5	1.5	1.5	1.5	0.0	0.0	0	4	0	0
Total Dissolved Solids	mg/L	4	154	182	169	170	15	8	9	0	0	0
Turbidity	NTU	4	0.4	2.4	1.3	1.2	0.8	0.4	66	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	4	126	180	147	142	24	12	17	0	0	0
Ammonia as N	mg/L	3	0.02	0.13	0.06	0.04	0.06	0.03	92	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	4	0.7	0.8	0.7	0.7	0.1	0.0	12	0	0	0
Fluoride (F)	mg/L	4	0.88	1.14	1.02	1.03	0.12	0.06	12	0	0	0
Sulfate (SO_4)	mg/L	4	2.3	3.1	2.7	2.7	0.3	0.2	13	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	3	0.003	1.680	0.621	0.180	0.922	0.532	148	1	0	0
Nitrate (as N)	mg/L	2	0.003	0.180	0.091	0.091	0.126	0.089	138	1	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	4	0.51	6.82	2.14	0.61	3.12	1.56	146	0	0	0
Ortho Phosphate as P	mg/L	4	0.001	0.001	0.001	0.001	0.000	0.000	0	4	0	0
Total Phosphate as P	mg/L	4	0.006	0.170	0.050	0.012	0.080	0.040	160	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	16.2	16.2	16.2	16.2	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	3	14.80	15.60	15.20	15.20	0.57	0.33	4	0	0	0
Total Metals												
Aluminum (Al)	µg/L	4	2.0	12.0	5.1	3.2	4.7	2.3	92	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.95	1.42	1.11	1.04	0.21	0.10	19	0	0	0
Barium (Ba)	µg/L	4	20.6	25.8	22.8	22.5	2.2	1.1	10	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	16	20	18	18	2	1	10	0	0	0
Cadmium (Cd)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.45	1.64	0.93	0.82	0.51	0.26	55	1	0	0
Iron (Fe)	µg/L	4	51	92	62	52	20	10	33	0	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	7.8	9.2	8.4	8.2	0.7	0.3	8	0	0	0
Manganese (Mn)	µg/L	4	17.2	163.0	66.2	42.3	68.5	34.3	104	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	1.820	2.030	1.960	1.995	0.095	0.047	5	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Strontium (Sr)	µg/L	4	38.3	48.1	44.9	46.5	4.5	2.2	10	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.08	0.06	0.05	0.01	0.01	22	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	2.050	2.800	2.428	2.430	0.364	0.182	15	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	1.4	2.6	1.9	1.9	0.6	0.3	31	1	0	0
Calcium (Ca)	mg/L	4	26.4	33.7	30.5	30.9	3.7	1.8	12	0	0	0
Magnesium (Mg)	mg/L	4	14.9	17.7	16.5	16.8	1.4	0.7	8	0	0	0
Potassium (K)	mg/L	4	1.0	2.5	2.0	2.3	0.7	0.3	34	1	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Silicon (Si)	mg/L	4	1.08	2.07	1.58	1.59	0.47	0.23	30	0	0	0
Sodium (Na)	mg/L	4	3.1	4.0	3.6	3.7	0.4	0.2	10	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	3	0.5	5.9	2.4	0.9	3.0	1.7	124	2	0	0
Antimony (Sb)	µg/L	3	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Arsenic (As)	µg/L	3	1.04	1.18	1.13	1.17	0.08	0.05	7	0	0	0
Barium (Ba)	µg/L	3	19.2	23.0	20.5	19.2	2.2	1.3	11	0	0	0
Beryllium (Be)	µg/L	3	0.25	0.25	0.25	0.25	0.00	0.00	0	3	0	0
Bismuth (Bi)	µg/L	3	0.25	0.25	0.25	0.25	0.00	0.00	0	3	0	0
Boron (B)	µg/L	3	15	18	17	17	1	1	8	0	0	0
Cadmium (Cd)	µg/L	3	0.025	0.025	0.025	0.025	0.000	0.000	0	3	0	0
Chromium (Cr)	µg/L	3	0.25	0.25	0.25	0.25	0.00	0.00	0	3	0	0
Cobalt (Co)	µg/L	3	0.05	0.05	0.05	0.05	0.00	0.00	0	2	0	0
Copper (Cu)	µg/L	3	0.36	1.16	0.65	0.44	0.44	0.25	67	0	0	0
Iron (Fe)	µg/L	3	15	15	15	15	0	0	0	3	0	0
Lead (Pb)	µg/L	3	0.025	0.025	0.025	0.025	0.000	0.000	0	3	0	0
Lithium (Li)	µg/L	3	7.1	8.4	7.6	7.3	0.7	0.4	9	0	0	0
Manganese (Mn)	µg/L	3	0.814	10.700	4.905	3.200	5.159	2.979	105	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	3	1.590	1.890	1.693	1.600	0.170	0.098	10	0	0	0
Nickel (Ni)	µg/L	3	0.25	0.25	0.25	0.25	0.00	0.00	0	3	0	0
Phosphorus (P)	µg/L	3	150	150	150	150	0	0	0	3	0	0
Selenium (Se)	µg/L	3	0.5	0.5	0.5	0.5	0.0	0.0	0	3	0	0
Silver (Ag)	µg/L	3	0.01	0.01	0.01	0.01	0.00	0.00	0	3	0	0
Strontium (Sr)	µg/L	3	35.1	45.0	39.8	39.3	5.0	2.9	12	0	0	0
Thallium (Tl)	µg/L	3	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Tin (Sn)	µg/L	3	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Titanium (Ti)	µg/L	3	5	5	5	5	0	0	0	3	0	0
Uranium (U)	µg/L	3	1.805	2.670	2.132	1.920	0.470	0.271	22	0	0	0
Vanadium (V)	µg/L	3	0.5	0.5	0.5	0.5	0.0	0.0	0	3	0	0
Zinc (Zn)	µg/L	3	0.5	3.0	1.3	0.5	1.4	0.8	108	2	0	0
Calcium (Ca)	mg/L	3	29.3	35.9	31.6	29.6	3.7	2.2	12	0	0	0
Magnesium (Mg)	mg/L	3	15.4	18.2	16.5	15.8	1.5	0.9	9	0	0	0
Potassium (K)	mg/L	3	2.1	2.4	2.3	2.4	0.2	0.1	7	0	0	0
Silicon (Si)	mg/L	3	1.05	1.94	1.44	1.34	0.45	0.26	31	0	0	0
Sodium (Na)	mg/L	3	3.2	3.9	3.5	3.5	0.4	0.2	10	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	3	0.01	0.01	0.01	0.01	0.00	0.00	0	3	0	0
Radium-226 (^{226}Ra)	Bq/L	3	0.003	0.003	0.003	0.003	0.000	0.000	0	3	0	0
Radium-228 (^{228}Ra)	Bq/L	3	0.01	0.01	0.01	0.01	0.00	0.00	0	3	0	0
Thorium-230 (^{230}Th)	Bq/L	3	0.005	0.005	0.005	0.005	0.000	0.000	0	3	0	0
Thorium-232 (^{232}Th)	Bq/L	3	0.005	0.005	0.005	0.005	0.000	0.000	0	3	0	0
Biota												
Chlorophyll *a*	µg/L	2	0.637	3.385	2.011	2.011	1.943	1.374	97			
Pheopigments	µg/L	1	1.2	1.2	1.2	1.20	-	-	-			

Table F3-5

Lake A (FL-03) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008 4-Oct-08		March 2009	June 2009	September 2009
					21-Mar-08	FL-03	Replicate	16-Mar-09	27-Jun-09	23-Sep-09
Physicals										
Conductivity	µS/cm	0.5	-	-	329	303	305	324	257	293
Hardness (as $CaCO_3$)	mg/L	2	-	-	168	171	170	180	139	143
pH	pH	0.01	-	-	8.01	8.17	8.20	8.05	7.85	8.28
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	197	188	188	201	168	168
Turbidity	NTU	0.1	-	-	0.44	0.91	0.96	0.66	1.23	0.70
Anions										
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	167	158	163	193	139	151
Ammonia as N	mg/L	0.02	-	-	-	0.022	<0.020	<0.02	<0.020	0.033
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	-	<0.05	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	4.99	4.71	4.73	5.47	3.92	4.40
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.10	1.04	1.04	1.10	0.859	0.972
Sulfate (SO_4)	mg/L	0.5	-	100	0.95	0.83	0.83	1.16	0.82	0.72
Nutrients										
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0559	0.0097	0.0104	0.0658	<0.0050	<0.0050
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0087	0.0092	0.0658	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.001	0.0012	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.597	0.646	0.588	0.442	0.544	0.563
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0062	0.0068	0.0069	0.0059	0.0063	0.0045
Organics										
Total Organic Carbon (TOC)	mg/L	0.5	-	-	15.2	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	16.2	15.9	15.7	14.7	14.5
Total Metals										
Aluminum (Al)	µg/L	**[f]	100[g]	-	3.5	6.8	7.3	<9	22	14
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	1.15	1.26	1.34	1.03	0.87	0.93
Barium (Ba)	µg/L	0.05	-	5000	57.6	48.7	49.6	53	39.6	54.3
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	17	18	19	20	21	22
Cadmium (Cd)	µg/L	**	0.050[i]	0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	**	8.9	8.9	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	17[k]	1.21	1.02	1.02	<1.1	0.71	<0.7
Iron (Fe)	µg/L	30	300	1000	38	62	60	132	122	36
Lead (Pb)	µg/L	0.05	1 - 7[l]	149[m]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	5.1	5.1	5.2	6.1	<5	<5
Manganese (Mn)	µg/L	0.05	-	2305[n]	5.91	46.6	47.4	17.1	7.19	4.84
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.87	1.73	1.82	1.75	1.7	1.68
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01	0.024
Strontium (Sr)	µg/L	0.1	-	-	60	53.3	54.3	58.9	42.4	54.9
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.543	0.529	0.537	0.615	0.483	0.417
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	30	86[q]	<1	<1	<1	1	2.6	<1
Calcium (Ca)	mg/L	0.05	-	-	35.3	37	36.3	36.5	28.5	32.8
Magnesium (Mg)	mg/L	0.1	-	-	19.4	19.4	19.4	20.3	14.9	17.3
Potassium (K)	mg/L	2	-	-	2	2.1	2.2	<2.0	<2.0	<2.0

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008 4-Oct-08		March 2009	June 2009	September 2009
					21-Mar-08	FL-03	Replicate	16-Mar-09	27-Jun-09	23-Sep-09
Silicon (Si)	mg/L	0.05	-	-	2.96	3.19	3.18	3.46	2.47	2.7
Sodium (Na)	mg/L	2	-	-	7.5	7.1	7.3	6.5	5.4	6
Dissolved Metals										
Aluminum (Al)	µg/L	1	-	100[r]	-	2.4	1.2	2.1	9.2	1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1	0.38
Arsenic (As)	µg/L	0.1	-	-	-	1.25	1.19	0.91	0.98	0.82
Barium (Ba)	µg/L	0.05	-	-	-	48.3	47.7	51.3	39.3	46.1
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	18	18	19	18	19
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.05	0.022
Chromium (Cr)	µg/L	**	-	-	-	<1	<1	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.74	0.86	0.68	0.63	0.88
Iron (Fe)	µg/L	30	-	350	-	<30	<30	91	75	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	0.481
Lithium (Li)	µg/L	5	-	-	-	5	<5	6	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	4.13	4.04	6.40	2.32	1.36
Mercury (Hg)	µg/L	**	-	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	1.82	1.78	1.71	1.67	1.57
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	1.43	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	53.0	53.1	57.5	41.7	48.5
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1	0.5
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.550	0.553	0.590	0.464	0.355
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	1.7	4.4	<1	1.7	3.3
Calcium (Ca)	mg/L	0.05	-	-	-	36.9	35.8	38	30	30.7
Magnesium (Mg)	mg/L	0.1	-	-	-	19.1	19.4	20.7	15.6	16.1
Potassium (K)	mg/L	2	-	-	-	2.1	2.2	<2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	3.13	3.13	3.56	2.55	2.5
Sodium (Na)	mg/L	2	-	-	-	7	7.3	6.5	5.5	5.8
Radionuclides				GCDWQ MAC[s]						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	<0.005	0.007	<0.005	0.006	<0.005
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	<0.02	<0.04	N/R	<0.02	<0.02	<0.01
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota										
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	0.908	1.91
Pheopigments	µg/L	0.01	-	-	-	-	-	-		0.498

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{[0.86[\text{Log(hardness)}] - 3.2]}$

Average hardness = 160 mg/L
Cadmium Guideline = 0.050 µg/L

j. CCME FAL Total Copper guideline:
2 µg/L when [CaCO3] is 0 - 120 mg/L
3 µg/L when [CaCO3] is 120 - 180 mg/L
4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness = 160 mg/L
Copper Guideline = 17 µg/L

l. CCME FAL Total Lead guideline:
1 µg/L when [CaCO3] is 0 - 60 mg/L
4 µg/L when [CaCO3] is 120 - 180 mg/L
7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
= e(1.273 x [ln(hardness)] - 1.460)

Average hardness = 160 mg/L
Lead Guideline = 149 µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness = 160
Manganese Guideline = 2.305 mg/L
= 2305 µg/L

o. CCME FAL Total Nickel guideline:
25 µg/L when [CaCO3] is 0 - 60 mg/L
110 µg/L when [CaCO3] is 120 - 180 mg/L
150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:
0.1 µg/L when [CaCO3] is ≤ 100 mg/L
3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness = 160 mg/L
Zinc Guideline = 86 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

Table F2-5

Lake A (FL-03) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	257	329	301	304	29	13	10	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	139	180	160	168	18	8	11	0	0	0
pH	pH	5	7.85	8.28	8.08	8.05	0.17	0.07	2	0	0	0
Total Suspended Solids	mg/L	5	1.5	1.5	1.5	1.5	0.0	0.0	0	5	0	0
Total Dissolved Solids	mg/L	5	168	201	184	188	16	7	9	0	0	0
Turbidity	NTU	5	0.4	1.2	0.8	0.7	0.3	0.1	38	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	139	193	162	161	20	9	12	0	0	0
Ammonia as N	mg/L	4	0.01	0.03	0.02	0.01	0.01	0.01	63	3	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	3.9	5.5	4.7	4.7	0.6	0.3	12	0	0	0
Fluoride (F)	mg/L	5	0.86	1.10	1.01	1.04	0.10	0.05	10	0	0	0
Sulfate (SO_4)	mg/L	5	0.7	1.2	0.9	0.8	0.2	0.1	19	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.066	0.027	0.010	0.031	0.014	113	2	0	0
Nitrate (as N)	mg/L	2	0.009	0.066	0.037	0.037	0.040	0.028	108	0	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	53	1	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.44	0.62	0.55	0.56	0.07	0.03	12	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	0	5	0	0
Total Phosphate as P	mg/L	5	0.005	0.007	0.006	0.006	0.001	0.000	15	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	15.2	15.2	15.2	15.2	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	14.50	16.05	15.24	15.20	0.75	0.38	5	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	3.5	22.0	10.2	7.1	7.8	3.5	76	1	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.87	1.30	1.06	1.03	0.17	0.08	16	0	0	0
Barium (Ba)	µg/L	5	39.6	57.6	50.7	53.0	6.9	3.1	14	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	17	22	20	20	2	1	10	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.38	0.28	0.25	0.06	0.03	20	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.35	1.21	0.77	0.71	0.35	0.16	45	2	0	0
Iron (Fe)	µg/L	5	36	132	78	61	46	21	59	0	0	0
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	6.1	4.3	5.1	1.7	0.7	39	2	0	0
Manganese (Mn)	µg/L	5	4.8	47.0	16.4	7.2	17.8	8.0	108	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	1.680	1.870	1.755	1.750	0.075	0.033	4	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.024	0.009	0.005	0.008	0.004	97	4	0	0
Strontium (Sr)	µg/L	5	42.4	60.0	54.0	54.9	7.0	3.1	13	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.417	0.615	0.518	0.533	0.074	0.033	14	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	2.6	1.0	0.5	0.9	0.4	89	3	0	0
Calcium (Ca)	mg/L	5	28.5	36.7	34.0	35.3	3.4	1.5	10	0	0	0
Magnesium (Mg)	mg/L	5	14.9	20.3	18.3	19.4	2.2	1.0	12	0	0	0
Potassium (K)	mg/L	5	1.0	2.2	1.4	1.0	0.6	0.3	41	3	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Silicon (Si)	mg/L	5	2.47	3.46	2.96	2.96	0.39	0.17	13	0	0	0
Sodium (Na)	mg/L	5	5.4	7.5	6.5	6.5	0.9	0.4	13	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	1.0	9.2	3.5	2.0	3.8	1.9	108	0	0	0
Antimony (Sb)	µg/L	4	0.05	0.38	0.13	0.05	0.17	0.08	125	3	0	0
Arsenic (As)	µg/L	4	0.82	1.22	0.98	0.95	0.17	0.09	17	0	0	0
Barium (Ba)	µg/L	4	39.3	51.3	46.2	47.1	5.1	2.5	11	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	18	19	19	19	1	0	3	0	0	0
Cadmium (Cd)	µg/L	4	0.022	0.025	0.024	0.025	0.002	0.001	6	3	0	0
Chromium (Cr)	µg/L	4	0.25	0.50	0.31	0.25	0.13	0.06	40	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Copper (Cu)	µg/L	4	0.63	0.88	0.75	0.74	0.11	0.06	15	0	0	0
Iron (Fe)	µg/L	4	15	91	49	45	40	20	81	2	0	0
Lead (Pb)	µg/L	4	0.025	0.481	0.139	0.025	0.228	0.114	164	3	0	0
Lithium (Li)	µg/L	4	2.5	6.0	3.7	3.1	1.7	0.8	45	2	0	0
Manganese (Mn)	µg/L	4	1.360	6.400	3.541	3.203	2.215	1.107	63	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	1.570	1.800	1.688	1.690	0.095	0.048	6	0	0	0
Nickel (Ni)	µg/L	4	0.25	1.43	0.55	0.25	0.59	0.30	108	2	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	41.7	57.5	50.2	50.8	6.7	3.4	13	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.50	0.16	0.05	0.23	0.11	138	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.355	0.590	0.490	0.508	0.104	0.052	21	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	3.3	2.1	2.4	1.3	0.6	61	1	0	0
Calcium (Ca)	mg/L	4	30.0	38.0	33.8	33.5	4.0	2.0	12	0	0	0
Magnesium (Mg)	mg/L	4	15.6	20.7	17.9	17.7	2.5	1.2	14	0	0	0
Potassium (K)	mg/L	4	1.0	2.2	1.3	1.0	0.6	0.3	45	3	0	0
Silicon (Si)	mg/L	4	2.50	3.56	2.94	2.84	0.51	0.25	17	0	0	0
Sodium (Na)	mg/L	4	5.5	7.2	6.2	6.2	0.7	0.4	12	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	0	5	0	0
Radium-226 (^{226}Ra)	Bq/L	5	0.003	0.006	0.004	0.003	0.002	0.001	45	3	0	0
Radium-228 (^{228}Ra)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	29	5	0	0
Thorium-230 (^{230}Th)	Bq/L	5	0.005	0.020	0.008	0.005	0.007	0.003	84	4	0	0
Thorium-232 (^{232}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Biota												
Chlorophyll *a*	µg/L	0	0.908	1.910	1.409	1.409	0.709	7.085	50			
Pheopigments	µg/L	0	0.498	0.498	0.498	0.498	-	-	-			

Table F3-6

Great Slave Lake Dock Site (GL-01) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	October 2008	March 2009	June 2009		September 2009
					2-Oct-08	16-Mar-09	28-Jun-09 GL-01	28-Jun-09 Replicate	30-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	193	207	171	170	190
Hardness (as $CaCO_3$)	mg/L	2	-	-	87.8	96.7	74.3	74.4	83.6
pH	pH	0.01	-	-	8.09	8.00	7.77	7.74	8.17
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	109	125	99	95	107
Turbidity	NTU	0.1	-	-	0.53	0.97	0.48	0.49	0.48
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	73.8	91.1	61.4	60.8	68.7
Ammonia as N	mg/L	0.02	-	-	<0.020	<0.020	<0.020	<0.020	0.021
Bromide (Br)	mg/L	0.05	-	-	-	<0.05	<0.050	<0.050	<0.05
Chloride (Cl)	mg/L	0.5	-	600	6.09	6.90	5.34	5.31	6.02
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.065	0.072	0.049	0.049	0.064
Sulfate (SO_4)	mg/L	0.5	-	100	18.5	20.3	16.1	16.0	17.5
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0836	0.114	0.0752	0.0755	-
Nitrate (as N)	mg/L	0.005	2.9	31.3	0.0836	0.114	-	-	0.0769
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	<0.0010	<0.0010	-	-	<0.001
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.168	0.103	0.236	0.152	0.167
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	0.0015	<0.0010	<0.0010	<0.001
Total Phosphate as P	mg/L	0.002	-	-	0.0049	0.0036	0.0029	0.0028	0.0043
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	4.58	4.08	3.87	3.80	4.31
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	13.7	26.8	10.1	<8	11
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	0.19	0.12	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.31	0.29	0.25	0.22	0.25
Barium (Ba)	µg/L	0.05	-	5000	37.7	39.4	33.3	32	38
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	12	14	14	14	20
Cadmium (Cd)	µg/L	**	0.029[i]	0.029	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	10[k]	1.71	1.22	1.29	1.09	1.04
Iron (Fe)	µg/L	30	300	1000	<30	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	1 - 7[l]	67[m]	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	1484[n]	0.519	0.452	0.37	0.339	0.388
Mercury (Hg)	µg/L	**	0.026	0.1	-	<0.05	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.627	0.694	0.635	0.62	0.655
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	0.8	0.93	0.93	0.81	0.86
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	101	104	87.1	84	108
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.36	0.404	0.366	0.345	0.347
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	October 2008	March 2009	June 2009 28-Jun-09		September 2009
					2-Oct-08	16-Mar-09	GL-01	Replicate	30-Sep-09
Zinc (Zn)	µg/L	**	30	30[q]	<1	<1	<4	<3	<1
Calcium (Ca)	mg/L	0.05	-	-	25.8	28.2	20.4	20.3	21.9
Magnesium (Mg)	mg/L	0.1	-	-	5.92	6.34	4.84	4.75	5.56
Potassium (K)	mg/L	2	-	-	<2	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.4	1.57	1.12	1.12	1.25
Sodium (Na)	mg/L	2	-	-	6.8	6.5	5.6	5.5	6.7
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	1.4	3.6	1.1	<1	<1
Antimony (Sb)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	0.1
Arsenic (As)	µg/L	0.1	-	-	0.29	0.28	0.31	0.25	0.28
Barium (Ba)	µg/L	0.05	-	-	36.5	39.6	31.9	31.5	36.7
Beryllium (Be)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	12	13	11	11	14
Cadmium (Cd)	µg/L	**	-	-	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	1.54	1.13	0.93	0.87	0.96
Iron (Fe)	µg/L	30	-	350	<30	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	0.152	0.61	0.095	0.082	0.123
Mercury (Hg)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	0.619	0.699	0.603	0.57	0.594
Nickel (Ni)	µg/L	0.5	-	-	0.77	0.91	1	0.69	0.79
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	99	104	81	81.5	105
Thallium (Tl)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	0.374	0.394	0.349	0.346	0.332
Vanadium (V)	µg/L	1	-	-	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	2.2	1.2	1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	25.5	28.3	21.5	21.5	23.6
Magnesium (Mg)	mg/L	0.1	-	-	5.88	6.33	5.01	5.04	6
Potassium (K)	mg/L	2	-	-	<2	<2	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.35	1.5	1.17	1.18	1.34
Sodium (Na)	mg/L	2	-	-	7.1	6.5	5.7	5.7	7.1
Radionuclides			GCDWQ MAC[s]						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	0.006	<0.005	0.006	0.007	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	<0.09	<0.02	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	1.05	1.01	1.08
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.23

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 86 mg/L
   Cadmium Guideline = 0.029 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 86 mg/L
   Copper Guideline = 10 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 86 mg/L
   Lead Guideline = 67 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 86
   Manganese Guideline = 1.484 mg/L
   = 1484 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 86 mg/L
   Zinc Guideline = 30 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-6

Great Slave Lake Dock Site (GL-01) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	4	171	207	190	192	15	8	8	0	0	0
Hardness (as $CaCO_3$)	mg/L	4	74	97	86	86	9	5	11	0	0	0
pH	pH	4	7.76	8.17	8.00	8.05	0.18	0.09	2	0	0	0
Total Suspended Solids	mg/L	4	1.5	1.5	1.5	1.5	0.0	0.0	0	4	0	0
Total Dissolved Solids	mg/L	4	97	125	110	108	12	6	11	0	0	0
Turbidity	NTU	4	0.5	1.0	0.6	0.5	0.2	0.1	38	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	4	61	91	74	71	13	6	17	0	0	0
Ammonia as N	mg/L	4	0.01	0.02	0.01	0.01	0.01	0.00	43	3	0	0
Bromide (Br)	mg/L	3	0.03	0.03	0.03	0.03	0.00	0.00	0	3	0	0
Chloride (Cl)	mg/L	4	5.3	6.9	6.1	6.1	0.6	0.3	11	0	0	0
Fluoride (F)	mg/L	4	0.05	0.07	0.06	0.06	0.01	0.00	15	0	0	0
Sulfate (SO_4)	mg/L	4	16.1	20.3	18.1	18.0	1.8	0.9	10	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	3	0.075	0.114	0.091	0.084	0.020	0.012	22	0	0	0
Nitrate (as N)	mg/L	3	0.077	0.114	0.092	0.084	0.020	0.011	22	0	0	0
Nitrite (as N)	mg/L	3	0.001	0.001	0.001	0.001	0.000	0.000	0	3	0	0
Total Kjeldahl Nitrogen	mg/L	4	0.10	0.19	0.16	0.17	0.04	0.02	25	0	0	0
Ortho Phosphate as P	mg/L	4	0.001	0.002	0.001	0.001	0.001	0.000	67	3	0	0
Total Phosphate as P	mg/L	4	0.003	0.005	0.004	0.004	0.001	0.000	23	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	0	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	4	3.84	4.58	4.20	4.20	0.32	0.16	8	0	0	0
Total Metals												
Aluminum (Al)	µg/L	4	7.1	26.8	14.6	12.4	8.6	4.3	58	1	0	0
Antimony (Sb)	µg/L	4	0.05	0.16	0.08	0.05	0.05	0.03	69	3	0	0
Arsenic (As)	µg/L	4	0.24	0.31	0.27	0.27	0.03	0.02	13	0	0	0
Barium (Ba)	µg/L	4	32.7	39.4	36.9	37.9	3.0	1.5	8	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	12	20	15	14	3	2	23	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	1.04	1.71	1.29	1.21	0.29	0.15	23	0	0	0
Iron (Fe)	µg/L	4	15	15	15	15	0	0	0	4	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.4	0.5	0.4	0.4	0.1	0.0	17	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.627	0.694	0.651	0.641	0.032	0.016	5	0	0	0
Nickel (Ni)	µg/L	4	0.80	0.93	0.87	0.87	0.05	0.03	6	0	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Strontium (Sr)	µg/L	4	85.6	108.0	99.6	102.5	9.8	4.9	10	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.347	0.404	0.367	0.358	0.025	0.013	7	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Zinc (Zn)	µg/L	4	0.5	1.8	0.8	0.5	0.6	0.3	77	4	0	0
Calcium (Ca)	mg/L	4	20.4	28.2	24.1	23.9	3.6	1.8	15	0	0	0
Magnesium (Mg)	mg/L	4	4.8	6.3	5.7	5.7	0.7	0.3	12	0	0	0
Potassium (K)	mg/L	4	1.0	1.0	1.0	1.0	0.0	0.0	0	4	0	0
Silicon (Si)	mg/L	4	1.12	1.57	1.34	1.33	0.19	0.10	15	0	0	0
Sodium (Na)	mg/L	4	5.6	6.8	6.4	6.6	0.6	0.3	9	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	0.5	3.6	1.6	1.1	1.4	0.7	89	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.10	0.06	0.05	0.03	0.01	40	3	0	0
Arsenic (As)	µg/L	4	0.28	0.29	0.28	0.28	0.01	0.00	2	0	0	0
Barium (Ba)	µg/L	4	31.7	39.6	36.1	36.6	3.3	1.6	9	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	11	14	13	13	1	1	10	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Copper (Cu)	µg/L	4	0.90	1.54	1.13	1.05	0.29	0.14	25	0	0	0
Iron (Fe)	µg/L	4	15	15	15	15	0	0	0	4	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.089	0.610	0.243	0.138	0.246	0.123	101	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.587	0.699	0.625	0.607	0.051	0.026	8	0	0	0
Nickel (Ni)	µg/L	4	0.77	1.03	0.87	0.85	0.12	0.06	14	0	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	81.3	105.0	97.3	101.5	11.0	5.5	11	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.332	0.394	0.362	0.361	0.028	0.014	8	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	2.2	1.2	1.0	0.7	0.4	65	2	0	0
Calcium (Ca)	mg/L	4	21.5	28.3	24.7	24.6	2.9	1.4	12	0	0	0
Magnesium (Mg)	mg/L	4	5.0	6.3	5.8	5.9	0.6	0.3	10	0	0	0
Potassium (K)	mg/L	4	1.0	1.0	1.0	1.0	0.0	0.0	0	4	0	0
Silicon (Si)	mg/L	4	1.18	1.50	1.34	1.35	0.13	0.07	10	0	0	0
Sodium (Na)	mg/L	4	5.7	7.1	6.6	6.8	0.7	0.3	10	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.007	0.004	0.004	0.002	0.001	50	2	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.05	0.02	0.01	0.02	0.01	93	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	2	1.030	1.080	1.043	1.055	0.035	0.025	3			
Pheopigments	µg/L	1	0.23	0.23	0.23	0.23	-	-	-			

Table F3-7

Long Lake (LL-01 & LL-02) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008		March 2009	June 2009	September 2009	April 2010	June 2010	September 2010		October 2010
					19-Mar-08		6-Oct-08		15-Mar-09	25-Jun-09	13-Sep-09	14-Apr-10	9-Jun-10	2-Sep-10		5-Oct-10
					LL-01	Replicate	LL-01	LL-02	LL-02	LL-02	LL-02	LL-02	LL-02	LL-02	Replicate	LL-02
Physicals																
Conductivity	µS/cm	0.5	-	-	294	297	275	275	291	260	275	297	266	265	266	271
Hardness (as $CaCO_3$)	mg/L	2	-	-	157	156	150	147	162	143	150	157	147	156	154	151
pH	pH	0.01	-	-	8.09	8.14	8.33	8.34	8.03	7.76	8.43	8.09	7.99	8.33	8.33	8.25
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	174	173	166	148	180	156	160	184	165	173	164	159
Turbidity	NTU	0.1	-	-	0.46	0.49	2.01	1.97	0.63	1.02	1.10	0.47	1.59	0.70	0.65	1.48
Anions																
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	160	154	146	149	175	138	139	162	139	141	142	149
Ammonia as N	mg/L	0.02	-	-	-	-	<0.020	<0.020	<0.020	<0.020	0.025	0.043	<0.020	<0.0050	0.0077	0.0056
Bromide (Br)	mg/L	0.05	-	-	<0.05	<0.05	-	-	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	3.75	3.75	3.56	3.56	4.08	3.27	3.57	4.01	3.21	3.44	3.45	3.60
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.20	1.20	1.16	1.15	1.23	1.03	1.13	1.22	1.06	1.10	1.11	1.21
Sulfate (SO_4)	mg/L	0.5	-	100	1.45	1.45	1.26	1.26	1.50	1.18	1.30	1.53	1.15	1.56	1.22	1.20
Nutrients																
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0693	0.0689	<0.0050	<0.0050	0.121	<0.0050	<0.0050	0.125	<0.0050	-	-	<0.0051
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	-	<0.0050	<0.0050	0.121	-	-	0.125	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	-	<0.0010	<0.0010	<0.0010	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.490	0.475	0.537	0.555	0.454	0.559	0.444	0.470	1.070	1.17	1.06	0.576
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0077	0.0069	0.0125	0.0122	0.006	0.0088	0.0053	0.0075	0.013	0.0063	0.0067	0.0089
Organics																
Total Organic Carbon (TOC)	mg/L	0.5	-	-	13.1	13.3	-	-	-	-	-	-	-	-		-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-		13	13	11.4	13.0	12.7	12.7	12.2	13.1	12.7	13.1
Total Metals																
Aluminum (Al)	µg/L	**[f]	100[g]	-	<1.0	<1.0	9.9	5.6	8.8	<9.0	20.1	2.6	<9.0	6.2	5.6	3.2
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.68	0.68	0.58	0.60	0.57	0.57	0.54	0.53	0.48	0.59	0.56	0.57
Barium (Ba)	µg/L	0.05	-	5000	54.1	55.0	49.5	52.0	54.2	44.0	49.2	58.6	53.1	53.4	54.5	55.3
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	24	24	23	28	24	23	26	30	26	28	29	25
Cadmium (Cd)	µg/L	**	0.047[i]	0.047	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.018	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	16[k]	0.78	0.87	0.61	0.78	<0.5	0.89	<0.7	0.40	0.82	<0.5	<0.5	0.54
Iron (Fe)	µg/L	30	300	1000	<30	<30	116	125	<30	<30	<30	<30	61	<30	<30	34
Lead (Pb)	µg/L	0.05	1 - 7[l]	139[m]	<0.05	<0.05	<0.05	<0.05	<0.05	0.058	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5.0	<5.0	5.2	6.2	5.4	<5.0	<5.0	5.8	5.0	<5	5.3	5.1
Manganese (Mn)	µg/L	**	-	2210[n]	9.29	8.92	66.20	74.30	13.70	16.40	17.50	17.20	28.30	17.2	17.2	38.4
Mercury (Hg)	µg/L	0.05	0.026	0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	4.35	4.33	5.46	5.02	4.71	4.44	4.64	4.58	3.74	4.87	5.03	4.49
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	57.7	56.8	51.4	53.2	56.9	46.4	49.6	62.7	52.9	58	58.6	56.3
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.950	0.920	0.953	0.967	1.120	1.070	0.921	1.060	0.962	0.99	1.01	0.973
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	79[q]	<1	<1	3.7	<1	1.3	<2	1	<1	<1	<1	1.2	<3
Calcium (Ca)	mg/L	0.05	-	-	32.5	32.5	30.4	30.9	32.4	29.5	31.1	31.9	31	31.5	31.5	30.6
Magnesium (Mg)	mg/L	0.1	-	-	18.3	18.1	16.5	16.7	17.7	16.4	16.1	18.4	15.7	17.1	17.2	16.7
Potassium (K)	mg/L	2	-	-	<2.0	<2.0	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	2.62	2.62	2.39	2.43	2.79	2.26	2.02	2.79	2.23	2.07	2.09	2.21
Sodium (Na)	mg/L	2	-	-	6.4	6.3	5.9	6.0	6.0	5.4	5.6	6.3	5.1	5.4	5.4	5.5

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008		March 2009	June 2009	September 2009	April 2010	June 2010	September 2010		October 2010
					19-Mar-08		6-Oct-08		15-Mar-09	25-Jun-09	13-Sep-09	14-Apr-10	9-Jun-10	2-Sep-10		5-Oct-10
					LL-01	Replicate	LL-01	LL-02	LL-02	LL-02	LL-02	LL-02	LL-02	LL-02	Replicate	LL-02
Physicals																
Dissolved Metals																
Aluminum (Al)	µg/L	1	-	100[r]	-	-	<1	<1	1	3.2	<1	<1	2.6	3.3	1.6	<3
Antimony (Sb)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	-	0.60	0.62	0.57	0.66	0.58	0.53	0.58	0.67	0.65	0.73
Barium (Ba)	µg/L	0.05	-	-	-	-	44	45.6	52.6	40.8	47	57.1	49.1	50.5	50.7	54
Beryllium (Be)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	-	27	26	24	21	23	25	23	23	24	23
Cadmium (Cd)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.017	0.214	0.167	<0.017
Chromium (Cr)	µg/L	**	-	-	-	-	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6
Cobalt (Co)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	-	0.47	0.44	0.34	0.43	0.36	0.35	0.47	0.38	0.33	7.16
Iron (Fe)	µg/L	30	-	350	-	-	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.379
Lithium (Li)	µg/L	5	-	-	-	-	5.1	<5	5.6	<5	<5	5.5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	-	0.173	0.163	0.659	2.790	0.456	0.271	0.446	0.327	0.252	0.738
Mercury (Hg)	µg/L	**	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	-	4.24	4.33	4.65	3.95	4.40	4.34	3.59	4.28	4.31	4.39
Nickel (Ni)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	-	46.4	47.4	55.9	42.5	48.5	59.5	51	54.3	54	55.4
Thallium (Tl)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	-	0.822	0.854	1.070	0.929	0.877	1.030	0.809	0.869	0.869	0.900
Vanadium (V)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	-	1	<1	2.4	<1	<1	<1	<1	1.7	1.8	<3
Calcium (Ca)	mg/L	0.05	-	-	-	-	31.7	31.0	34.5	29.9	32.5	32.4	32.0	33.2	32.6	31.7
Magnesium (Mg)	mg/L	0.1	-	-	-	-	17.2	16.9	18.5	16.6	16.8	18.6	16.4	17.6	17.5	17.4
Potassium (K)	mg/L	2	-	-	-	-	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	-	2.47	2.44	2.93	2.28	2.10	2.85	2.30	2.13	2.13	2.3
Sodium (Na)	mg/L	2	-	-	-	-	5.9	6.0	6.2	5.4	5.9	6.3	5.3	5.5	5.5	5.7
Radionuclides			**GCDWQ MAC[s]**													
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	0.01	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	0.08	-	-	<0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.01	<0.01	<0.01
Biota																
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	-	0.816	2.07	-	2.33	0.708	0.285	-
Pheopigments	µg/L	0.01	-	-	-	-	-	-	-	-	1.07	-	0.57	0.196	0.044	-

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 152 mg/L
   Cadmium Guideline = 0.047 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 152 mg/L
   Copper Guideline = 16 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 152 mg/L
   Lead Guideline = 139 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 152 mg/L
   Manganese Guideline = 2.210 mg/L
   = 2210 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 152 mg/L
   Zinc Guideline = 79 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Data outlier, excluded from summary statistics

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008		March 2009	June 2009	September 2009	April 2010	June 2010	September 2010		October 2010
					19-Mar-08		6-Oct-08		15-Mar-09	25-Jun-09	13-Sep-09	14-Apr-10	9-Jun-10	2-Sep-10		5-Oct-10
					LL-01	Replicate	LL-01	LL-02	LL-02	LL-02	LL-02	LL-02	LL-02	LL-02	Replicate	LL-02
Physicals																

Table F2-7

Long Lake - 1 (LL-01) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	2	275	296	285	285	14	10	5	0	0	0
Hardness (as $CaCO_3$)	mg/L	2	150	157	153	153	5	3	3	0	0	0
pH	pH	2	8.12	8.33	8.22	8.22	0.15	0.11	2	0	0	0
Total Suspended Solids	mg/L	2	1.5	1.5	1.5	1.5	0.0	0.0	0	2	0	0
Total Dissolved Solids	mg/L	2	166	174	170	170	5	4	3	0	0	0
Turbidity	NTU	2	0.5	2.0	1.2	1.2	1.1	0.8	87	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	2	146	157	152	152	8	6	5	0	0	0
Ammonia as N	mg/L	1	0.01	0.01	0.01	0.01	-	-	-	1	0	0
Bromide (Br)	mg/L	1	0.03	0.03	0.03	0.03	-	-	-	1	0	0
Chloride (Cl)	mg/L	2	3.6	3.8	3.7	3.7	0.1	0.1	4	0	0	0
Fluoride (F)	mg/L	2	1.16	1.20	1.18	1.18	0.03	0.02	2	0	0	0
Sulfate (SO_4)	mg/L	2	1.3	1.5	1.4	1.4	0.1	0.1	10	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	2	0.003	0.069	0.036	0.036	0.047	0.033	132	1	0	0
Nitrate (as N)	mg/L	1	0.003	0.003	0.003	0.003	-	-	-	1	0	0
Nitrite (as N)	mg/L	1	0.001	0.001	0.001	0.001	-	-	-	1	0	0
Total Kjeldahl Nitrogen	mg/L	2	0.48	0.54	0.51	0.51	0.04	0.03	8	0	0	0
Ortho Phosphate as P	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	0	1	0	0
Total Phosphate as P	mg/L	2	0.007	0.013	0.010	0.010	0.004	0.003	37	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	13.2	13.2	13.2	13.2	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	0	13.00	13.00	13.00	13.00	-	-	-	0	0	0
Total Metals												
Aluminum (Al)	µg/L	2	0.5	9.9	5.2	5.2	6.6	4.7	128	1	0	0
Antimony (Sb)	µg/L	2	0.05	0.05	0.05	0.05	0.00	0.00	0	2	0	0
Arsenic (As)	µg/L	2	0.58	0.68	0.63	0.63	0.07	0.05	11	0	0	0
Barium (Ba)	µg/L	2	49.5	54.6	52.0	52.0	3.6	2.5	7	0	0	0
Beryllium (Be)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0	2	0	0
Bismuth (Bi)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0	2	0	0
Boron (B)	µg/L	2	23	24	24	24	1	1	3	0	0	0
Cadmium (Cd)	µg/L	2	0.025	0.025	0.025	0.025	0.000	0.000	0	2	0	0
Chromium (Cr)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0	2	0	0
Cobalt (Co)	µg/L	2	0.05	0.10	0.08	0.08	0.04	0.03	47	1	0	0
Copper (Cu)	µg/L	2	0.61	0.83	0.72	0.72	0.15	0.11	21	0	0	0
Iron (Fe)	µg/L	2	15	116	66	66	71	51	109	1	0	0
Lead (Pb)	µg/L	2	0.025	0.025	0.025	0.025	0.000	0.000	0	2	0	0
Lithium (Li)	µg/L	2	2.5	5.2	3.9	3.9	1.9	1.4	50	1	0	0
Manganese (Mn)	µg/L	2	9.1	66.2	37.7	37.7	40.4	28.5	107	0	0	0
Mercury (Hg)	µg/L	0	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	µg/L	2	4.340	5.460	4.900	4.900	0.792	0.560	16	0	0	0
Nickel (Ni)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0	2	0	0
Phosphorus (P)	µg/L	2	150	150	150	150	0	0	0	2	0	0
Selenium (Se)	µg/L	2	0.5	0.5	0.5	0.5	0.0	0.0	0	2	0	0
Silver (Ag)	µg/L	2	0.005	0.005	0.005	0.005	0.000	0.000	0	2	0	0
Strontium (Sr)	µg/L	2	51.4	57.3	54.3	54.3	4.1	2.9	8	0	0	0
Thallium (Tl)	µg/L	2	0.05	0.05	0.05	0.05	0.00	0.00	0	2	0	0
Tin (Sn)	µg/L	2	0.05	0.05	0.05	0.05	0.00	0.00	0	2	0	0
Titanium (Ti)	µg/L	2	5	5	5	5	0	0	0	2	0	0
Uranium (U)	µg/L	2	0.935	0.953	0.944	0.944	0.013	0.009	1	0	0	0
Vanadium (V)	µg/L	2	0.5	1.0	0.8	0.8	0.4	0.3	47	2	0	0
Zinc (Zn)	µg/L	2	1.0	3.7	2.4	2.4	1.9	1.4	81	1	0	0
Calcium (Ca)	mg/L	2	30.4	32.5	31.5	31.5	1.5	1.0	5	0	0	0
Magnesium (Mg)	mg/L	2	16.5	18.2	17.4	17.4	1.2	0.9	7	0	0	0
Potassium (K)	mg/L	2	1.0	1.0	1.0	1.0	0.0	0.0	0	2	0	0
Silicon (Si)	mg/L	2	2.39	2.62	2.51	2.51	0.16	0.12	6	0	0	0
Sodium (Na)	mg/L	2	5.9	6.4	6.1	6.1	0.3	0.2	5	0	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Dissolved Metals												
Aluminum (Al)	µg/L	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0
Antimony (Sb)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Arsenic (As)	µg/L	1	0.60	0.60	0.60	0.60	-	-	-	0	0	0
Barium (Ba)	µg/L	1	44.0	44.0	44.0	44.0	-	-	-	0	0	0
Beryllium (Be)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Bismuth (Bi)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Boron (B)	µg/L	1	27	27	27	27	-	-	-	0	0	0
Cadmium (Cd)	µg/L	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0
Chromium (Cr)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Cobalt (Co)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Copper (Cu)	µg/L	1	0.47	0.47	0.47	0.47	-	-	-	0	0	0
Iron (Fe)	µg/L	1	15	15	15	15	-	-	-	1	0	0
Lead (Pb)	µg/L	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0
Lithium (Li)	µg/L	1	5.1	5.1	5.1	5.1	-	-	-	0	0	0
Manganese (Mn)	µg/L	1	0.173	0.173	0.173	0.173	-	-	-	0	0	0
Mercury (Hg)	µg/L	0	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	µg/L	1	4.240	4.240	4.240	4.240	-	-	-	0	0	0
Nickel (Ni)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Phosphorus (P)	µg/L	1	150	150	150	150	-	-	-	1	0	0
Selenium (Se)	µg/L	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0
Silver (Ag)	µg/L	1	0.01	0.01	0.01	0.01	-	-	-	1	0	0
Strontium (Sr)	µg/L	1	46.4	46.4	46.4	46.4	-	-	-	0	0	0
Thallium (Tl)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Tin (Sn)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Titanium (Ti)	µg/L	1	5	5	5	5	-	-	-	1	0	0
Uranium (U)	µg/L	1	0.822	0.822	0.822	0.822	-	-	-	0	0	0
Vanadium (V)	µg/L	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0
Zinc (Zn)	µg/L	1	1.0	1.0	1.0	1.0	-	-	-	0	0	0
Calcium (Ca)	mg/L	1	31.7	31.7	31.7	31.7	-	-	-	0	0	0
Magnesium (Mg)	mg/L	1	17.2	17.2	17.2	17.2	-	-	-	0	0	0
Potassium (K)	mg/L	1	1.0	1.0	1.0	1.0	-	-	-	1	0	0
Silicon (Si)	mg/L	1	2.47	2.47	2.47	2.47	-	-	-	0	0	0
Sodium (Na)	mg/L	1	5.9	5.9	5.9	5.9	-	-	-	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	1	-	-	-	-	-	-	-	1	0	0
Radium-226 (^{226}Ra)	Bq/L	1	-	-	-	-	-	-	-	0	0	0
Radium-228 (^{228}Ra)	Bq/L	1	-	-	-	-	-	-	-	0	0	0
Thorium-230 (^{230}Th)	Bq/L	1	-	-	-	-	-	-	-	1	0	0
Thorium-232 (^{232}Th)	Bq/L	1	-	-	-	-	-	-	-	1	0	0
Biota												
Chlorophyll *a*	µg/L	0	-	-	-	-	-	-	-	-	-	-
Pheopigments	µg/L	0	-	-	-	-	-	-	-	-	-	-

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												

Table F2-8

Long Lake - 2 (LL-02) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	8	260	297	275	273	13	5	5	0	0	0
Hardness (as $CaCO_3$)	mg/L	8	143	162	152	151	6	2	4	0	0	0
pH	pH	8	7.76	8.43	8.15	8.17	0.22	0.08	3	0	0	0
Total Suspended Solids	mg/L	8	1.5	1.5	1.5	1.5	0.0	0.0	0	8	0	0
Total Dissolved Solids	mg/L	8	148	184	165	163	12	4	7	0	0	0
Turbidity	NTU	8	0.5	2.0	1.1	1.1	0.5	0.2	47	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	8	138	175	149	145	13	5	9	0	0	0
Ammonia as N	mg/L	8	0.01	0.04	0.01	0.01	0.01	0.00	87	5	0	0
Bromide (Br)	mg/L	7	0.03	0.03	0.03	0.03	0.00	0.00	0	7	0	0
Chloride (Cl)	mg/L	8	3.2	4.1	3.6	3.6	0.3	0.1	9	0	0	0
Fluoride (F)	mg/L	8	1.03	1.23	1.14	1.14	0.07	0.03	7	0	0	0
Sulfate (SO_4)	mg/L	8	1.2	1.5	1.3	1.3	0.1	0.1	11	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	7	0.003	0.125	0.037	0.003	0.059	0.022	159	5	0	0
Nitrate (as N)	mg/L	6	0.003	0.125	0.043	0.003	0.062	0.025	146	4	0	0
Nitrite (as N)	mg/L	6	0.001	0.001	0.001	0.001	0.000	0.000	0	6	0	0
Total Kjeldahl Nitrogen	mg/L	8	0.444	1.115	0.655	0.557	0.275	0.097	42	0	0	0
Ortho Phosphate as P	mg/L	8	0.001	0.005	0.001	0.001	0.002	0.001	123	6	0	0
Total Phosphate as P	mg/L	8	0.005	0.013	0.009	0.008	0.003	0.001	33	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	0	-	-	-	-	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	8	11.40	13.10	12.63	12.80	0.57	0.20	5	0	0	0
Total Metals												
Aluminum (Al)	µg/L	8	2.6	20.1	6.9	5.1	5.7	2.0	82	2	0	0
Antimony (Sb)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Arsenic (As)	µg/L	8	0.48	0.60	0.55	0.57	0.04	0.01	7	0	0	0
Barium (Ba)	µg/L	8	44.0	58.6	52.5	53.5	4.4	1.5	8	0	0	0
Beryllium (Be)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Bismuth (Bi)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Boron (B)	µg/L	8	23	30	26	26	2	1	9	0	0	0
Cadmium (Cd)	µg/L	8	0.005	0.025	0.018	0.022	0.009	0.003	50	8	0	0
Chromium (Cr)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Cobalt (Co)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Copper (Cu)	µg/L	8	0.25	0.89	0.54	0.47	0.26	0.09	49	3	0	0
Iron (Fe)	µg/L	8	15	125	37	15	39	14	106	5	0	0
Lead (Pb)	µg/L	8	0.025	0.058	0.029	0.025	0.012	0.004	40	7	0	0
Lithium (Li)	µg/L	8	2.5	6.2	4.6	5.1	1.4	0.5	31	2	0	0
Manganese (Mn)	µg/L	8	13.7	74.3	27.9	17.4	20.5	7.2	73	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.014	0.005	0.011	0.004	79	7	0	0
Molybdenum (Mo)	µg/L	8	3.740	5.020	4.571	4.610	0.393	0.139	9	0	0	0
Nickel (Ni)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Phosphorus (P)	µg/L	8	150	150	150	150	0	0	0	8	0	0
Selenium (Se)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Silver (Ag)	µg/L	8	0.005	0.012	0.006	0.005	0.002	0.001	42	7	0	0
Strontium (Sr)	µg/L	8	46.4	62.7	54.5	54.8	5.1	1.8	9	0	0	0
Thallium (Tl)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Tin (Sn)	µg/L	8	0.05	0.20	0.07	0.05	0.05	0.02	77	7	0	0
Titanium (Ti)	µg/L	8	5	5	5	5	0	0	0	7	0	0
Uranium (U)	µg/L	8	0.921	1.120	1.009	0.987	0.067	0.024	7	0	0	0
Vanadium (V)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Zinc (Zn)	µg/L	8	0.5	1.5	0.9	0.9	0.4	0.1	43	5	0	0
Calcium (Ca)	mg/L	8	29.5	32.4	31.1	31.1	0.9	0.3	3	0	0	0
Magnesium (Mg)	mg/L	8	15.7	18.4	16.9	16.7	0.9	0.3	5	0	0	0
Potassium (K)	mg/L	8	1.0	1.0	1.0	1.0	0.0	0.0	0	8	0	0
Silicon (Si)	mg/L	8	2.02	2.79	2.35	2.25	0.30	0.11	13	0	0	0
Sodium (Na)	mg/L	8	5.1	6.3	5.7	5.6	0.4	0.1	7	1	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Dissolved Metals												
Aluminum (Al)	µg/L	8	0.5	3.2	1.5	1.3	1.1	0.4	71	4	0	0
Antimony (Sb)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Arsenic (As)	µg/L	8	0.53	0.73	0.62	0.60	0.06	0.02	10	0	0	0
Barium (Ba)	µg/L	8	40.8	57.1	49.6	49.9	5.2	1.8	10	0	0	0
Beryllium (Be)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Bismuth (Bi)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Boron (B)	µg/L	8	21	26	24	23	1	1	6	0	0	0
Cadmium (Cd)	µg/L	8	0.005	0.025	0.017	0.025	0.010	0.003	55	7	0	0
Chromium (Cr)	µg/L	8	0.25	0.30	0.26	0.25	0.02	0.01	7	8	0	0
Cobalt (Co)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Copper (Cu)	µg/L	8	0.34	0.47	0.39	0.36	0.05	0.02	13	0	0	0
Iron (Fe)	µg/L	8	15	15	15	15	0	0	0	8	0	0
Lead (Pb)	µg/L	8	0.025	0.025	0.025	0.025	0.000	0.000	0	7	0	0
Lithium (Li)	µg/L	8	2.5	5.6	3.3	2.5	1.4	0.5	43	6	0	0
Manganese (Mn)	µg/L	8	0.163	2.790	0.727	0.451	0.856	0.303	118	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.014	0.005	0.011	0.004	79	7	0	0
Molybdenum (Mo)	µg/L	8	3.590	4.650	4.243	4.335	0.326	0.115	8	0	0	0
Nickel (Ni)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Phosphorus (P)	µg/L	8	150	150	150	150	0	0	0	8	0	0
Selenium (Se)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Silver (Ag)	µg/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Strontium (Sr)	µg/L	8	42.5	59.5	51.8	52.6	5.5	1.9	11	0	0	0
Thallium (Tl)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Tin (Sn)	µg/L	8	0.05	0.20	0.07	0.05	0.05	0.02	77	7	0	0
Titanium (Ti)	µg/L	8	5	5	5	5	0	0	0	8	0	0
Uranium (U)	µg/L	8	0.809	1.070	0.917	0.889	0.090	0.032	10	0	0	0
Vanadium (V)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Zinc (Zn)	µg/L	8	0.5	2.4	1.0	0.5	0.8	0.3	74	6	0	0
Calcium (Ca)	mg/L	8	29.9	34.5	32.1	32.2	1.4	0.5	4	0	0	0
Magnesium (Mg)	mg/L	8	16.4	18.6	17.3	17.2	0.8	0.3	5	0	0	0
Potassium (K)	mg/L	8	1.0	1.0	1.0	1.0	0.0	0.0	0	8	0	0
Silicon (Si)	mg/L	8	2.10	2.93	2.42	2.30	0.31	0.11	13	0	0	0
Sodium (Na)	mg/L	8	5.3	6.3	5.8	5.8	0.4	0.1	6	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Radium-226 (^{226}Ra)	Bq/L	8	0.003	0.006	0.003	0.003	0.001	0.000	45	7	0	0
Radium-228 (^{228}Ra)	Bq/L	8	0.01	0.03	0.01	0.01	0.01	0.00	63	8	0	0
Thorium-230 (^{230}Th)	Bq/L	8	0.005	0.015	0.006	0.005	0.004	0.001	57	8	0	0
Thorium-232 (^{232}Th)	Bq/L	8	0.005	0.015	0.006	0.005	0.004	0.001	57	8	0	0
Biota												
Chlorophyll *a*	µg/L	4	0.497	2.330	1.428	1.443	0.907	0.454	64	0	-	-
Pheopigments	µg/L	3	0.120	1.070	0.587	0.570	0.475	-	-	0	-	-

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												

Table F3-8

North Tardiff Lake (NT-01) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 19-Mar-08	October 2008 5-Oct-08	March 2009 17-Mar-09	June 2009 25-Jun-09	September 2009 13-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	218	98.4	290	82.4	96.7
Hardness (as $CaCO_3$)	mg/L	2	-	-	133	61.6	193	50.1	61.1
pH	pH	0.01	-	-	7.34	7.71	7.34	7.75	7.77
Total Suspended Solids	mg/L	3.0	-	-	17	3.2	24	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	273	137	398	114	106
Turbidity	NTU	0.1	-	-	9.11	0.95	8.82	2.04	1.14
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	107	46.5	151	39.3	61.9
Ammonia as N	mg/L	0.02	-	-	-	0.032	1.71	0.034	0.119
Bromide (Br)	mg/L	**[f]	-	-	<0.05	-	<0.05	<0.25	<0.50
Chloride (Cl)	mg/L	0.5	-	600	1.07	3.5	<5.0	<2.5	<5.0
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.325	0.20	0.32	0.13	0.20
Sulfate (SO_4)	mg/L	**	-	100	0.59	<2.5	<5.0	<2.5	<5.0
Nutrients									
Nitrate and Nitrite as N	mg/L	**	-	-	<0.005	<0.03	<0.050	<0.030	0.099
Nitrate (as N)	mg/L	**	2.9	31.3	-	<0.025	<0.050	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.0066	<0.010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	4.74	1.77	6.30	1.74	1.71
Ortho Phosphate as P	mg/L	**	-	-	<0.010	<0.010	0.018	<0.0010	<0.0010
Total Phosphate as P	mg/L	**	-	-	0.080	0.032	0.069	0.0290	<0.020
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	82.3	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-		43.7	104.0	37.8	41.9
Total Metals									
Aluminum (Al)	µg/L	1	100[g]	-	**194**	86.7	**336**	76.3	**101**
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	2.65	1.06	3.89	1.18	1.15
Barium (Ba)	µg/L	0.05	-	5000	50.7	19.1	75.6	18.9	18.9
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	<10	<10	<10	<10	11
Cadmium (Cd)	µg/L	**	0.033[i]	0.033	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	**	8.9	8.9	0.86	<0.5	<2	<0.5	0.58
Cobalt (Co)	µg/L	0.1	-	110	0.28	<0.1	0.5	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	11[k]	1.38	0.72	1.35	0.52	<0.7
Iron (Fe)	µg/L	30	300	1000	**2460**	262	**4160**	**363**	**425**
Lead (Pb)	µg/L	0.05	1 - 7[l]	81[m]	0.213	0.059	0.169	0.051	<0.05
Lithium (Li)	µg/L	5	-	870	6.1	<5	9.1	<5	<5
Manganese (Mn)	µg/L	0.05	-	1639[n]	305	5.54	389	18.6	16.1
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.05
Molybdenum (Mo)	µg/L	**	73	2000	0.339	0.282	0.58	0.191	0.218
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	0.8	<0.5	1.22	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	0.012	<0.01	0.019	<0.01	0.012
Strontium (Sr)	µg/L	0.1	-	-	41.8	18.9	57.8	16.5	17.6
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 19-Mar-08	October 2008 5-Oct-08	March 2009 17-Mar-09	June 2009 25-Jun-09	September 2009 13-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.521	0.288	0.863	0.247	0.273
Vanadium (V)	µg/L	1	-	6	1.3	<1	1.9	<1	<1
Zinc (Zn)	µg/L	**	30	40[q]	5.9	6	8.2	<3	2.8
Calcium (Ca)	mg/L	0.05	-	-	19.2	7.65	28.4	7	7.35
Magnesium (Mg)	mg/L	0.1	-	-	20.7	10.5	29.8	7.86	9.84
Potassium (K)	mg/L	2	-	-	2.3	<2	3.6	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	3.19	0.537	4.61	0.328	1.56
Sodium (Na)	mg/L	2	-	-	3.1	2.3	4.6	<2.0	2
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	64.9	**225**	59.3	82.1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.06	3.75	1.17	1.06
Barium (Ba)	µg/L	0.05	-	-	-	17.2	70.8	17.4	17.9
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	<10	<10	<10	<10
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<<0.05	<0.05
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	1.32	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	0.42	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.48	0.71	0.35	0.36
Iron (Fe)	µg/L	30	-	350	-	232	**3110**	305	**416**
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	0.084	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	9	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	1.46	374	3.3	13.5
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.206	0.495	0.161	0.13
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	1.1	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	16.5	57.2	15	15.8
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	0.32
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.218	0.768	0.219	0.23
Vanadium (V)	µg/L	1	-	-	-	<1	1.2	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	5.1	4.4	1.3	2.1
Calcium (Ca)	mg/L	0.05	-	-	-	7.62	28.4	7.01	7.65
Magnesium (Mg)	mg/L	0.1	-	-	-	10.3	29.8	7.93	10.2
Potassium (K)	mg/L	2	-	-	-	<2	3.6	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	0.437	4.47	0.36	1.59
Sodium (Na)	mg/L	2	-	-	-	2.3	4.7	<2.0	2.1
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	0.008	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.04	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	2.00	1.33
Pheopigments	µg/L	0.01	-	-	-	-	-	-	2.72

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{\{0.86[\text{Log(hardness)}] - 3.2\}}$

Average hardness = 100 mg/L

Cadmium Guideline = 0.033 µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L

3 µg/L when [CaCO3] is 120 - 180 mg/L

4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness = 100 mg/L

Copper Guideline = 11 µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L

4 µg/L when [CaCO3] is 120 - 180 mg/L

7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)

= e(1.273 x [ln(hardness)] - 1.460)

Average hardness = 100 mg/L

Lead Guideline = 81 µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness = 100

Manganese Guideline = 1.639 mg/L

= 1639 µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L

110 µg/L when [CaCO3] is 120 - 180 mg/L

150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L

3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness = 100 mg/L

Zinc Guideline = 40 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

Table F3-9

South Tardiff Lake (ST-01) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 19-Mar-08	October 2008 5-Oct-08	March 2009 17-Mar-09	June 2009 25-Jun-09	September 2009 13-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	223	114	283	96.1	114
Hardness (as $CaCO_3$)	mg/L	2	-	-	130	69	172	58.2	68.6
pH	pH	0.01	-	-	7.49	7.86	7.51	7.47	7.95
Total Suspended Solids	mg/L	3.0	-	-	5	3.7	14	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	225	123	317	107	127
Turbidity	NTU	0.1	-	-	5.63	1.12	4.68	1.55	1.13
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	113	57.2	149	46.8	52.2
Ammonia as N	mg/L	0.02	-	-	-	0.036	1.31	0.027	0.088
Bromide (Br)	mg/L	**[f]	-	-	<0.05	-	<0.05	<0.25	<0.050
Chloride (Cl)	mg/L	0.5	-	600	1.10	2.80	<2.50	<2.50	1.11
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.438	0.260	0.440	0.180	0.317
Sulfate (SO_4)	mg/L	**	-	100	<0.5	<2.5	<2.5	<2.5	0.68
Nutrients									
Nitrate and Nitrite as N	mg/L	**	-	-	<0.005	0.146	<0.030	<0.030	0.0549
Nitrate (as N)	mg/L	**	2.9	31.3	-	0.139	<0.025	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.0071	<0.0050	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	3.04	1.60	3.84	1.10	1.38
Ortho Phosphate as P	mg/L	**	-	-	0.011	<0.010	<0.010	<0.0010	<0.0010
Total Phosphate as P	mg/L	**	-	-	0.029	0.022	0.044	0.0182	0.014
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	57.6	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	37.1	72.2	32.4	35.0
Total Metals									
Aluminum (Al)	µg/L	1	100[g]	-	42.6	32.3	**101**	40.8	37.7
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	2.27	1.11	2.94	1.10	1.08
Barium (Ba)	µg/L	0.05	-	5000	40.8	17.3	53.1	16.5	17.5
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	13	11	17	<10	14
Cadmium (Cd)	µg/L	**	0.033[i]	0.033	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	0.14	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	11[k]	0.99	0.56	<0.7	0.49	<0.7
Iron (Fe)	µg/L	30	300	1000	**1020**	58	**1570**	133	96
Lead (Pb)	µg/L	0.05	1 - 7[l]	81[m]	0.078	<0.05	0.082	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	6.5	<5	<5
Manganese (Mn)	µg/L	0.05	-	1637[n]	287	4.14	286	13.8	8.31
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.05
Molybdenum (Mo)	µg/L	0.05	73	2000	0.438	0.422	0.561	0.373	0.365
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	51.1	26.6	63.3	22.8	23.6
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					19-Mar-08	5-Oct-08	17-Mar-09	25-Jun-09	13-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.71	0.559	1	0.51	0.51
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	40[q]	7.1	2.2	5.9	<2	1.9
Calcium (Ca)	mg/L	0.05	-	-	20.5	9.02	26.4	7.91	8.68
Magnesium (Mg)	mg/L	0.1	-	-	19.1	11.6	25.6	8.9	10.5
Potassium (K)	mg/L	2	-	-	2.3	<2	3.2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.88	0.688	4	0.314	1.19
Sodium (Na)	mg/L	2	-	-	2.9	2	3.6	<2.0	<2.0
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	18.9	51.9	24.8	28.9
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.06	2.96	1.1	1.01
Barium (Ba)	µg/L	0.05	-	-	-	14.3	47.8	14.9	16.3
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	<10	17	<10	<10
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	0.6	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.32	0.42	0.27	0.26
Iron (Fe)	µg/L	30	-	350	-	48	**1150**	105	85
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	6.5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	1.00	6.48	1.66	3.76
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.304	0.520	0.326	0.279
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	22.1	62.7	19.8	21.9
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.427	0.949	0.428	0.450
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	1.9	4.2	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	9.06	26.6	8.21	9.14
Magnesium (Mg)	mg/L	0.1	-	-	-	11.3	25.8	9.16	11.1
Potassium (K)	mg/L	2	-	-	-	<2	3.2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	0.652	3.96	0.312	1.26
Sodium (Na)	mg/L	2	-	-	-	<2	3.6	<2.0	<2.0
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	0.03	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	0.01	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.2	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	5.73	3.33
Pheopigments	µg/L	0.01	-	-					1.71

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 100 mg/L
   Cadmium Guideline = 0.033 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 100 mg/L
   Copper Guideline = 11 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 100 mg/L
   Lead Guideline = 81 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 100
   Manganese Guideline = 1.637 mg/L
   = 1637 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 100 mg/L
   Zinc Guideline = 40 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-10

South Tardiff Lake (ST-01) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	96	283	166	114	83	37	50	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	58	172	100	69	49	22	50	0	0	0
pH	pH	5	7.47	7.95	7.66	7.51	0.23	0.10	3	0	0	0
Total Suspended Solids	mg/L	5	1.5	14.0	5.1	3.7	5.2	2.3	101	2	0	0
Total Dissolved Solids	mg/L	5	107	317	180	127	90	40	50	0	0	0
Turbidity	NTU	5	1.1	5.6	2.8	1.6	2.2	1.0	77	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	47	149	84	57	45	20	54	0	0	0
Ammonia as N	mg/L	4	0.03	1.31	0.37	0.06	0.63	0.32	173	0	0	0
Bromide (Br)	mg/L	4	0.03	0.13	0.05	0.03	0.05	0.03	100	4	0	0
Chloride (Cl)	mg/L	5	1.1	2.8	1.5	1.3	0.7	0.3	49	2	0	0
Fluoride (F)	mg/L	5	0.18	0.44	0.33	0.32	0.11	0.05	35	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	1.3	0.9	1.3	0.5	0.2	49	4	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.146	0.047	0.015	0.059	0.026	126	3	0	0
Nitrate (as N)	mg/L	2	0.013	0.139	0.076	0.076	0.089	0.063	118	1	0	0
Nitrite (as N)	mg/L	2	0.003	0.007	0.005	0.005	0.003	0.002	68	1	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.10	3.84	2.19	1.60	1.19	0.53	54	0	0	0
Ortho Phosphate as P	mg/L	5	0.005	0.011	0.006	0.005	0.003	0.001	43	4	0	0
Total Phosphate as P	mg/L	5	0.014	0.044	0.025	0.022	0.012	0.005	46	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	57.6	57.6	57.6	57.6	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	32.40	72.20	44.18	36.05	18.78	9.39	43	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	32.3	101.0	50.9	40.8	28.3	12.7	56	0	1	20
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	1.08	2.94	1.70	1.11	0.86	0.38	51	0	0	0
Barium (Ba)	µg/L	5	16.5	53.1	29.0	17.5	16.9	7.6	58	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	5	17	12	13	4	2	37	1	0	0
Cadmium (Cd)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.14	0.07	0.05	0.04	0.02	59	4	0	0
Copper (Cu)	µg/L	5	0.35	0.99	0.55	0.49	0.26	0.12	48	2	0	0
Iron (Fe)	µg/L	5	58	1570	575	133	686	307	119	0	2	40
Lead (Pb)	µg/L	5	0.025	0.082	0.047	0.025	0.030	0.013	64	3	0	0
Lithium (Li)	µg/L	5	2.5	6.5	3.3	2.5	1.8	0.8	54	4	0	0
Manganese (Mn)	µg/L	5	4.1	287.0	119.9	13.8	152.2	68.1	127	0	0	0
Mercury (Hg)	µg/L	3	0.025	0.025	0.025	0.025	0.000	0.000	0	3	0	0
Molybdenum (Mo)	µg/L	5	0.365	0.561	0.432	0.422	0.079	0.035	18	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Strontium (Sr)	µg/L	5	22.8	63.3	37.5	26.6	18.6	8.3	50	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.510	1.000	0.658	0.559	0.208	0.093	32	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	1.0	7.1	3.6	2.2	2.7	1.2	75	1	0	0
Calcium (Ca)	mg/L	5	7.9	26.4	14.5	9.0	8.4	3.8	58	0	0	0
Magnesium (Mg)	mg/L	5	8.9	25.6	15.1	11.6	7.0	3.1	46	0	0	0
Potassium (K)	mg/L	5	1.0	3.2	1.7	1.0	1.0	0.5	59	3	0	0
Silicon (Si)	mg/L	5	0.31	4.00	1.61	1.19	1.46	0.65	90	0	0	0
Sodium (Na)	mg/L	5	1.0	3.6	2.1	2.0	1.2	0.5	55	2	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	18.9	51.9	31.1	26.9	14.4	7.2	46	0	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	1.01	2.96	1.53	1.08	0.95	0.48	62	0	0	0
Barium (Ba)	µg/L	4	14.3	47.8	23.3	15.6	16.3	8.2	70	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	5	17	8	5	6	3	75	3	0	0
Cadmium (Cd)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.60	0.34	0.25	0.18	0.09	52	3	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.26	0.42	0.32	0.30	0.07	0.04	23	0	0	0
Iron (Fe)	µg/L	4	48	1150	347	95	536	268	154	0	1	25
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	6.5	3.5	2.5	2.0	1.0	57	3	0	0
Manganese (Mn)	µg/L	4	1.000	6.480	3.225	2.710	2.469	1.234	77	0	0	0
Mercury (Hg)	µg/L	3	0.025	0.025	0.025	0.025	0.000	0.000	0	3	0	0
Molybdenum (Mo)	µg/L	4	0.279	0.520	0.357	0.315	0.110	0.055	31	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	19.8	62.7	31.6	22.0	20.7	10.4	66	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.427	0.949	0.564	0.439	0.257	0.129	46	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	4.2	1.8	1.2	1.7	0.9	98	2	0	0
Calcium (Ca)	mg/L	4	8.2	26.6	13.3	9.1	8.9	4.5	67	0	0	0
Magnesium (Mg)	mg/L	4	9.2	25.8	14.3	11.2	7.7	3.9	54	0	0	0
Potassium (K)	mg/L	4	1.0	3.2	1.6	1.0	1.1	0.6	71	3	0	0
Silicon (Si)	mg/L	4	0.31	3.96	1.55	0.96	1.66	0.83	107	0	0	0
Sodium (Na)	mg/L	4	1.0	3.6	1.7	1.0	1.3	0.7	79	3	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.03	0.02	0.01	0.01	0.01	67	3	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.010	0.004	0.003	0.004	0.002	86	3	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.10	0.03	0.01	0.05	0.02	138	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.010	0.006	0.005	0.003	0.001	40	3	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	2	3.330	5.730	4.530	4.530	1.697	1.200	37	0	-	-
Pheopigments	µg/L	1	1.71	1.71	1.71	1.71	-	-	-	0	-	-

Table F3-10

Thorn Lake (TL-03) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 22-Mar-08	October 2008 4-Oct-08	March 2009 17-Mar-09	June 2009 27-Jun-09	September 2009 23-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	310	249	302	238	249
Hardness (as $CaCO_3$)	mg/L	2	-	-	176	148	175	140	140
pH	pH	0.01	-	-	7.77	8.26	7.95	7.98	8.19
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	198	166	205	168	162
Turbidity	NTU	0.1	-	-	2.06	0.8	0.91	1.16	1.64
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	173	136	175	139	131
Ammonia as N	mg/L	0.02	-	-	-	0.022	0.136	0.026	0.029
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	0.79	0.55	0.77	<0.50	0.75
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.37	1.18	1.38	1.03	1.11
Sulfate (SO_4)	mg/L	0.5	-	100	0.73	0.59	0.7	0.57	0.82
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.178	0.0119	0.183	<0.0050	0.009
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0119	0.183	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.886	0.935	0.81	0.838	0.805
Ortho Phosphate as P	mg/L	0.001	-	-	0.0013	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0090	0.0134	0.0078	0.0088	0.0105
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	23.6	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	22.3	22.3	20.7	20.4
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	1.5	3.3	<9	<8	9
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	0.16	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	1.07	1.04	0.94	0.85	0.94
Barium (Ba)	µg/L	0.05	-	5000	73.7	53.7	62.2	46.2	60.6
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	14	13	15	15	18
Cadmium (Cd)	µg/L	**	0.048[i]	0.048	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	100	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	17[k]	0.53	0.51	<0.7	0.64	<0.6
Iron (Fe)	µg/L	30	300	1000	72	50	82	45	121
Lead (Pb)	µg/L	0.05	1 - 7[l]	144[m]	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	2257[n]	160	11.6	71.4	10.2	28.1
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.89	1.46	1.91	1.55	1.47
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.036
Strontium (Sr)	µg/L	0.1	-	-	42.8	34.4	41.8	33.2	35.8
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					22-Mar-08	4-Oct-08	17-Mar-09	27-Jun-09	23-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.236	0.167	0.26	0.2	0.15
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	82[q]	<1	<1	1.2	<3	<1
Calcium (Ca)	mg/L	0.05	-	-	40.4	33.6	37.7	29.7	31
Magnesium (Mg)	mg/L	0.1	-	-	18.2	16	17.8	13.6	14.8
Potassium (K)	mg/L	2	-	-	2.1	<2	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	2.52	2.06	2.67	1.41	1.87
Sodium (Na)	mg/L	2	-	-	3.5	3	2.9	2.4	2.7
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	1.4	<1	4.1	<1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.01	0.97	0.97	0.9
Barium (Ba)	µg/L	0.05	-	-	-	52.1	61.7	45.6	55.9
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	13	15	13	14
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.57	0.45	0.54	0.34
Iron (Fe)	µg/L	30	-	350	-	<30	36	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.191	59.1	2	0.267
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	1.44	1.84	1.47	1.33
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	33.9	41.6	32.9	33.7
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	0.1	0.23
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.185	0.245	0.193	0.136
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	2.2	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	33	39.6	32	31.3
Magnesium (Mg)	mg/L	0.1	-	-	-	15.9	18.4	14.6	15
Potassium (K)	mg/L	2	-	-	-	2	<2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	2.03	2.79	1.48	1.88
Sodium (Na)	mg/L	2	-	-	-	3.1	2.9	2.5	2.7
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	0.006	<0.005	0.007
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.09	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	2.46	3.88
Pheopigments	µg/L	0.01	-	-	-	-	-	-	1.67

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 156 mg/L
   Cadmium Guideline = 0.048 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 156 mg/L
   Copper Guideline = 17 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 156 mg/L
   Lead Guideline = 144 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 156
   Manganese Guideline = 2.257 mg/L
   = 2257 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 156 mg/L
   Zinc Guideline = 82 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-11

Thorn Lake (TL-03) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	238	310	270	249	34	15	12	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	140	176	156	148	18	8	12	0	0	0
pH	pH	5	7.77	8.26	8.03	7.98	0.20	0.09	2	0	0	0
Total Suspended Solids	mg/L	5	1.5	1.5	1.5	1.5	0.0	0.0	0	5	0	0
Total Dissolved Solids	mg/L	5	162	205	180	168	20	9	11	0	0	0
Turbidity	NTU	5	0.8	2.1	1.3	1.2	0.5	0.2	40	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	131	175	151	139	21	10	14	0	0	0
Ammonia as N	mg/L	4	0.02	0.14	0.05	0.03	0.06	0.03	104	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	0.3	0.8	0.6	0.8	0.2	0.1	37	1	0	0
Fluoride (F)	mg/L	5	1.03	1.38	1.21	1.18	0.16	0.07	13	0	0	0
Sulfate (SO_4)	mg/L	5	0.6	0.8	0.7	0.7	0.1	0.0	15	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.183	0.077	0.012	0.095	0.042	123	1	0	0
Nitrate (as N)	mg/L	2	0.012	0.183	0.097	0.097	0.121	0.086	124	0	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.81	0.94	0.85	0.84	0.06	0.02	6	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	54	4	0	0
Total Phosphate as P	mg/L	5	0.008	0.013	0.010	0.009	0.002	0.001	22	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	23.6	23.6	23.6	23.6	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	20.40	22.30	21.43	21.50	1.02	0.51	5	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	1.5	9.0	4.5	4.0	2.8	1.2	62	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.16	0.07	0.05	0.05	0.02	68	4	0	0
Arsenic (As)	µg/L	5	0.85	1.07	0.97	0.94	0.09	0.04	9	0	0	0
Barium (Ba)	µg/L	5	46.2	73.7	59.3	60.6	10.3	4.6	17	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	13	18	15	15	2	1	12	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.30	0.64	0.47	0.51	0.14	0.06	30	2	0	0
Iron (Fe)	µg/L	5	45	121	74	72	30	14	41	0	0	0
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	2.5	2.5	2.5	0.0	0.0	0	5	0	0
Manganese (Mn)	µg/L	5	10.2	160.0	56.3	28.1	63.0	28.2	112	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	1.460	1.910	1.656	1.550	0.226	0.101	14	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.036	0.011	0.005	0.014	0.006	124	4	0	0
Strontium (Sr)	µg/L	5	33.2	42.8	37.6	35.8	4.4	2.0	12	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.150	0.260	0.203	0.200	0.046	0.021	23	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	1.5	0.8	0.5	0.5	0.2	57	4	0	0
Calcium (Ca)	mg/L	5	29.7	40.4	34.5	33.6	4.5	2.0	13	0	0	0
Magnesium (Mg)	mg/L	5	13.6	18.2	16.1	16.0	2.0	0.9	12	0	0	0
Potassium (K)	mg/L	5	1.0	2.1	1.2	1.0	0.5	0.2	40	4	0	0
Silicon (Si)	mg/L	5	1.41	2.67	2.11	2.06	0.51	0.23	24	0	0	0
Sodium (Na)	mg/L	5	2.4	3.5	2.9	2.9	0.4	0.2	14	2	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	0.5	4.1	1.6	1.0	1.7	0.9	105	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.90	1.01	0.96	0.97	0.05	0.02	5	0	0	0
Barium (Ba)	µg/L	4	45.6	61.7	53.8	54.0	6.8	3.4	13	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	13	15	14	14	1	0	7	3	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.34	0.57	0.48	0.50	0.10	0.05	22	0	0	0
Iron (Fe)	µg/L	4	15	36	20	15	11	5	52	3	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.191	59.100	15.390	1.134	29.152	14.576	189	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	1.330	1.840	1.520	1.455	0.222	0.111	15	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	32.9	41.6	35.5	33.8	4.1	2.0	11	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.23	0.10	0.05	0.09	0.05	95	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.136	0.245	0.190	0.189	0.045	0.022	24	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	2.2	0.9	0.5	0.9	0.4	92	3	0	0
Calcium (Ca)	mg/L	4	31.3	39.6	34.0	32.5	3.8	1.9	11	0	0	0
Magnesium (Mg)	mg/L	4	14.6	18.4	16.0	15.5	1.7	0.9	11	0	0	0
Potassium (K)	mg/L	4	1.0	2.0	1.3	1.0	0.5	0.3	40	3	0	0
Silicon (Si)	mg/L	4	1.48	2.79	2.05	1.96	0.55	0.27	27	0	0	0
Sodium (Na)	mg/L	4	2.5	3.1	2.8	2.8	0.3	0.1	9	3	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.02	0.01	0.01	0.01	0.00	40	3	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.007	0.005	0.004	0.002	0.001	52	2	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.05	0.02	0.01	0.02	0.01	93	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	2	2.460	3.880	3.170	3.170	1.004	0.710	32	0	-	-
Pheopigments	µg/L	1	1.67	1.67	1.67	1.67	-	-	-	0	-	-

Table F3-11

Ring Lake (TL-04) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 21-Mar-08		October 2008	March 2009	June 2009	September 2009	April 2010	June 2010	September 2010	October 2010
					TL-04	Replicate	7-Oct-08	14-Mar-09	24-Jun-09	9-Sep-09	13-Apr-10	14-Jun-10	4-Sep-10	7-Oct-10
Physicals														
Conductivity	µS/cm	0.5	-	-	569	545	267	606	215	243	503	197	237	252
Hardness (as $CaCO_3$)	mg/L	2	-	-	301	309	154	358	121	143	294	116	143	142
pH	pH	0.01	-	-	7.65	7.19	8.32	7.80	8.20	8.35	7.70	8.22	8.21	8.15
Total Suspended Solids	mg/L	3.0	-	-	40.5	63.1	3.2	51	3.5	7.3	51.8	<3.0	4.7	<3.0
Total Dissolved Solids	mg/L	10	-	-	386	347	205	457	171	184	366	162	201	194
Turbidity	NTU	0.1	-	-	25.3	52.9	1.87	45.90	1.27	2.75	31.5	1.35	1.82	1.99
Anions														
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	300	293	148	345	123	129	289	104	133	139
Ammonia as N	mg/L	0.02	-	-	-	-	0.229	2.510	0.023	0.058	2.090	0.020	0.695	1.770
Bromide (Br)	mg/L	0.05	-	-	<0.05	<0.05	-	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	1.91	2.01	1.00	2.56	0.86	0.93	2.14	0.66	0.88	0.9
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.570	1.480	0.942	1.830	0.674	0.812	1.400	0.606	0.834	0.892
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients														
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	<0.0050	0.0088	0.0177	<0.0050	<0.0050	0.0128	<0.0050	<0.0051	<0.0051
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	-	0.0088	0.0177	-	-	0.0128	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	-	<0.0010	<0.0010	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	6.030	7.230	2.190	5.870	1.390	1.770	5.440	1.480	2.890	4.240
Ortho Phosphate as P	mg/L	**[f]	-	-	<0.010	<0.0010	<0.0010	<0.010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	**	-	-	0.0220	0.0110	0.0135	0.0260	0.0123	0.0158	0.0130	0.0121	0.0150	0.0171
Organics														
Total Organic Carbon (TOC)	mg/L	0.5	-	-	7.69	65	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	-	2.26	61.1	26.3	29.8	59.7	27.5	26.9	32.8
Total Metals														
Aluminum (Al)	µg/L	**	100[g]	-	6.9	15.9	6.6	13.6	<9	<9	13.1	11.5	5.9	5.1
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	2.86	2.82	1.56	3.50	1.29	1.38	2.50	1.01	1.39	1.33
Barium (Ba)	µg/L	0.05	-	5000	165.0	164.0	33.2	122.0	28.9	40.8	142.0	28.4	25.9	27.9
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	25	23	18	29	16	22	28	16	22	19
Cadmium (Cd)	µg/L	**	0.059[j]	0.059	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	0.56	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	0.19	0.19	<0.1	0.22	<0.1	<0.1	0.16	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	21[k]	0.45	0.54	0.53	<0.9	0.42	<1	0.48	<0.5	<0.3	<0.5
Iron (Fe)	µg/L	30	300	1000	**8910**	**10300**	46	**11900**	63	94	**11000**	97	88	68
Lead (Pb)	µg/L	0.05	1 - 7[l]	194[m]	<0.05	<0.05	0.053	0.057	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	6.2	6.1	<5	6.9	<5	<5	5.6	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	2715[n]	1270.0	1240.0	11.7	1110.0	11.2	33.1	1260.0	18.5	39.1	22.9
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	-	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.230	1.240	0.707	1.470	0.456	0.522	1.010	0.428	0.733	1.200
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	5.66	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01	0.051	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	96.2	95.6	41.4	90.0	34.0	40.3	91.5	32.0	38.7	35.3
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.105	0.115	0.065	0.137	0.045	0.030	0.068	0.028	0.041	0.094
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	114[q]	3.4	2.9	4.2	3.9	<2.0	1.5	2.5	<1	<1	<3
Calcium (Ca)	mg/L	0.05	-	-	67.7	70.3	28.8	79.3	25.8	32.0	65.5	25.1	31.2	30.8
Magnesium (Mg)	mg/L	0.1	-	-	31.9	32.4	15.3	38.5	13.2	15.0	29.2	12.4	15.4	15.0
Potassium (K)	mg/L	2	-	-	5.4	6.0	2.5	6.5	2.2	2.6	4.9	2.0	2.3	2.2
Silicon (Si)	mg/L	0.05	-	-	1.300	1.400	0.302	1.620	0.072	0.228	1.410	0.084	0.488	0.403
Sodium (Na)	mg/L	2	-	-	5.0	5.6	2.7	5.3	<2.0	2.5	4.5	<2.0	2.4	2.2

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 21-Mar-08 TL-04	March 2008 21-Mar-08 Replicate	October 2008 7-Oct-08	March 2009 14-Mar-09	June 2009 24-Jun-09	September 2009 9-Sep-09	April 2010 13-Apr-10	June 2010 14-Jun-10	September 2010 4-Sep-10	October 2010 7-Oct-10
Dissolved Metals														
Aluminum (Al)	µg/L	1	-	100[r]	-	-	<1	1.5	5.6	2.2	3.5	7.3	4.6	<3
Antimony (Sb)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	-	1.64	3.68	1.45	1.31	2.62	1.21	1.49	1.67
Barium (Ba)	µg/L	0.05	-	-	-	-	29.6	104.0	27.6	37.6	134.0	26.3	26.5	26.2
Beryllium (Be)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	-	15	27	14	17	26	14	18	18
Cadmium (Cd)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.01	<0.017	1.35	<0.017
Chromium (Cr)	µg/L	**	-	-	-	-	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	-	<0.1	0.19	<0.1	<0.1	0.14	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	-	0.26	0.31	0.27	0.29	0.30	0.35	0.24	<0.5
Iron (Fe)	µg/L	30	-	350	-	-	<30	**5650**	35	<30	**6870**	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	-	<5	6.5	<5	<5	5.5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	-	0.338	1060	1.920	5.510	1190	0.727	0.554	1.430
Mercury (Hg)	µg/L	**	-	-	-	-	-	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	-	0.536	1.370	0.420	0.445	0.992	0.368	0.620	1.150
Nickel (Ni)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	-	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	-	36.8	86.8	31.7	37.3	89.6	30.9	37.7	35.1
Thallium (Tl)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	-	<0.1	0.19	<0.1	0.58	0.35	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	-	0.046	0.134	0.025	0.026	0.067	0.025	0.042	0.085
Vanadium (V)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	-	2.2	4.4	<1	<1	2.7	<1	2.1	<3
Calcium (Ca)	mg/L	0.05	-	-	-	-	33.1	79.9	26.3	32.4	66.8	25.5	31.9	31.5
Magnesium (Mg)	mg/L	0.1	-	-	-	-	17.3	38.4	13.5	15.0	31.0	12.8	15.5	15.5
Potassium (K)	mg/L	2	-	-	-	-	3.5	6.5	2.3	2.7	5.5	2.1	2.3	2.3
Silicon (Si)	mg/L	0.05	-	-	-	-	0.325	1.570	0.077	0.220	1.420	0.095	0.420	0.408
Sodium (Na)	mg/L	2	-	-	-	-	3.0	5.2	2.0	2.4	5.0	<2.0	2.4	2.4
Radionuclides			**GCDWQ MAC[s]**											
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	-	<0.005	0.009	<0.005	<0.005	<0.005	0.01	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	-	<0.03	<0.02	<0.02	<0.02	<0.01	<0.03	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota														
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	2.520	2.680	-	0.732	12.400	-
Pheopigments	µg/L	0.01	-	-	-	-	-	-	-	0.650	-	0.207	4.200	-

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 300 µg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{[0.86[Log(hardness)] - 3.2]}$
   Average hardness = 197 mg/L
   Cadmium Guideline = 0.059 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 197 mg/L
   Copper Guideline = 21 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 197 mg/L
   Lead Guideline = 194 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 197
   Manganese Guideline = 2.715 mg/L
   = 2715 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 197 mg/L
   Zinc Guideline = 114 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Replicate result where precision threshold (RPD > 25%) was exceeded
w. Data outlier, excluded from summary statistics
x. Potential data outlier, included in summary statistics due to small data set

Table F2-12

Ring Lake (TL-04) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	9	197	606	342	252	163	54	48	0	0	0
Hardness (as $CaCO_3$)	mg/L	9	116	358	197	143	94	31	47	0	0	0
pH	pH	9	7.42	8.35	8.04	8.20	0.32	0.11	4	0	0	0
Total Suspended Solids	mg/L	9	1.5	51.8	19.6	4.7	24.0	8.0	123	2	0	0
Total Dissolved Solids	mg/L	9	162	457	256	201	109	36	43	0	0	0
Turbidity	NTU	9	1.3	45.9	14.2	2.0	18.8	6.3	133	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	9	104	345	190	139	92	31	49	0	0	0
Ammonia as N	mg/L	8	0.02	2.51	0.92	0.46	1.04	0.37	112	0	0	0
Bromide (Br)	mg/L	8	0.03	0.03	0.03	0.03	0.00	0.00	0	8	0	0
Chloride (Cl)	mg/L	9	0.7	2.6	1.3	0.9	0.7	0.2	53	0	0	0
Fluoride (F)	mg/L	9	0.61	1.83	1.06	0.89	0.42	0.14	40	0	0	0
Sulfate (SO_4)	mg/L	9	0.3	0.3	0.3	0.3	0.0	0.0	0	9	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	9	0.003	0.018	0.006	0.003	0.006	0.002	95	6	0	0
Nitrate (as N)	mg/L	6	0.003	0.018	0.008	0.006	0.006	0.003	83	3	0	0
Nitrite (as N)	mg/L	6	0.001	0.005	0.001	0.001	0.002	0.001	147	6	0	0
Total Kjeldahl Nitrogen	mg/L	9	1.39	6.63	3.54	2.89	2.04	0.68	58	0	0	0
Ortho Phosphate as P	mg/L	9	0.001	0.005	0.001	0.001	0.002	0.001	127	8	0	0
Total Phosphate as P	mg/L	9	0.012	0.026	0.016	0.015	0.004	0.001	27	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	36.35	36.35	36.35	36.35	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	8	2.26	61.10	33.30	28.65	19.16	6.77	58	0	0	0
Total Metals												
Aluminum (Al)	µg/L	9	4.5	13.6	8.5	6.6	3.8	1.3	45	2	0	0
Antimony (Sb)	µg/L	9	0.05	0.05	0.05	0.05	0.00	0.00	0	9	0	0
Arsenic (As)	µg/L	9	1.01	3.50	1.87	1.39	0.86	0.29	46	0	0	0
Barium (Ba)	µg/L	9	25.9	164.5	68.2	33.2	57.2	19.1	84	0	0	0
Beryllium (Be)	µg/L	9	0.25	0.25	0.25	0.25	0.00	0.00	0	9	0	0
Bismuth (Bi)	µg/L	9	0.25	0.25	0.25	0.25	0.00	0.00	0	9	0	0
Boron (B)	µg/L	9	16	29	22	22	5	2	22	0	0	0
Cadmium (Cd)	µg/L	9	0.005	0.025	0.017	0.025	0.009	0.003	53	9	0	0
Chromium (Cr)	µg/L	9	0.25	0.56	0.28	0.25	0.10	0.03	36	8	0	0
Cobalt (Co)	µg/L	9	0.05	0.22	0.10	0.05	0.07	0.02	74	6	0	0
Copper (Cu)	µg/L	9	0.15	0.53	0.39	0.45	0.14	0.05	35	5	0	0
Iron (Fe)	µg/L	9	46	11900	3662	94	5411	1804	148	0	3	33
Lead (Pb)	µg/L	9	0.025	0.057	0.032	0.025	0.013	0.004	42	7	0	0
Lithium (Li)	µg/L	9	2.5	6.9	3.7	2.5	1.9	0.6	50	6	0	0
Manganese (Mn)	µg/L	9	11.2	1260.0	417.9	33.1	594.4	198.1	142	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.014	0.005	0.011	0.004	79	7	0	0
Molybdenum (Mo)	µg/L	9	0.428	1.470	0.862	0.733	0.380	0.127	44	0	0	0
Nickel (Ni)	µg/L	9	0.25	5.66	0.85	0.25	1.80	0.60	212	8	0	0
Phosphorus (P)	µg/L	9	150	150	150	150	0	0	0	9	0	0
Selenium (Se)	µg/L	9	0.5	0.5	0.5	0.5	0.0	0.0	0	9	0	0
Silver (Ag)	µg/L	9	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Strontium (Sr)	µg/L	9	32.0	95.9	55.5	40.3	28.0	9.3	50	0	0	0
Thallium (Tl)	µg/L	9	0.05	0.05	0.05	0.05	0.00	0.00	0	9	0	0
Tin (Sn)	µg/L	9	0.05	0.05	0.05	0.05	0.00	0.00	0	9	0	0
Titanium (Ti)	µg/L	9	5	5	5	5	0	0	0	9	0	0
Uranium (U)	µg/L	9	0.028	0.137	0.069	0.065	0.038	0.013	55	0	0	0
Vanadium (V)	µg/L	9	0.5	0.5	0.5	0.5	0.0	0.0	0	9	0	0
Zinc (Zn)	µg/L	9	0.5	4.2	2.1	1.5	1.4	0.5	68	4	0	0
Calcium (Ca)	mg/L	9	25.1	79.3	43.1	31.2	21.6	7.2	50	0	0	0
Magnesium (Mg)	mg/L	9	12.4	38.5	20.7	15.3	9.8	3.3	47	0	0	0
Potassium (K)	mg/L	9	2.0	6.5	3.4	2.5	1.8	0.6	51	0	0	0
Silicon (Si)	mg/L	9	0.07	1.62	0.66	0.40	0.62	0.21	93	0	0	0
Sodium (Na)	mg/L	9	1.0	5.3	3.0	2.5	1.7	0.6	56	2	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Dissolved Metals												
Aluminum (Al)	µg/L	8	0.5	7.3	3.3	2.9	2.3	0.8	70	2	0	0
Antimony (Sb)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Arsenic (As)	µg/L	8	1.21	3.68	1.88	1.57	0.85	0.30	45	0	0	0
Barium (Ba)	µg/L	8	26.2	134.0	51.5	28.6	42.6	15.1	83	0	0	0
Beryllium (Be)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Bismuth (Bi)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Boron (B)	µg/L	8	14	27	19	18	5	2	28	0	0	0
Cadmium (Cd)	µg/L	8	0.005	0.025	0.017	0.025	0.010	0.003	55	7	0	0
Chromium (Cr)	µg/L	8	0.25	0.50	0.28	0.25	0.09	0.03	31	8	0	0
Cobalt (Co)	µg/L	8	0.05	0.19	0.08	0.05	0.05	0.02	70	6	0	0
Copper (Cu)	µg/L	8	0.24	0.35	0.28	0.28	0.04	0.01	13	1	0	0
Iron (Fe)	µg/L	8	15	6870	1579	15	2908	1028	184	5	2	25
Lead (Pb)	µg/L	8	0.025	0.025	0.025	0.025	0.000	0.000	0	8	0	0
Lithium (Li)	µg/L	8	2.5	6.5	3.4	2.5	1.6	0.6	49	6	0	0
Manganese (Mn)	µg/L	8	0.338	1190.000	282.560	1.675	521.127	184.246	184	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.014	0.005	0.011	0.004	79	7	0	0
Molybdenum (Mo)	µg/L	8	0.368	1.370	0.738	0.578	0.380	0.134	52	0	0	0
Nickel (Ni)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Phosphorus (P)	µg/L	8	150	150	150	150	0	0	0	8	0	0
Selenium (Se)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Silver (Ag)	µg/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Strontium (Sr)	µg/L	8	30.9	89.6	48.2	37.1	24.8	8.8	51	0	0	0
Thallium (Tl)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Tin (Sn)	µg/L	8	0.05	0.58	0.17	0.05	0.20	0.07	115	5	0	0
Titanium (Ti)	µg/L	8	5	5	5	5	0	0	0	8	0	0
Uranium (U)	µg/L	8	0.025	0.134	0.056	0.044	0.038	0.013	68	0	0	0
Vanadium (V)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Zinc (Zn)	µg/L	8	0.5	4.4	1.8	1.8	1.4	0.5	76	4	0	0
Calcium (Ca)	mg/L	8	25.5	79.9	40.9	32.2	20.5	7.3	50	0	0	0
Magnesium (Mg)	mg/L	8	12.8	38.4	19.9	15.5	9.5	3.3	48	0	0	0
Potassium (K)	mg/L	8	2.1	6.5	3.4	2.5	1.7	0.6	50	0	0	0
Silicon (Si)	mg/L	8	0.08	1.57	0.57	0.37	0.59	0.21	104	0	0	0
Sodium (Na)	mg/L	8	1.0	5.2	2.9	2.4	1.5	0.5	50	1	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Radium-226 (^{226}Ra)	Bq/L	8	0.003	0.010	0.004	0.003	0.003	0.001	77	6	0	0
Radium-228 (^{228}Ra)	Bq/L	8	0.01	0.02	0.01	0.01	0.00	0.00	30	8	0	0
Thorium-230 (^{230}Th)	Bq/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Thorium-232 (^{232}Th)	Bq/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Biota												
Chlorophyll *a*	µg/L	4	0.732	12.400	4.583	2.600	5.286	2.643	115	0	-	-
Pheopigments	µg/L	3	0.207	4.200	1.686	0.650	2.189	1.264	129.84	0	-	-

Table F3-12

Megan Lake (TL-05) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 20-Mar-08	October 2008 5-Oct-08	March 2009 14-Mar-09	June 2009 25-Jun-09	September 2009 14-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	582	449	572	419	442
Hardness (as $CaCO_3$)	mg/L	2	-	-	331	260	335	252	260
pH	pH	0.01	-	-	8.09	8.46	8.11	8.47	8.62
Total Suspended Solids	mg/L	3.0	-	-	7.5	<3.0	6.5	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	355	283	317	278	274
Turbidity	NTU	0.1	-	-	7.2	1.21	7.20	1.93	1.41
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	325	262	371	256	243
Ammonia as N	mg/L	0.02	-	-	-	0.295	1.19	0.137	0.037
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.0550
Chloride (Cl)	mg/L	0.5	-	600	2.43	2.02	2.73	1.88	2.06
Fluoride (F)	mg/L	0.02	-	0.3[d]	3.45	3.01	3.6	2.66	2.85
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	0.0078	<0.0050	<0.0050	<0.0050
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0067	<0.0050	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.0011	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	2.58	1.96	2.73	1.610	1.52
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0365	0.010	0.0303	0.0073	0.0098
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	65.9	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	33.3	35.0	-	29.8
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	<1	2.2	<3	7.1	<4
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	2.5	2.03	2.31	1.73	1.78
Barium (Ba)	µg/L	0.05	-	5000	187	116	168	100	130
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	56	48	58	48	52
Cadmium (Cd)	µg/L	**	0.082[i]	0.082	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	29[k]	0.34	0.39	<1	0.44	<0.5
Iron (Fe)	µg/L	30	300	1000	**588**	57	**872**	73	57
Lead (Pb)	µg/L	0.05	1 - 7[l]	313[m]	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	13	10.4	15.5	10.9	9.3
Manganese (Mn)	µg/L	0.05	-	3709[n]	395	8.33	275	39.2	13.5
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.05
Molybdenum (Mo)	µg/L	0.05	73	2000	0.63	0.541	0.886	0.562	0.632
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.243
Strontium (Sr)	µg/L	0.1	-	-	104	72.8	94	64	74.9
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					20-Mar-08	5-Oct-08	14-Mar-09	25-Jun-09	14-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.087	0.053	0.086	0.064	0.06
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	30	181[q]	<1	1.2	2.5	1.1	<1
Calcium (Ca)	mg/L	0.05	-	-	40.8	31.2	39.2	26.8	30.9
Magnesium (Mg)	mg/L	0.1	-	-	55.6	45.2	56.8	40.6	43.7
Potassium (K)	mg/L	2	-	-	6.4	6.1	6.4	4.5	5.2
Silicon (Si)	mg/L	0.05	-	-	4.69	3.68	4.97	1.94	2.32
Sodium (Na)	mg/L	2	-	-	11	9.5	9.8	7.6	8.4
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	2.1	1.6	4.1	1.4
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	2.31	2.29	2.45	1.81
Barium (Ba)	µg/L	0.05	-	-	-	115	155	102	120
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	51	56	51	47
Cadmium (Cd)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Chromium (Cr)	µg/L	**	-	-	-	<1	<0.5	<1.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.36	0.58	0.33	0.27
Iron (Fe)	µg/L	30	-	350	-	<30	46	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	11	14.1	11.2	9.4
Manganese (Mn)	µg/L	0.05	-	-	-	0.218	262	10.7	0.277
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.05
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.575	0.775	0.61	0.537
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	0.025
Strontium (Sr)	µg/L	0.1	-	-	-	74.5	88.7	66.6	69.2
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	0.34
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.064	0.086	0.049	0.055
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	3.9	3.4	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	30.4	40.1	30.1	31.6
Magnesium (Mg)	mg/L	0.1	-	-	-	44.8	56.9	43	44
Potassium (K)	mg/L	2	-	-	-	6.1	6.1	4.7	5.4
Silicon (Si)	mg/L	0.05	-	-	-	3.64	4.97	2.07	2.35
Sodium (Na)	mg/L	2	-	-	-	9.6	9.3	7.9	8.6
Radionuclides				GCDWQ MAC[s]					
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	0.03	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	0.01	<0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	<0.02	<0.09	<0.02	<0.02	0.03
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	0.02	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	0.93	3.21
Pheopigments	µg/L	0.01	-	-					0.45

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$

Average hardness = 288 mg/L

Cadmium Guideline = 0.082 µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L

3 µg/L when [CaCO3] is 120 - 180 mg/L

4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness = 288 mg/L

Copper Guideline = 29 µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L

4 µg/L when [CaCO3] is 120 - 180 mg/L

7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)

= e(1.273 x [ln(hardness)] - 1.460)

Average hardness = 288 mg/L

Lead Guideline = 313 µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness = 288

Manganese Guideline = 3.709 mg/L

= 3709 µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L

110 µg/L when [CaCO3] is 120 - 180 mg/L

150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is ≤ 100 mg/L

3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness = 288 mg/L

Zinc Guideline = 181 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

Table F2-13

Megan Lake (TL-05) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	419	582	493	449	78	35	16	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	252	335	288	260	42	19	14	0	0	0
pH	pH	5	8.09	8.62	8.35	8.46	0.24	0.11	3	0	0	0
Total Suspended Solids	mg/L	5	1.5	7.5	3.7	1.5	3.0	1.4	82	3	0	0
Total Dissolved Solids	mg/L	5	274	355	301	283	34	15	11	0	0	0
Turbidity	NTU	5	1.2	7.2	3.8	1.9	3.1	1.4	82	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	243	371	291	262	55	24	19	0	0	0
Ammonia as N	mg/L	4	0.04	1.19	0.41	0.22	0.53	0.26	127	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	1.9	2.7	2.2	2.1	0.3	0.2	16	0	0	0
Fluoride (F)	mg/L	5	2.66	3.60	3.11	3.01	0.40	0.18	13	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	0.3	0.3	0.3	0.0	0.0	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.008	0.004	0.003	0.002	0.001	67	4	0	0
Nitrate (as N)	mg/L	2	0.003	0.007	0.005	0.005	0.003	0.002	65	1	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	53	1	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.52	2.73	2.08	1.96	0.55	0.25	27	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	0	4	0	0
Total Phosphate as P	mg/L	5	0.007	0.037	0.019	0.010	0.014	0.006	72	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	65.9	65.9	65.9	65.9	65.9	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	29.80	35.00	32.70	33.30	2.65	1.33	8	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	0.5	7.1	2.7	2.0	2.6	1.1	97	3	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	1.73	2.50	2.07	2.03	0.33	0.15	16	0	0	0
Barium (Ba)	µg/L	5	100.0	187.0	140.2	130.0	36.3	16.2	26	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	48	58	52	52	5	2	9	0	0	0
Cadmium (Cd)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.25	0.50	0.38	0.39	0.10	0.04	25	2	0	0
Iron (Fe)	µg/L	5	57	872	329	73	379	170	115	0	2	40
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	9.3	15.5	11.8	10.9	2.5	1.1	21	0	0	0
Manganese (Mn)	µg/L	5	8.3	395.0	146.2	39.2	177.9	79.5	122	0	0	0
Mercury (Hg)	µg/L	3	0.025	0.025	0.025	0.025	0.000	0.000	0	3	0	0
Molybdenum (Mo)	µg/L	5	0.541	0.886	0.650	0.630	0.138	0.062	21	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.243	0.053	0.005	0.106	0.048	202	4	0	0
Strontium (Sr)	µg/L	5	64.0	104.0	81.9	74.9	16.5	7.4	20	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.053	0.087	0.070	0.064	0.016	0.007	22	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	2.5	1.2	1.1	0.8	0.4	70	2	0	0
Calcium (Ca)	mg/L	5	26.8	40.8	33.8	31.2	6.0	2.7	18	0	0	0
Magnesium (Mg)	mg/L	5	40.6	56.8	48.4	45.2	7.3	3.3	15	0	0	0
Potassium (K)	mg/L	5	4.5	6.4	5.7	6.1	0.8	0.4	15	0	0	0
Silicon (Si)	mg/L	5	1.94	4.97	3.52	3.68	1.36	0.61	39	0	0	0
Sodium (Na)	mg/L	5	7.6	11.0	9.3	9.5	1.3	0.6	14	1	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	1.4	4.1	2.3	1.9	1.2	0.6	54	0	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	1.81	2.45	2.22	2.30	0.28	0.14	13	0	0	0
Barium (Ba)	µg/L	4	102.0	155.0	123.0	117.5	22.6	11.3	18	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	47	56	51	51	4	2	7	0	0	0
Cadmium (Cd)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.75	0.44	0.38	0.24	0.12	55	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.27	0.58	0.39	0.35	0.14	0.07	35	0	0	0
Iron (Fe)	µg/L	4	15	46	23	15	16	8	68	3	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	9.4	14.1	11.4	11.1	2.0	1.0	17	0	0	0
Manganese (Mn)	µg/L	4	0.218	262.000	68.299	5.489	129.228	64.614	189	0	0	0
Mercury (Hg)	µg/L	3	0.025	0.025	0.025	0.025	0.000	0.000	0	3	0	0
Molybdenum (Mo)	µg/L	4	0.537	0.775	0.624	0.593	0.105	0.052	17	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.03	0.01	0.01	0.01	0.01	100	3	0	0
Strontium (Sr)	µg/L	4	66.6	88.7	74.8	71.9	9.9	4.9	13	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.34	0.12	0.05	0.15	0.07	118	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.049	0.086	0.064	0.060	0.016	0.008	26	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	3.9	2.1	2.0	1.8	0.9	88	2	0	0
Calcium (Ca)	mg/L	4	30.1	40.1	33.1	31.0	4.7	2.4	14	0	0	0
Magnesium (Mg)	mg/L	4	43.0	56.9	47.2	44.4	6.5	3.3	14	0	0	0
Potassium (K)	mg/L	4	4.7	6.1	5.6	5.8	0.7	0.3	12	0	0	0
Silicon (Si)	mg/L	4	2.07	4.97	3.26	3.00	1.33	0.67	41	0	0	0
Sodium (Na)	mg/L	4	7.9	9.6	8.9	9.0	0.8	0.4	9	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	5	0.01	0.03	0.01	0.01	0.01	0.00	64	4	0	0
Radium-226 (^{226}Ra)	Bq/L	5	0.003	0.010	0.004	0.003	0.003	0.002	84	4	0	0
Radium-228 (^{228}Ra)	Bq/L	5	0.01	0.05	0.02	0.01	0.02	0.01	85	5	0	0
Thorium-230 (^{230}Th)	Bq/L	5	0.005	0.020	0.008	0.005	0.007	0.003	84	4	0	0
Thorium-232 (^{232}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Biota												
Chlorophyll *a*	µg/L	2	0.930	3.210	2.070	2.070	1.612	1.140	78	0	-	-
Pheopigments	µg/L	1	0.45	0.45	0.45	0.45	-	-	-	0	-	-

Table F3-13

Thor Lake (TL-01, TL-02, TL-06 & TL-07) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008				March 2009		June 2009		September 2009		April 2010		June 2010		September 2010		October 2010	
					20-Mar-08	19-Mar-08	6-Oct-08				17-Mar-09		24-Jun-09		6-Sep-09		13-Apr-10		9-Jun-10		1-Sep-10		5-Oct-10	7-Oct-10
					TL-01	TL-02	TL-01	TL-02	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07
Physicals																								
Conductivity	µS/cm	0.5	-	-	357	353	292	292	293	291	356	351	278	278	291	292	354	355	264	264	272	274	279	279
Hardness (as $CaCO_3$)	mg/L	2	-	-	191	185	156	158	160	158	193	190	155	154	160	160	187	187	148	150	158	157	154	156
pH	pH	0.01	-	-	8.11	8.09	8.39	8.43	8.43	8.39	8.05	8.04	7.77	8.02	8.31	8.29	8.09	8.06	8.21	8.25	8.37	8.37	8.38	8.37
Total Suspended Solids	mg/L	3.0	-	-	<3.0	3.0	<3.0	<3.0	<3.0	3.2	<3.0	<3.0	<3.0	<3.0	<3.0	3.3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	215	212	174	171	175	180	229	219	175	176	176	177	215	220	164	164	174	164	159	167
Turbidity	NTU	0.1	-	-	0.57	0.97	0.89	0.88	0.91	1.56	1.51	1.04	1.31	1.30	1.60	1.68	1.24	1.15	1.1	1.13	1.15	1.06	1.32	0.96
Anions																								
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	202	199	157	147	157	159	205	204	154	163	144	140	192	195	141	141	148	146	155	155
Ammonia as N	mg/L	0.02	-	-	-	-	<0.02	0.024	<0.02	0.022	0.059	0.039	0.020	0.020	<0.020	<0.020	0.029	0.258	<0.020	<0.020	0.0173	0.0181	0.0085	0.0058
Bromide (Br)	mg/L	0.05	-	-	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	5.01	4.97	4.12	4.11	4.13	4.1	5.13	4.98	3.74	3.75	4.17	3.08	4.99	4.9	3.52	3.52	3.83	3.81	3.82	3.95
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.270	1.250	1.080	1.080	1.080	1.070	1.260	1.240	0.943	0.946	1.030	0.762	1.250	1.230	0.933	0.940	0.997	0.989	1.05	1.09
Sulfate (SO_4)	mg/L	0.5	-	100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients																								
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.192	0.213	<0.0050	<0.0050	<0.0050	<0.0050	0.226	0.386	<0.0050	<0.0050	-	-	0.304	0.247	<0.0050	<0.0050	-	-	<0.0051	<0.0051
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	-	<0.0050	<0.0050	<0.0050	<0.0050	0.226	0.386	-	-	<0.0050	<0.0050	0.3	0.244	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	-	<0.0010	<0.0010	0.0032	0.0035	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.695	0.700	0.556	0.645	0.607	0.600	0.578	0.543	0.591	0.559	0.624	0.598	0.651	0.890	1.370	1.170	1.16	1.12	0.674	0.716
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0061	0.0072	0.0071	0.0076	0.0072	0.0098	0.0062	0.0051	0.0081	0.0134	0.0054	0.0054	0.0176	0.0056	0.0099	0.0094	0.0065	0.0073	0.0087	0.01
Organics																								
Total Organic Carbon (TOC)	mg/L	0.5	-	-	15.4	15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	-	13.8	13.9	13.8	13.7	14.0	13.4	14.1	12.0	14.8	14.8	15.0	15.1	12.6	12.7	12.4	12.5	13.8	14.2
Total Metals																								
Aluminum (Al)	µg/L	**[f]	100[g]	-	3.2	1.7	3.9	4.0	3.9	13.3	<3.0	<1.0	<5.0	<5.0	<5.0	<4.0	1.9	1.9	<6.0	<7.0	3	4.5	3.7	3.1
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.95	0.91	0.68	0.70	0.72	0.74	0.77	0.80	0.64	0.67	0.83	0.87	0.68	0.67	0.56	0.59	0.73	0.7	0.75	0.73
Barium (Ba)	µg/L	0.05	-	5000	82.9	78.2	57.6	58.7	59.4	59.3	72.6	69.0	47.8	47.8	73.4	73.6	77.1	78.1	55.8	56.2	46.7	46.9	60.7	61.2
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	26	25	26	26	27	26	26	25	21	22	28	28	29	31	24	25	28	26	24	26
Cadmium (Cd)	µg/L	**	0.051[i]	0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	**	8.9	8.9	<0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	18[k]	**6.03**	0.84	0.29	0.33	0.39	0.44	<0.4	0.11	0.35	0.35	<0.5	<0.6	0.20	0.28	0.40	0.47	<0.3	<0.4	<0.5	<0.5
Iron (Fe)	µg/L	30	300	1000	<30	47	77	58	41	232	131	94	57	53	96	106	87	119	48	59	104	107	51	49
Lead (Pb)	µg/L	0.05	1 - 7[l]	155[m]	0.228	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	6.0	5.9	5.8	5.7	6.4	5.8	6.8	6.7	5.1	5.0	5.2	5.4	6.3	6.8	<5.0	<5.0	<5.0	<5.0	<5	5
Manganese (Mn)	µg/L	0.05	-	2368[n]	17.4	47.9	24.8	25.7	26.7	37.9	130	64.5	46.8	52.8	77.0	82.6	96.7	32.7	30.6	29.9	51.8	46.5	28	27.4
Mercury (Hg)	µg/L	0.05	0.026	0.1	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	**	73	2000	2.17	2.04	2.01	2.12	2.1	2.51	2.22	2.21	1.88	1.91	2.37	2.44	2.11	2.11	1.69	1.84	2.25	2.23	1.99	1.95
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	68.3	64.7	51.6	52.2	53.2	51.9	63.7	64.1	44.5	44.5	63.1	66.2	66.7	69.6	48.8	49.7	56.6	57.4	54.9	55.6
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	0.2	<0.1	<0.1	0.98	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.39	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.378	0.367	0.309	0.315	0.312	0.309	0.429	0.477	0.417	0.413	0.320	0.328	0.398	0.443	0.370	0.385	0.342	0.327	0.337	0.327
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	90[q]	2.6	1.7	1.1	1.9	<1	3.1	1.6	<1	<2	<2	<1	1.3	<1	<1	<1	<1	1.1	<1	<3	<3
Calcium (Ca)	mg/L	0.05	-	-	40.5	39.2	32.2	33.1	32.2	32.7	40.2	41.0	31.4	31.4	33.7	33.1	36.9	38.7	30.2	31.3	32	32.7	31.9	32.2
Magnesium (Mg)	mg/L	0.1	-	-	21.9	21.2	17.3	17.5	17.7	17.4	21.5	21.4	16.9	16.8	17.9	17.3	20.2	20.9	15.8	16.2	16.8	17.2	17	17.2
Potassium (K)	mg/L	2	-	-	2.4	2.3	2.2	2.2	2.3	2.2	2.4	2.3	<2.0	<2.0	2.3	2.2	2.1	2.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	3.96	3.88	3.08	3.16	3.16	3.16	4.16	4.15	2.39	2.40	2.88	2.81	3.68	3.80	2.28	2.31	2.75	2.79	2.83	2.86
Sodium (Na)	mg/L	2	-	-	8.0	7.8	6.6	6.6	6.8	6.6	7.0	6.7	5.8	5.8	6.8	6.6	7.1	7.2	5.3	5.5	5.6	5.8	5.8	6
Dissolved Metals																								
Aluminum (Al)	µg/L	1	-	100[r]	-	-	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	1.5	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1	<1	<3	<3
Antimony (Sb)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	-	0.78	0.79	0.81	0.77	0.80	0.78	0.82	0.79	0.76	0.80	0.70	0.67	0.68	0.67	0.8	0.79	0.93	0.87
Barium (Ba)	µg/L	0.05	-	-	-	-	54.6	53.6	54.9	52.0	68.6	67.7	46.5	45.6	67.5	67.1	76.6	76.2	53.0	51.7	51.3	47.2	59.1	57.6
Beryllium (Be)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008		October 2008				March 2009		June 2009		September 2009		April 2010		June 2010		September 2010		October 2010	
					20-Mar-08	19-Mar-08	6-Oct-08				17-Mar-09		24-Jun-09		6-Sep-09		13-Apr-10		9-Jun-10		1-Sep-10		5-Oct-10	7-Oct-10
					TL-01	TL-02	TL-01	TL-02	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07	TL-06	TL-07
Bismuth (Bi)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	-	24	24	25	23	24	25	21	20	25	25	26	26	20	20	24	23	23	24
Cadmium (Cd)	µg/L	0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.7	<0.7	<0.8	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	-	0.17	0.22	0.18	0.17	0.16	0.17	0.20	0.22	0.24	0.19	0.14	0.13	0.23	0.26	0.11	0.13	<0.5	<0.5
Iron (Fe)	µg/L	30	-	350	-	-	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	-	<5	<5	5.2	<5	6.5	6.7	<5.0	<5.0	5.2	5.2	6.1	6.3	<5.0	<5.0	<5.0	<5.0	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	-	0.141	0.143	0.121	0.149	10.700	0.466	4.850	7.890	0.300	0.383	1.840	0.880	1.130	1.000	0.224	0.147	0.345	0.237
Mercury (Hg)	µg/L	**	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	-	1.84	1.82	1.83	1.76	2.06	2.20	1.81	1.71	2.01	2.04	2.01	2.02	1.63	1.60	1.9	1.99	1.97	1.96
Nickel (Ni)	µg/L	0.5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	-	47.5	47.5	48.5	46.1	64.2	64.6	42.5	42.2	56.9	56.3	66.4	66.1	48.8	48.3	52.4	52.2	55.1	53.7
Thallium (Tl)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.79	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	-	0.282	0.278	0.270	0.265	0.412	0.478	0.224	0.243	0.289	0.293	0.378	0.419	0.333	0.322	0.288	0.287	0.294	0.29
Vanadium (V)	µg/L	1	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	-	2	<1	<1	<1	3.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<3	<3
Calcium (Ca)	mg/L	0.05	-	-	-	-	33.3	34.1	34.6	34	41.7	40.9	33.2	33	34.5	34.6	39.8	39.6	31.9	32.2	33.9	33.5	32.6	33.1
Magnesium (Mg)	mg/L	0.1	-	-	-	-	17.8	17.7	17.8	17.7	21.6	21.5	17.4	17.4	17.9	17.9	21.2	21.5	16.6	16.8	17.7	17.7	17.5	17.7
Potassium (K)	mg/L	2	-	-	-	-	2.4	2.2	2.1	2.1	2.4	2.3	<2.0	<2.0	2.2	2.2	2.2	2.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	-	3.21	3.21	3.24	3.23	4.23	4.14	2.52	2.50	2.91	2.91	3.87	3.95	2.41	2.37	2.85	2.87	2.91	2.94
Sodium (Na)	mg/L	2	-	-	-	-	6.8	6.5	6.4	6.4	6.7	6.6	5.9	5.9	6.6	6.6	7.3	7.4	5.6	5.7	5.9	6	6	6.1
Radionuclides			**GCDWQ MAC[s]**																					
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	<0.005	-	-	<0.005	<0.005	0.01	0.01	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	<0.02	<0.02	-	-	<0.06	<0.06	<0.03	<0.03	<0.02	<0.02	<0.03	<0.03	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	0.02	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota																								
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	-	-	-	-	1.76	2.01	2.23	2.04	-	-	1.45	2.83	0.273	1.19	-	-
Pheopigments	µg/L	0.01	-	-									-	-	1.43	0.712	-	-	0.256	0.42	0.027	0.317	-	-

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{0.86[Log(hardness)] - 3.2}$

Average hardness =	166	mg/L
Cadmium Guideline =	0.051	µg/L

j. CCME FAL Total Copper guideline:
2 µg/L when [CaCO3] is 0 - 120 mg/L
3 µg/L when [CaCO3] is 120 - 180 mg/L
4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness =	166	mg/L
Copper Guideline =	18	µg/L

l. CCME FAL Total Lead guideline:
1 µg/L when [CaCO3] is 0 - 60 mg/L
4 µg/L when [CaCO3] is 120 - 180 mg/L
7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
= $e^{(1.273 \times [LN(hardness)] - 1.460)}$

Average hardness =	166	mg/L
Lead Guideline =	155	µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness =	166	
Manganese Guideline =	2.368	mg/L
=	2368	µg/L

o. CCME FAL Total Nickel guideline:
25 µg/L when [CaCO3] is 0 - 60 mg/L
110 µg/L when [CaCO3] is 120 - 180 mg/L
150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:
0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness =	166	mg/L
Zinc Guideline =	90	µg/L

r. BC WQG for Dissolved Aluminum guideline 100µg/L for pH $\geq$ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted

u. **Bolded** result implies a guideline exceedance

v. Data outlier, excluded from summary statistics

Table F2-14

Thor Lake Original (TL-01 & TL-02) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
		TL-01	TL-01	TL-01	TL-01	TL-01	TL-01	TL-01	TL-01	TL-01	TL-01	TL-01	TL-02	TL-02	TL-02	TL-02	TL-02	TL-02	TL-02	TL-02	TL-02	TL-02	TL-02
Physicals																							
Conductivity	mg/L	2	292	357	325	325	46	33	14	0	0	0	2	292	353	323	323	43	31	13	0	0	0
Hardness (as $CaCO_3$)	uS/cm	2	156	191	174	174	25	18	14	0	0	0	2	158	185	172	172	19	14	11	0	0	0
pH	pH	2	8.11	8.39	8.25	8.25	0.20	0.14	2.40	0	0	0	2	8	8.43	8.26	8.26	0.24	0.17	2.91	0	0	0
Total Suspended Solids	mg/L	2	1.5	1.50	1.50	1.50	0.00	0.00	0.00	2	0	0	2	2	3.00	2.25	2.25	1.06	0.75	47.14	1	0	0
Total Dissolved Solids	mg/L	2	174	215	195	195	29	21	15	0	0	0	2	171	212	192	192	29	21	15	0	0	0
Turbidity	NTU	2	0.57	0.89	0.73	0.73	0.23	0.16	31.00	0	0	0	2	1	0.97	0.93	0.93	0.06	0.04	6.88	0	0	0
Anions																							
Alkalinity, Total (as $CaCO_3$)	mg/L	2	157	202	180	180	32	23	18	0	0	0	2	147	199	173	173	37	26	21	0	0	0
Ammonia as N	mg/L	1	0.01	0.010	0.010	0.010	-	-	-	1	0	0	1	0	0.024	0.024	0.024	-	-	-	0	0	0
Bromide (Br)	mg/L	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0	1	0	0.025	0.025	0.025	-	-	-	1	0	0
Chloride (Cl)	mg/L	2	4.12	5.01	4.57	4.57	0.63	0.45	13.79	0	0	0	2	4	4.97	4.54	4.54	0.61	0.43	13.39	0	0	0
Fluoride (F)	mg/L	2	1.08	1.27	1.18	1.18	0.13	0.09	11.43	0	0	0	2	1	1.25	1.17	1.17	0.12	0.09	10.32	0	0	0
Sulfate (SO_4)	mg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0	2	0	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0
Nutrients																							
Nitrate and Nitrite as N	mg/L	2	0.0025	0.1920	0.0973	0.0973	0.1340	0.0948	137.7858	1	0	0	2	0	0.2130	0.1078	0.1078	0.1488	0.1053	138.1401	1	0	0
Nitrate (as N)	mg/L	1	0.0025	0.0025	0.0025	0.0025	-	-	-	1	0	0	1	0	0.0025	0.0025	0.0025	-	-	-	1	0	0
Nitrite (as N)	mg/L	1	0.0005	0.0005	0.0005	0.0005	-	-	-	1	0	0	1	0	0.0005	0.0005	0.0005	-	-	-	1	0	0
Total Kjeldahl Nitrogen	mg/L	2	0.556	0.695	0.626	0.626	0.098	0.070	15.713	0	0	0	2	1	0.700	0.673	0.673	0.039	0.028	5.783	0	0	0
Ortho Phosphate as P	mg/L	2	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0.0000	2	0	0	2	0	0.0005	0.0005	0.0005	0.0000	0.0000	0.0000	2	0	0
Total Phosphate as P	mg/L	2	0.0061	0.0071	0.0066	0.0066	0.0007	0.0005	10.7137	0	0	0	2	0	0.0076	0.0074	0.0074	0.0003	0.0002	3.8222	0	0	0
Organics																							
Total Organic Carbon (TOC)	mg/L	1	15.4	15.4	15.4	15.4	-	-	-	0	0	0	1	16	15.6	15.6	15.6	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	1	13.8	13.8	13.8	13.8	-	-	-	0	0	0	1	14	13.9	13.9	13.9	-	-	-	0	0	0
Total Metals																							
Aluminum (Al)	µg/L	2	3.2	3.9	3.6	3.6	0.5	0.4	13.9	0	0	0	2	1.7	4.0	2.9	2.9	1.6	1.2	57.1	0	0	0
Antimony (Sb)	µg/L	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0
Arsenic (As)	µg/L	2	0.68	0.95	0.82	0.82	0.19	0.14	23.43	0	0	0	2	0.70	0.91	0.81	0.81	0.15	0.11	18.45	0	0	0
Barium (Ba)	µg/L	2	57.6	82.9	70.3	70.3	17.9	12.7	25.5	0	0	0	2	58.7	78.2	68.5	68.5	13.8	9.8	20.1	0	0	0
Beryllium (Be)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0
Bismuth (Bi)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0
Boron (B)	µg/L	2	26	26	26	26	0	0	0	0	0	0	2	25	26	26	26	1	1	3	0	0	0
Cadmium (Cd)	µg/L	2	0.025	0.025	0.025	0.025	0.000	0.000	0.000	2	0	0	2	0.025	0.025	0.025	0.025	0.000	0.000	0.000	2	0	0
Chromium (Cr)	µg/L	2	0.25	0.35	0.30	0.30	0.07	0.05	23.57	2	0	0	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0
Cobalt (Co)	µg/L	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0
Copper (Cu)	µg/L	1	0.29	0.29	0.29	0.29	-	-	-	0	1	50	2	0.33	0.84	0.59	0.59	0.36	0.26	61.65	0	0	0
Iron (Fe)	µg/L	2	15	77	46	46	44	31	95	1	0	0	2	47	58	53	53	8	6	15	0	0	0
Lead (Pb)	µg/L	2	0.025	0.228	0.127	0.127	0.144	0.102	113.472	1	0	0	2	0.025	0.025	0.025	0.025	0.000	0.000	0.000	2	0	0
Lithium (Li)	µg/L	2	5.8	6.0	5.9	5.9	0.1	0.1	2.4	0	0	0	2	5.7	5.9	5.8	5.8	0.1	0.1	2.4	0	0	0
Manganese (Mn)	µg/L	2	17.4	24.8	21.1	21.1	5.2	3.7	24.8	0	0	0	2	25.7	47.9	36.8	36.8	15.7	11.1	42.7	0	0	0
Mercury (Hg)	µg/L	0	-	-	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	-	-	0	0
Molybdenum (Mo)	µg/L	2	2.01	2.17	2.09	2.09	0.11	0.08	5.41	0	0	0	2	2.04	2.12	2.08	2.08	0.06	0.04	2.72	0	0	0
Nickel (Ni)	µg/L	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0	2	0.25	0.25	0.25	0.25	0.00	0.00	0.00	2	0	0
Phosphorus (P)	µg/L	2	150	150	150	150	0	0	0	2	0	0	2	150	150	150	150	0	0	0	2	0	0
Selenium (Se)	µg/L	2	0.5	0.5	0.5	0.5	0.0	0.0	0.0	2	0	0	2	0.5	0.5	0.5	0.5	0.0	0.0	0.0	2	0	0
Silver (Ag)	µg/L	2	0.005	0.005	0.005	0.005	0.000	0.000	0.000	2	0	0	2	0.005	0.005	0.005	0.005	0.000	0.000	0.000	2	0	0
Strontium (Sr)	µg/L	2	51.6	68.3	60.0	60.0	11.8	8.3	19.7	0	0	0	2	52.2	64.7	58.5	58.5	8.8	6.2	15.1	0	0	0
Thallium (Tl)	µg/L	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0
Tin (Sn)	µg/L	2	0.05	0.20	0.13	0.13	0.11	0.08	84.85	1	0	0	2	0.05	0.05	0.05	0.05	0.00	0.00	0.00	2	0	0
Titanium (Ti)	µg/L	2	5	5	5	5	0	0	0	2	0	0	2	5	5	5	5	0	0	0	2	0	0
Uranium (U)	µg/L	2	0.309	0.378	0.344	0.344	0.049	0.034	14.204	0	0	0	2	0.315	0.367	0.341	0.341	0.037	0.026	10.783	0	0	0
Vanadium (V)	µg/L	2	0.5	0.5	0.5	0.5	0.0	0.0	0.0	2	0	0	2	0.5	0.5	0.5	0.5	0.0	0.0	0.0	2	0	0
Zinc (Zn)	µg/L	2	1.1	2.6	1.9	1.9	1.1	0.8	57.3	0	0	0	2	1.7	1.9	1.8	1.8	0.1	0.1	7.9	0	0	0
Calcium (Ca)	mg/L	2	32.2	40.5	36.4	36.4	5.9	4.2	16.1	0	0	0	2	33.1	39.2	36.2	36.2	4.3	3.0	11.9	0	0	0
Magnesium (Mg)	mg/L	2	17.3	21.9	19.6	19.6	3.3	2.3	16.6	0	0	0	2	17.5	21.2	19.4	19.4	2.6	1.8	13.5	0	0	0
Potassium (K)	mg/L	2	2.2	2.4	2.3	2.3	0.1	0.1	6.1	0	0	0	2	2.2	2.3	2.3	2.3	0.1	0.0	3.1	0	0	0
Silicon (Si)	mg/L	2	3.08	3.96	3.52	3.52	0.62	0.44	17.68	0	0	0	2	3.16	3.88	3.52	3.52	0.51	0.36	14.46	0	0	0
Sodium (Na)	mg/L	2	6.6	8.0	7.3	7.3	1.0	0.7	13.6	0	0	0	2	6.6	7.8	7.2	7.2	0.8	0.6	11.8	0	0	0
Dissolved Metals																							
Aluminum (Al)	µg/L	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0	1	1.1	1.1	1.1	1.1	-	-	-	0	0	0
Antimony (Sb)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Arsenic (As)	µg/L	1	0.78	0.78	0.78	0.78	-	-	-	0	0	0	1	0.79	0.79	0.79	0.79	-	-	-	0	0	0
Barium (Ba)	µg/L	1	54.6	54.6	54.6	54.6	-	-	-	0	0	0	1	53.6	53.6	53.6	53.6	-	-	-	0	0	0
Beryllium (Be)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0

Parameter	Units	n TL-01	Minimum Value TL-01	Maximum Value TL-01	Mean Value TL-01	Median TL-01	Standard Deviation TL-01	Standard Error TL-01	Coefficient of Variation TL-01	No. < DL TL-01	No. > GL TL-01	% > GL TL-01	n TL-02	Minimum Value TL-02	Maximum Value TL-02	Mean Value TL-02	Median TL-02	Standard Deviation TL-02	Standard Error TL-02	Coefficient of Variation TL-02	No. < DL TL-02	No. > GL TL-02	% > GL TL-02
Bismuth (Bi)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Boron (B)	µg/L	1	24	24	24	24	-	-	-	0	0	0	1	24	24	24	24	-	-	-	0	0	0
Cadmium (Cd)	µg/L	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0
Chromium (Cr)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Cobalt (Co)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Copper (Cu)	µg/L	1	0.17	0.17	0.17	0.17	-	-	-	0	0	0	1	0.22	0.22	0.22	0.22	-	-	-	0	0	0
Iron (Fe)	µg/L	1	15	15	15	15	-	-	-	1	0	0	1	15	15	15	15	-	-	-	1	0	0
Lead (Pb)	µg/L	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0	1	0.025	0.025	0.025	0.025	-	-	-	1	0	0
Lithium (Li)	µg/L	1	2.5	2.5	2.5	2.5	-	-	-	1	0	0	1	2.5	2.5	2.5	2.5	-	-	-	1	0	0
Manganese (Mn)	µg/L	1	0.141	0.141	0.141	0.141	-	-	-	0	0	0	1	0.143	0.143	0.143	0.143	-	-	-	0	0	0
Mercury (Hg)	µg/L	0	-	-	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	-	-	0	0
Molybdenum (Mo)	µg/L	1	1.84	1.84	1.84	1.84	-	-	-	0	0	0	1	1.82	1.82	1.82	1.82	-	-	-	0	0	0
Nickel (Ni)	µg/L	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0	1	0.25	0.25	0.25	0.25	-	-	-	1	0	0
Phosphorus (P)	µg/L	1	150	150	150	150	-	-	-	1	0	0	1	150	150	150	150	-	-	-	1	0	0
Selenium (Se)	µg/L	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0
Silver (Ag)	µg/L	1	0.005	0.005	0.005	0.005	-	-	-	1	0	0	1	0.005	0.005	0.005	0.005	-	-	-	1	0	0
Strontium (Sr)	µg/L	1	47.5	47.5	47.5	47.5	-	-	-	0	0	0	1	47.5	47.5	47.5	47.5	-	-	-	0	0	0
Thallium (Tl)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Tin (Sn)	µg/L	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0	1	0.05	0.05	0.05	0.05	-	-	-	1	0	0
Titanium (Ti)	µg/L	1	5	5	5	5	-	-	-	1	0	0	1	5	5	5	5	-	-	-	1	0	0
Uranium (U)	µg/L	1	0.282	0.282	0.282	0.282	-	-	-	0	0	0	1	0.278	0.278	0.278	0.278	-	-	-	0	0	0
Vanadium (V)	µg/L	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0
Zinc (Zn)	µg/L	1	2.0	2.0	2.0	2.0	-	-	-	0	0	0	1	0.5	0.5	0.5	0.5	-	-	-	1	0	0
Calcium (Ca)	mg/L	1	33.3	33.3	33.3	33.3	-	-	-	0	0	0	1	34.1	34.1	34.1	34.1	-	-	-	0	0	0
Magnesium (Mg)	mg/L	1	17.8	17.8	17.8	17.8	-	-	-	0	0	0	1	17.7	17.7	17.7	17.7	-	-	-	0	0	0
Potassium (K)	mg/L	1	2.4	2.4	2.4	2.4	-	-	-	0	0	0	1	2.2	2.2	2.2	2.2	-	-	-	0	0	0
Silicon (Si)	mg/L	1	3.21	3.21	3.21	3.21	-	-	-	0	0	0	1	3.21	3.21	3.21	3.21	-	-	-	0	0	0
Sodium (Na)	mg/L	1	6.8	6.8	6.8	6.8	-	-	-	0	0	0	1	6.5	6.5	6.5	6.5	-	-	-	0	0	0
Radionuclides																							
Lead-210 (210Pb)	Bq/L	1	0.01	0.01	0.01	0.01	-	-	-	1	0	0	1	0	0.01	0.01	0.01	-	-	-	1	0	0
Radium-226 (226Ra)	Bq/L	1	0.0025	0.0025	0.0025	0.0025	-	-	-	1	0	0	1	0	0.0025	0.0025	0.0025	-	-	-	1	0	0
Radium-228 (228Ra)	Bq/L	1	0.01	0.01	0.01	0.01	-	-	-	1	0	0	1	0	0.01	0.01	0.01	-	-	-	1	0	0
Thorium-230 (230Th)	Bq/L	1	0.005	0.005	0.005	0.005	-	-	-	1	0	0	1	0	0.020	0.020	0.020	-	-	-	0	0	0
Thorium-232 (232Th)	Bq/L	1	0.005	0.005	0.005	0.005	-	-	-	1	0	0	1	0	0.005	0.005	0.005	-	-	-	1	0	0
Biota																							
Chlorophyll a	µg/L	0	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-
Pheopigments	µg/L	0	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-

Table F2-15

Thor Lake East & West (TL-06 & TL-07) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value TL-06	Maximum Value TL-06	Mean Value TL-06	Median TL-06	Standard Deviation TL-06	Standard Error TL-06	Coefficient of Variation TL-06	No. < DL TL-06	No. > GL TL-06	% > GL TL-06	Minimum Value TL-07	Maximum Value TL-07	Mean Value TL-07	Median TL-07	Standard Deviation TL-07	Standard Error TL-07	Coefficient of Variation TL-07	No. < DL TL-07	No. > GL TL-07	% > GL TL-07
Physicals																						
Conductivity	mg/L	8	264	356	298	285	36	13	12	0	0	0	264	355	298	285	35	12	12	0	0	0
Hardness (as $CaCO_3$)	uS/cm	8	148	193	164	159	16	6	10	0	0	0	150	190	164	158	15	5	9	0	0	0
pH	pH	8	7.77	8.43	8.20	8.26	0.22	0.08	3	0	0	0	8.02	8.39	8.22	8.27	0.16	0.06	2	0	0	0
Total Suspended Solids	mg/L	8	1.5	1.5	1.5	1.5	0.0	0.0	0	8	0	0	1.5	3.3	1.9	1.5	0.8	0.3	42	6	0	0
Total Dissolved Solids	mg/L	8	159	229	183	175	25	9	14	0	0	0	164	220	183	177	23	8	13	0	0	0
Turbidity	NTU	8	0.9	1.6	1.3	1.3	0.2	0.1	17	0	0	0	1.0	1.7	1.2	1.1	0.3	0.1	21	0	0	0
Anions																						
Alkalinity, Total (as $CaCO_3$)	mg/L	8	141	205	162	155	23	8	14	0	0	0	140	204	163	157	24	9	15	0	0	0
Ammonia as N	mg/L	8	0.01	0.06	0.02	0.01	0.02	0.01	83	3	0	0	0.01	0.26	0.05	0.02	0.09	0.03	179	2	0	0
Bromide (Br)	mg/L	7	0.03	0.03	0.03	0.03	0.00	0.00	0	7	0	0	0.03	0.03	0.03	0.03	0.00	0.00	0	7	0	0
Chloride (Cl)	mg/L	8	3.5	5.1	4.2	4.0	0.6	0.2	14	0	0	0	3.1	5.0	4.0	3.9	0.6	0.2	16	0	0	0
Fluoride (F)	mg/L	8	0.93	1.26	1.07	1.04	0.13	0.04	12	0	0	0	0.76	1.24	1.03	1.03	0.16	0.06	15	0	0	0
Sulfate (SO_4)	mg/L	8	0.3	0.3	0.3	0.3	0.0	0.0	0	8	0	0	0.3	0.3	0.3	0.3	0.0	0.0	0	8	0	0
Nutrients																						
Nitrate and Nitrite as N	mg/L	6	0.003	0.304	0.090	0.003	0.138	0.056	153	4	0	0	0.003	0.386	0.107	0.003	0.168	0.069	157	4	0	0
Nitrate (as N)	mg/L	7	0.003	0.300	0.077	0.003	0.129	0.049	168	5	0	0	0.003	0.386	0.092	0.003	0.158	0.060	172	5	0	0
Nitrite (as N)	mg/L	7	0.001	0.003	0.001	0.001	0.001	0.000	115	6	0	0	0.001	0.004	0.001	0.001	0.001	0.000	122	5	0	0
Total Kjeldahl Nitrogen	mg/L	8	0.58	1.37	0.78	0.64	0.30	0.11	39	0	0	0	0.54	1.17	0.77	0.66	0.25	0.09	33	0	0	0
Ortho Phosphate as P	mg/L	8	0.001	0.001	0.001	0.001	0.000	0.000	0	8	0	0	0.001	0.001	0.001	0.001	0.000	0.000	0	8	0	0
Total Phosphate as P	mg/L	8	0.005	0.018	0.009	0.008	0.004	0.001	45	0	0	0	0.005	0.013	0.008	0.008	0.003	0.001	35	0	0	0
Organics																						
Total Organic Carbon (TOC)	mg/L	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0
Dissolved Organic Carbon (DOC)	mg/L	8	12.40	15.00	13.81	13.90	0.92	0.33	7	0	0	0	12.00	15.10	13.55	13.55	1.11	0.39	8	0	0	0
Total Metals																						
Aluminum (Al)	µg/L	8	1.5	3.9	2.8	2.8	0.8	0.3	30	4	0	0	0.5	13.3	3.9	2.8	4.0	1.4	102	4	0	0
Antimony (Sb)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Arsenic (As)	µg/L	8	0.56	0.83	0.71	0.73	0.08	0.03	12	0	0	0	0.59	0.87	0.72	0.72	0.09	0.03	12	0	0	0
Barium (Ba)	µg/L	8	46.7	77.1	61.7	60.1	11.7	4.1	19	0	0	0	46.9	78.1	61.5	60.3	11.4	4.0	19	0	0	0
Beryllium (Be)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Bismuth (Bi)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Boron (B)	µg/L	8	21	29	26	27	3	1	10	0	0	0	22	31	26	26	3	1	10	0	0	0
Cadmium (Cd)	µg/L	8	0.005	0.025	0.016	0.017	0.009	0.003	57	8	0	0	0.005	0.025	0.016	0.017	0.009	0.003	57	8	0	0
Chromium (Cr)	µg/L	8	0.25	0.50	0.28	0.25	0.09	0.03	31	8	0	0	0.25	0.50	0.28	0.25	0.09	0.03	31	8	0	0
Cobalt (Co)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Copper (Cu)	µg/L	8	0.15	0.40	0.27	0.25	0.09	0.03	35	4	0	0	0.11	0.47	0.30	0.29	0.12	0.04	40	3	0	0
Iron (Fe)	µg/L	8	41	131	77	72	32	11	42	0	0	0	49	232	102	100	59	21	58	0	0	0
Lead (Pb)	µg/L	8	0.025	0.025	0.025	0.025	0.000	0.000	0	8	0	0	0.025	0.025	0.025	0.025	0.000	0.000	0	8	0	0
Lithium (Li)	µg/L	8	2.5	6.8	4.7	5.2	1.9	0.7	40	3	0	0	2.5	6.8	5.0	5.2	1.7	0.6	34	2	0	0
Manganese (Mn)	µg/L	8	26.7	130.0	61.0	49.3	37.4	13.2	61	0	0	0	27.4	82.6	46.8	42.2	19.2	6.8	41	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.011	0.005	0.010	0.004	91	7	0	0	0.005	0.025	0.011	0.005	0.010	0.004	91	7	0	0
Molybdenum (Mo)	µg/L	8	1.690	2.370	2.076	2.105	0.218	0.077	11	0	0	0	1.840	2.510	2.150	2.160	0.245	0.086	11	0	0	0
Nickel (Ni)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Phosphorus (P)	µg/L	8	150	150	150	150	0	0	0	8	0	0	150	150	150	150	0	0	0	8	0	0
Selenium (Se)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Silver (Ag)	µg/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Strontium (Sr)	µg/L	8	44.5	66.7	56.4	55.8	7.7	2.7	14	0	0	0	44.5	69.6	57.4	56.5	8.7	3.1	15	0	0	0
Thallium (Tl)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Tin (Sn)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.39	0.09	0.05	0.12	0.04	130	7	0	0
Titanium (Ti)	µg/L	8	5	5	5	5	0	0	0	8	0	0	5	5	5	5	0	0	0	8	0	0
Uranium (U)	µg/L	8	0.312	0.429	0.366	0.356	0.045	0.016	12	0	0	0	0.309	0.477	0.376	0.357	0.063	0.022	17	0	0	0
Vanadium (V)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Zinc (Zn)	µg/L	8	0.5	1.6	0.9	0.8	0.5	0.2	52	6	0	0	0.5	3.1	1.1	0.8	0.9	0.3	81	6	0	0
Calcium (Ca)	mg/L	8	30.2	40.2	33.6	32.1	3.3	1.2	10	0	0	0	31.3	41.0	34.1	32.7	3.6	1.3	11	0	0	0
Magnesium (Mg)	mg/L	8	15.8	21.5	18.0	17.4	1.9	0.7	11	0	0	0	16.2	21.4	18.1	17.3	2.0	0.7	11	0	0	0
Potassium (K)	mg/L	8	1.0	2.4	1.6	1.6	0.7	0.2	42	4	0	0	1.0	2.3	1.6	1.6	0.7	0.2	41	4	0	0
Silicon (Si)	mg/L	8	2.28	4.16	3.02	2.86	0.64	0.22	21	0	0	0	2.31	4.15	3.04	2.84	0.65	0.23	21	0	0	0
Sodium (Na)	mg/L	8	5.3	7.1	6.3	6.3	0.7	0.3	11	0	0	0	5.5	7.2	6.3	6.3	0.6	0.2	9	0	0	0
Dissolved Metals																						
Aluminum (Al)	µg/L	8	0.5	1.5	0.8	0.5	0.5	0.2	62	7	0	0	0.5	1.5	0.8	0.5	0.4	0.2	55	6	0	0
Antimony (Sb)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Arsenic (As)	µg/L	8	0.68	0.93	0.79	0.80	0.08	0.03	10	0	0	0	0.67	0.87	0.77	0.79	0.07	0.02	9	0	0	0
Barium (Ba)	µg/L	8	46.5	76.6	59.7	57.0	10.3	3.6	17	0	0	0	45.6	76.2	58.1	54.8	11.0	3.9	19	0	0	0
Beryllium (Be)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0

Parameter	Units	n	Minimum Value TL-06	Maximum Value TL-06	Mean Value TL-06	Median TL-06	Standard Deviation TL-06	Standard Error TL-06	Coefficient of Variation TL-06	No. < DL TL-06	No. > GL TL-06	% > GL TL-06	Minimum Value TL-07	Maximum Value TL-07	Mean Value TL-07	Median TL-07	Standard Deviation TL-07	Standard Error TL-07	Coefficient of Variation TL-07	No. < DL TL-07	No. > GL TL-07	% > GL TL-07
Bismuth (Bi)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Boron (B)	µg/L	8	20	26	24	24	2	1	9	0	0	0	20	26	23	24	2	1	10	0	0	0
Cadmium (Cd)	µg/L	8	0.005	0.025	0.016	0.017	0.009	0.003	57	8	0	0	0.005	0.025	0.016	0.017	0.009	0.003	57	8	0	0
Chromium (Cr)	µg/L	8	0.25	0.50	0.31	0.25	0.10	0.03	31	8	0	0	0.25	0.50	0.29	0.25	0.09	0.03	31	8	0	0
Cobalt (Co)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Copper (Cu)	µg/L	8	0.11	0.25	0.19	0.19	0.05	0.02	27	0	0	0	0.13	0.26	0.19	0.18	0.05	0.02	26	1	0	0
Iron (Fe)	µg/L	8	15	15	15	15	0	0	0	8	0	0	15	15	15	15	0	0	0	8	0	0
Lead (Pb)	µg/L	8	0.025	0.025	0.025	0.025	0.000	0.000	0	8	0	0	0.025	0.025	0.025	0.025	0.000	0.000	0	8	0	0
Lithium (Li)	µg/L	8	2.5	6.5	4.1	3.9	1.8	0.6	43	4	0	0	2.5	6.7	3.8	2.5	1.9	0.7	49	5	0	0
Manganese (Mn)	µg/L	7	0.121	4.850	1.259	0.345	1.702	0.643	135	0	0	0	0.147	1.000	0.466	0.383	0.346	0.131	74	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.011	0.005	0.010	0.004	91	7	0	0	0.005	0.025	0.011	0.005	0.010	0.004	91	7	0	0
Molybdenum (Mo)	µg/L	8	1.630	2.060	1.903	1.935	0.142	0.050	7	0	0	0	1.600	2.200	1.910	1.975	0.200	0.071	10	0	0	0
Nickel (Ni)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Phosphorus (P)	µg/L	8	150	150	150	150	0	0	0	8	0	0	150	150	150	150	0	0	0	8	0	0
Selenium (Se)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Silver (Ag)	µg/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Strontium (Sr)	µg/L	8	42.5	66.4	54.4	53.8	8.1	2.9	15	0	0	0	42.2	66.1	53.7	53.0	8.5	3.0	16	0	0	0
Thallium (Tl)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Tin (Sn)	µg/L	8	0.05	0.79	0.14	0.05	0.26	0.09	184	7	0	0	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Titanium (Ti)	µg/L	8	5	5	5	5	0	0	0	8	0	0	5	5	5	5	0	0	0	8	0	0
Uranium (U)	µg/L	8	0.224	0.412	0.311	0.292	0.061	0.021	19	0	0	0	0.243	0.478	0.325	0.292	0.081	0.029	25	0	0	0
Vanadium (V)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Zinc (Zn)	µg/L	8	0.5	3.1	1.0	0.5	0.9	0.3	99	7	0	0	0.5	1.5	0.6	0.5	0.4	0.1	57	8	0	0
Calcium (Ca)	mg/L	8	31.9	41.7	35.3	34.2	3.5	1.3	10	0	0	0	32.2	40.9	35.1	33.8	3.3	1.2	9	0	0	0
Magnesium (Mg)	mg/L	8	16.6	21.6	18.5	17.8	1.9	0.7	10	0	0	0	16.8	21.5	18.5	17.7	1.9	0.7	10	0	0	0
Potassium (K)	mg/L	8	1.0	2.4	1.6	1.6	0.7	0.2	41	3	0	0	1.0	2.3	1.6	1.6	0.6	0.2	40	3	0	0
Silicon (Si)	mg/L	8	2.41	4.23	3.12	2.91	0.64	0.22	20	0	0	0	2.37	4.14	3.11	2.93	0.64	0.22	20	0	0	0
Sodium (Na)	mg/L	8	5.6	7.3	6.3	6.2	0.6	0.2	9	0	0	0	5.7	7.4	6.3	6.3	0.5	0.2	9	0	0	0
Radionuclides																						
Lead-210 (210Pb)	Bq/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Radium-226 (226Ra)	Bq/L	8	0.003	0.010	0.004	0.003	0.003	0.001	71	6	0	0	0.003	0.010	0.003	0.003	0.003	0.001	77	7	0	0
Radium-228 (228Ra)	Bq/L	8	0.01	0.03	0.01	0.01	0.01	0.00	54	7	0	0	0.01	0.03	0.01	0.01	0.01	0.00	57	8	0	0
Thorium-230 (230Th)	Bq/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Thorium-232 (232Th)	Bq/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Biota																						
Chlorophyll a	µg/L	4	0.273	2.230	1.428	1.605	0.834	0.417	58	0	-	-	1.190	2.830	2.018	2.025	0.670	0.335	33	0	-	-
Pheopigments	µg/L	3	0.027	1.430	0.571	0.256	0.753	0.435	132	0	-	-	0.317	0.712	0.483	0.420	0.205	0.118	42	0	-	-

Table F3-14

Wasp Lake (UN-04) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 20-Mar-08	October 2008 4-Oct-08	March 2009 14-Mar-09	June 2009 26-Jun-09	September 2009 23-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	632	302	638	247	282
Hardness (as $CaCO_3$)	mg/L	2	-	-	348	174	378	146	162
pH	pH	0.01	-	-	7.65	8.26	7.88	8.48	8.24
Total Suspended Solids	mg/L	3.0	-	-	129	<3.0	49.5	3.3	6
Total Dissolved Solids	mg/L	10	-	-	366	208	434	186	204
Turbidity	NTU	0.1	-	-	81	0.94	44.80	1.45	2.34
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	342	172	365	144	155
Ammonia as N	mg/L	0.02	-	-	-	0.996	3.72	0.052	0.165
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	1.71	0.75	2.13	0.51	0.76
Fluoride (F)	mg/L	0.02	-	0.3[d]	2.26	1.4	2.59	1.08	1.25
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	0.016	<0.0050	0.0068	0.0079
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.014	<0.0050	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.002	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	5.37	2.51	6.43	1.210	1.52
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	0.024	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.123	0.0139	0.031	0.0127	0.0099
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	55.8	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	32.8	45.4	25.9	25.9
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	21.6	4.9	10.3	<10	3.4
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	2.39	1.2	2.64	0.97	1.11
Barium (Ba)	µg/L	0.05	-	5000	280	76.6	219	53.6	91.7
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	29	22	32	18	25
Cadmium (Cd)	µg/L	**	0.071[i]	0.071	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	0.2	<0.1	0.26	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	25[k]	0.54	0.54	<0.6	0.45	<0.4
Iron (Fe)	µg/L	30	300	1000	**11000**	49	**10200**	45	49
Lead (Pb)	µg/L	0.05	1 - 7[l]	251[m]	0.06	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	8.8	5.7	10.4	<5	<5
Manganese (Mn)	µg/L	0.05	-	3202[n]	581	8.93	477	7.91	17.5
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.1	0.913	1.81	0.521	0.695
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	0.53	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.044
Strontium (Sr)	µg/L	0.1	-	-	142	63.9	131	45.1	64.4
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					20-Mar-08	4-Oct-08	14-Mar-09	26-Jun-09	23-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.108	0.095	0.166	0.039	0.036
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	147[q]	2.4	<1	3.2	<3	<1
Calcium (Ca)	mg/L	0.05	-	-	79.1	39.1	84.9	31.2	36.7
Magnesium (Mg)	mg/L	0.1	-	-	36.6	18.4	40.9	14.1	16.9
Potassium (K)	mg/L	2	-	-	3.3	<2	3.2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	4.15	1.04	4.08	0.228	1
Sodium (Na)	mg/L	2	-	-	8.9	4.5	7.9	3	3.7
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	2.2	1.1	5.7	1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.39	2.54	1.09	1.07
Barium (Ba)	µg/L	0.05	-	-	-	69.2	174	53.9	84.8
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	20	30	15	21
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	**	-	-	-	<1	<1	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	0.21	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.4	0.2	0.37	0.23
Iron (Fe)	µg/L	30	-	350	-	<30	**2660**	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	9.7	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	2.06	450	1.4	0.745
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.795	1.71	0.485	0.654
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	58.6	126	44.8	59.7
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	0.18	<0.1	0.41
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.072	0.157	0.037	0.032
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	2.2	4.2	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	39	84.4	33.4	36.8
Magnesium (Mg)	mg/L	0.1	-	-	-	18.7	40.6	15.2	17
Potassium (K)	mg/L	2	-	-	-	<2	3.1	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	1.03	3.91	0.22	1
Sodium (Na)	mg/L	2	-	-	-	4.4	7.7	3.2	3.6
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	<0.02	<0.08
Radium-226 (^{226}Ra)	Bq/L	**	0.6	-	-	<0.05	0.02	<0.005	0.006
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	0.39	<0.02	<0.02	<0.01
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	3.05	2.29
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.851

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 242 mg/L
   Cadmium Guideline = 0.071 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 242 mg/L
   Copper Guideline = 25 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 242 mg/L
   Lead Guideline = 251 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 242
   Manganese Guideline = 3.202 mg/L
   = 3202 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 242 mg/L
   Zinc Guideline = 147 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-16

Wasp Lake (UN-04) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	247	638	420	302	197	88	47	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	146	378	242	174	112	50	46	0	0	0
pH	pH	5	7.65	8.48	8.10	8.24	0.33	0.15	4	0	0	0
Total Suspended Solids	mg/L	5	1.5	129.0	37.9	6.0	54.7	24.5	145	1	0	0
Total Dissolved Solids	mg/L	5	186	434	280	208	113	50	40	0	0	0
Turbidity	NTU	5	0.9	81.0	26.1	2.3	35.9	16.1	138	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	144	365	236	172	108	48	46	0	0	0
Ammonia as N	mg/L	4	0.05	3.72	1.23	0.58	1.71	0.86	139	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	0.5	2.1	1.2	0.8	0.7	0.3	60	0	0	0
Fluoride (F)	mg/L	5	1.08	2.59	1.72	1.40	0.67	0.30	39	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	0.3	0.3	0.3	0.0	0.0	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.016	0.007	0.007	0.006	0.002	77	1	0	0
Nitrate (as N)	mg/L	2	0.003	0.014	0.008	0.008	0.008	0.006	99	1	0	0
Nitrite (as N)	mg/L	2	0.001	0.002	0.001	0.001	0.001	0.001	85	1	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.21	6.43	3.41	2.51	2.35	1.05	69	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.024	0.005	0.001	0.011	0.005	202	4	0	0
Total Phosphate as P	mg/L	5	0.010	0.123	0.038	0.014	0.048	0.022	126	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	55.8	55.8	55.8	55.8	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	25.90	45.40	32.50	29.35	9.19	4.60	28	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	3.4	21.6	9.0	5.0	7.5	3.4	83	1	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.97	2.64	1.66	1.20	0.79	0.35	47	0	0	0
Barium (Ba)	µg/L	5	53.6	280.0	144.2	91.7	99.5	44.5	69	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	18	32	25	25	6	2	22	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.26	0.12	0.05	0.10	0.05	83	3	0	0
Copper (Cu)	µg/L	5	0.20	0.54	0.41	0.45	0.15	0.07	37	2	0	0
Iron (Fe)	µg/L	5	45	11000	4269	49	5787	2588	136	0	2	40
Lead (Pb)	µg/L	5	0.025	0.060	0.032	0.025	0.016	0.007	49	4	0	0
Lithium (Li)	µg/L	5	2.5	10.4	6.0	5.7	3.6	1.6	60	2	0	0
Manganese (Mn)	µg/L	5	7.9	581.0	218.5	17.5	285.9	127.8	131	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	0.521	1.810	1.008	0.913	0.499	0.223	50	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.53	0.31	0.25	0.13	0.06	41	4	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.044	0.013	0.005	0.017	0.008	136	4	0	0
Strontium (Sr)	µg/L	5	45.1	142.0	89.3	64.4	44.0	19.7	49	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.036	0.166	0.089	0.095	0.054	0.024	61	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	3.2	1.6	1.5	1.2	0.5	73	3	0	0
Calcium (Ca)	mg/L	5	31.2	84.9	54.2	39.1	25.6	11.5	47	0	0	0
Magnesium (Mg)	mg/L	5	14.1	40.9	25.4	18.4	12.4	5.5	49	0	0	0
Potassium (K)	mg/L	5	1.0	3.3	1.9	1.0	1.2	0.6	65	3	0	0
Silicon (Si)	mg/L	5	0.23	4.15	2.10	1.04	1.87	0.84	89	0	0	0
Sodium (Na)	mg/L	5	3.0	8.9	5.6	4.5	2.6	1.2	47	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	1.0	5.7	2.5	1.7	2.2	1.1	88	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	1.07	2.54	1.52	1.24	0.69	0.35	46	0	0	0
Barium (Ba)	µg/L	4	53.9	174.0	95.5	77.0	53.8	26.9	56	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	15	30	22	21	6	3	29	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.21	0.09	0.05	0.08	0.04	89	3	0	0
Copper (Cu)	µg/L	4	0.20	0.40	0.30	0.30	0.10	0.05	33	0	0	0
Iron (Fe)	µg/L	4	15	2660	676	15	1323	661	196	3	1	25
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	9.7	4.3	2.5	3.6	1.8	84	3	0	0
Manganese (Mn)	µg/L	4	0.745	450.000	113.551	1.730	224.300	112.150	198	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.485	1.710	0.911	0.725	0.548	0.274	60	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	44.8	126.0	72.3	59.2	36.5	18.2	50	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.41	0.17	0.12	0.17	0.08	98	2	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.032	0.157	0.075	0.055	0.058	0.029	78	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	4.2	1.9	1.4	1.8	0.9	95	2	0	0
Calcium (Ca)	mg/L	4	33.4	84.4	48.4	37.9	24.1	12.1	50	0	0	0
Magnesium (Mg)	mg/L	4	15.2	40.6	22.9	17.9	11.9	6.0	52	0	0	0
Potassium (K)	mg/L	4	1.0	3.1	1.5	1.0	1.1	0.5	69	3	0	0
Silicon (Si)	mg/L	4	0.22	3.91	1.54	1.02	1.62	0.81	105	0	0	0
Sodium (Na)	mg/L	4	3.2	7.7	4.7	4.0	2.0	1.0	43	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.04	0.02	0.01	0.02	0.01	86	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.025	0.013	0.013	0.011	0.005	81	2	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.39	0.10	0.01	0.19	0.10	184	3	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	2	2.290	3.050	2.670	2.670	0.537	0.380	20	0	-	-
Pheopigments	µg/L	1	0.851	0.851	0.851	0.85	-	-	-	0	-	-

Table F3-15

Pistol Lake (UN-05) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 23-Mar-08	October 2008 3-Oct-08	March 2009 15-Mar-09	June 2009 26-Jun-09	September 2009 18-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	801	288	806	215	260
Hardness (as $CaCO_3$)	mg/L	2	-	-	437	171	478	123	152
pH	pH	0.01	-	-	7.64	8.26	7.85	8.56	8.28
Total Suspended Solids	mg/L	3.0	-	-	69	<3.0	73.5	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	474	194	552	154	179
Turbidity	NTU	0.1	-	-	84	0.52	99.00	1.29	1.36
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	441	160	465	123	142
Ammonia as N	mg/L	0.02	-	-	-	0.745	4.51	0.062	0.0593
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	2.41	0.81	2.52	<0.50	0.59
Fluoride (F)	mg/L	0.02	-	0.3[d]	3.9	1.8	3.9	1.25	1.50
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	0.0131	0.008	<0.0050	<0.0050
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0111	0.008	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.002	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	7.98	2.24	8.02	1.200	1.29
Ortho Phosphate as P	mg/L	**[f]	-	-	<0.0010	<0.0010	<0.010	<0.0010	<0.0010
Total Phosphate as P	mg/L	**	-	-	0.0160	0.0092	0.0260	0.0086	0.0065
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	65.1	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	30.4	52.7	21.4	23.1
Total Metals									
Aluminum (Al)	µg/L	**	100[g]	-	14.2	8.4	24.2	14.7	2.7
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.2	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	3.18	1.23	3.49	0.93	1.19
Barium (Ba)	µg/L	0.05	-	5000	281	46	227	37.9	57.5
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<1	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<1	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	21	15	23	13	16
Cadmium (Cd)	µg/L	**	0.078[i]	0.078	<0.05	<0.05	**<0.1**	<0.05	<0.017
Chromium (Cr)	µg/L	**	8.9	8.9	<0.5	<0.5	<1	<0.5	<1
Cobalt (Co)	µg/L	0.1	-	110	0.31	<0.1	0.35	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	28[k]	0.43	0.5	<0.5	0.37	<0.1
Iron (Fe)	µg/L	30	300	1000	**16900**	59	**18500**	34	<30
Lead (Pb)	µg/L	0.05	1 - 7[l]	292[m]	<0.05	<0.05	<0.1	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	9	<5	<10	<5	<5
Manganese (Mn)	µg/L	0.05	-	3540[n]	1900	8.79	1680	5.76	1.72
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	2.68	0.956	2.64	0.652	0.562
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<1	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	**<2**	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.02	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	118	42	119	32.1	41.4
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.2	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.2	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					23-Mar-08	3-Oct-08	15-Mar-09	26-Jun-09	18-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.137	0.063	0.142	0.033	0.023
Vanadium (V)	µg/L	1	-	6	<1	<1	<2	<1	<1
Zinc (Zn)	µg/L	**	30	170[q]	3.9	1.4	4.7	<3	<1
Calcium (Ca)	mg/L	0.05	-	-	93.4	34.2	102	25.2	32.8
Magnesium (Mg)	mg/L	0.1	-	-	49.6	19.9	55.6	13.6	17.6
Potassium (K)	mg/L	2	-	-	3.9	<2	4	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.28	0.127	1.58	0.106	0.051
Sodium (Na)	mg/L	2	-	-	7.4	3.1	6.5	<2.0	2.4
Dissolved Metals									
Aluminum (Al)	µg/L	**	-	100[r]	-	3	4.9	12.6	2.7
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.2	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.48	3.28	0.98	1.04
Barium (Ba)	µg/L	0.05	-	-	-	45.3	185	36.1	55.6
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<1	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<1	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	14	22	10	15
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	**<0.1**	<0.05	<0.017
Chromium (Cr)	µg/L	**	-	-	-	<1	<1	<0.5	<1
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	0.32	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.42	<0.2	0.28	0.23
Iron (Fe)	µg/L	30	-	350	-	<30	**10700**	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.1	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	<10	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.874	1610	0.723	0.68
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.86	2.4	0.609	0.542
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<1	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<2	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.02	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	40.2	115	30.7	39.2
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.2	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.2	<0.1	0.63
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.053	0.14	0.029	0.022
Vanadium (V)	µg/L	1	-	-	-	<1	<2	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	<1	<2	<1	1.1
Calcium (Ca)	mg/L	0.05	-	-	-	36	100	26.2	32.5
Magnesium (Mg)	mg/L	0.1	-	-	-	19.6	55.3	13.9	17.3
Potassium (K)	mg/L	2	-	-	-	<2	4.1	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	0.117	1.52	0.099	0.074
Sodium (Na)	mg/L	2	-	-	-	2.8	6.6	<2.0	2.5
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	0.01	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.04	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	1.26	3.36
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.721

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 µg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 272 mg/L
   Cadmium Guideline = 0.078 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 272 mg/L
   Copper Guideline = 28 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 272 mg/L
   Lead Guideline = 292 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 272
   Manganese Guideline = 3.540 mg/L
   = 3540 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 272 mg/L
   Zinc Guideline = 170 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-17

Pistol Lake (UN-05) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	215	806	474	288	302	135	64	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	123	478	272	171	171	76	63	0	0	0
pH	pH	5	7.64	8.56	8.12	8.26	0.37	0.16	5	0	0	0
Total Suspended Solids	mg/L	5	1.5	73.5	29.4	1.5	38.2	17.1	130	3	0	0
Total Dissolved Solids	mg/L	5	154	552	311	194	187	84	60	0	0	0
Turbidity	NTU	5	0.5	99.0	37.2	1.4	49.8	22.3	134	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	123	465	266	160	171	77	64	0	0	0
Ammonia as N	mg/L	4	0.06	4.51	1.34	0.40	2.14	1.07	159	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	0.3	2.5	1.3	0.8	1.1	0.5	81	1	0	0
Fluoride (F)	mg/L	5	1.25	3.90	2.47	1.80	1.32	0.59	53	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	0.3	0.3	0.3	0.0	0.0	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.013	0.006	0.003	0.005	0.002	83	3	0	0
Nitrate (as N)	mg/L	2	0.008	0.011	0.010	0.010	0.002	0.002	23	0	0	0
Nitrite (as N)	mg/L	2	0.001	0.002	0.001	0.001	0.001	0.001	85	1	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.20	8.02	4.15	2.24	3.54	1.58	85	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	0	5	0	0
Total Phosphate as P	mg/L	5	0.007	0.026	0.013	0.009	0.008	0.004	60	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	65.1	65.1	65.1	65.1	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	21.40	52.70	31.90	26.75	14.41	7.20	45	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	2.7	24.2	12.8	14.2	8.0	3.6	62	1	0	0
Antimony (Sb)	µg/L	5	0.05	0.10	0.06	0.05	0.02	0.01	37	5	0	0
Arsenic (As)	µg/L	5	0.93	3.49	2.00	1.23	1.23	0.55	61	0	0	0
Barium (Ba)	µg/L	5	37.9	281.0	129.9	57.5	115.1	51.5	89	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.50	0.30	0.25	0.11	0.05	37	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.50	0.30	0.25	0.11	0.05	37	5	0	0
Boron (B)	µg/L	5	13	23	18	16	4	2	24	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.050	0.027	0.025	0.015	0.007	56	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.50	0.35	0.25	0.14	0.06	39	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.35	0.16	0.05	0.15	0.07	95	3	0	0
Copper (Cu)	µg/L	5	0.05	0.50	0.28	0.37	0.21	0.10	77	2	0	0
Iron (Fe)	µg/L	5	15	18500	7102	59	9692	4334	136	1	2	40
Lead (Pb)	µg/L	5	0.025	0.050	0.030	0.025	0.011	0.005	37	5	0	0
Lithium (Li)	µg/L	5	2.5	9.0	4.3	2.5	2.8	1.3	66	4	0	0
Manganese (Mn)	µg/L	5	1.7	1900.0	719.3	8.8	980.5	438.5	136	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	0.562	2.680	1.498	0.956	1.071	0.479	71	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.50	0.30	0.25	0.11	0.05	37	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	1.0	0.6	0.5	0.2	0.1	37	5	0	0
Silver (Ag)	µg/L	5	0.005	0.010	0.006	0.005	0.002	0.001	37	5	0	0
Strontium (Sr)	µg/L	5	32.1	119.0	70.5	42.0	44.0	19.7	62	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.10	0.06	0.05	0.02	0.01	37	5	0	0
Tin (Sn)	µg/L	5	0.05	0.10	0.06	0.05	0.02	0.01	37	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.023	0.142	0.080	0.063	0.057	0.025	71	0	0	0
Vanadium (V)	µg/L	5	0.5	1.0	0.6	0.5	0.2	0.1	37	5	0	0
Zinc (Zn)	µg/L	5	0.5	4.7	2.4	1.5	1.8	0.8	75	2	0	0
Calcium (Ca)	mg/L	5	25.2	102.0	57.5	34.2	37.0	16.5	64	0	0	0
Magnesium (Mg)	mg/L	5	13.6	55.6	31.3	19.9	19.7	8.8	63	0	0	0
Potassium (K)	mg/L	5	1.0	4.0	2.2	1.0	1.6	0.7	74	3	0	0
Silicon (Si)	mg/L	5	0.05	1.58	0.63	0.13	0.74	0.33	118	0	0	0
Sodium (Na)	mg/L	5	1.0	7.4	4.1	3.1	2.7	1.2	67	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	2.7	12.6	5.8	4.0	4.6	2.3	80	0	0	0
Antimony (Sb)	µg/L	4	0.05	0.10	0.06	0.05	0.03	0.01	40	4	0	0
Arsenic (As)	µg/L	4	0.98	3.28	1.70	1.26	1.08	0.54	64	0	0	0
Barium (Ba)	µg/L	4	36.1	185.0	80.5	50.5	70.1	35.1	87	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.50	0.31	0.25	0.13	0.06	40	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.50	0.31	0.25	0.13	0.06	40	4	0	0
Boron (B)	µg/L	4	10	22	15	15	5	2	33	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.050	0.027	0.025	0.017	0.009	63	4	0	0
Chromium (Cr)	µg/L	4	0.50	0.50	0.50	0.50	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.32	0.12	0.05	0.14	0.07	115	3	0	0
Copper (Cu)	µg/L	4	0.10	0.42	0.26	0.26	0.13	0.07	51	0	0	0
Iron (Fe)	µg/L	4	15	10700	2686	15	5343	2671	199	3	1	25
Lead (Pb)	µg/L	4	0.025	0.050	0.031	0.025	0.013	0.006	40	4	0	0
Lithium (Li)	µg/L	4	2.5	5.0	3.1	2.5	1.3	0.6	40	3	0	0
Manganese (Mn)	µg/L	4	0.680	1610.000	403.069	0.799	804.621	402.310	200	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.542	2.400	1.103	0.735	0.876	0.438	79	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.50	0.31	0.25	0.13	0.06	40	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	1.0	0.6	0.5	0.3	0.1	40	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	40	4	0	0
Strontium (Sr)	µg/L	4	30.7	115.0	56.3	39.7	39.4	19.7	70	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.10	0.06	0.05	0.03	0.01	40	4	0	0
Tin (Sn)	µg/L	4	0.05	0.63	0.21	0.08	0.28	0.14	136	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.022	0.140	0.061	0.041	0.054	0.027	89	0	0	0
Vanadium (V)	µg/L	4	0.5	1.0	0.6	0.5	0.3	0.1	40	4	0	0
Zinc (Zn)	µg/L	4	0.5	1.1	0.8	0.8	0.3	0.2	41	3	0	0
Calcium (Ca)	mg/L	4	26.2	100.0	48.7	34.3	34.5	17.2	71	0	0	0
Magnesium (Mg)	mg/L	4	13.9	55.3	26.5	18.5	19.3	9.7	73	0	0	0
Potassium (K)	mg/L	4	1.0	4.1	1.8	1.0	1.6	0.8	87	3	0	0
Silicon (Si)	mg/L	4	0.07	1.52	0.45	0.11	0.71	0.36	157	0	0	0
Sodium (Na)	mg/L	4	1.0	6.6	3.2	2.7	2.4	1.2	74	1	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.010	0.004	0.003	0.004	0.002	86	3	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.02	0.01	0.01	0.01	0.00	40	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	2	1.260	3.360	2.310	2.310	1.485	1.050	64	0	-	-
Pheopigments	µg/L	1	0.721	0.721	0.721	0.72	-	-	-	0	-	-

Table F3-16

Porkchop Lake (UN-07) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 22-Mar-08	October 2008 3-Oct-08	March 2009 15-Mar-09	June 2009 26-Jun-09	September 2009 24-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	285	251	268	239	253
Hardness (as $CaCO_3$)	mg/L	2	-	-	155	143	152	133	139
pH	pH	0.01	-	-	7.93	8.19	8.06	8.08	8.28
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	164	152	176	151	153
Turbidity	NTU	0.1	-	-	0.31	1.21	0.38	1.29	0.78
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	151	139	156	135	133
Ammonia as N	mg/L	0.02	-	-	-	<0.020	0.033	<0.020	0.024
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	2.99	2.61	2.91	2.37	2.60
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.35	1.25	1.31	1.10	1.20
Sulfate (SO_4)	mg/L	0.5	-	100	1.08	0.85	1.02	0.97	1.06
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0526	<0.0050	0.0784	<0.0050	<0.0050
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	<0.0050	0.0784	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	0.0012	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.511	0.485	0.521	0.526	0.512
Ortho Phosphate as P	mg/L	0.001	-	-	0.0011	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0065	0.0086	0.0054	0.0082	0.0048
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	13.9	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	15.5	13.0	13.9	14.5
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	<1	3.3	<1	<10	9
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	0.36	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.8	1	0.74	0.69	0.7
Barium (Ba)	µg/L	0.05	-	5000	41.6	38.8	40.8	35.5	39.2
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	15	15	15	17	17
Cadmium (Cd)	µg/L	**	0.045[i]	0.045	<0.05	<0.05	<0.05	<0.05	0.02
Chromium (Cr)	µg/L	**	8.9	8.9	<0.5	<1	<0.5	<0.5	0.77
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	16[k]	0.5	0.54	0.38	0.67	<0.6
Iron (Fe)	µg/L	30	300	1000	<30	122	38	47	34
Lead (Pb)	µg/L	0.05	1 - 7[l]	130[m]	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	2131[n]	8.55	89.3	9.18	12.2	25.7
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	4.26	4.46	4.42	4.07	4.42
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	0.83
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.012
Strontium (Sr)	µg/L	0.1	-	-	50.3	43.5	48.7	41.1	45.3
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					22-Mar-08	3-Oct-08	15-Mar-09	26-Jun-09	24-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.266	0.254	0.293	0.261	0.269
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	174[q]	<1	5.8	<1	<3	1.4
Calcium (Ca)	mg/L	0.05	-	-	33.9	32.7	33.6	27	30
Magnesium (Mg)	mg/L	0.1	-	-	17.1	15.5	16.9	14	15.1
Potassium (K)	mg/L	2	-	-	<2.0	<2	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	2.65	2.46	2.83	2.01	2.12
Sodium (Na)	mg/L	2	-	-	5.2	4.5	4.2	3.8	4.1
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	<1	<1	7.4	1.4
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	0.9	0.69	0.71	0.74
Barium (Ba)	µg/L	0.05	-	-	-	37	41.2	34.2	35.4
Beryllium (Be)	µg/L	0.5	-	-	-	2.11	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	15	16	14	15
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	0.22	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	**93.2**	0.54	0.45	0.43
Iron (Fe)	µg/L	30	-	350	-	35	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	18.3	0.307	0.312	1.4
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	4.47	4.54	4	4.22
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	43.2	49.7	40	45
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.26	0.31	0.257	0.239
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	1.2	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	31.7	33.4	29.5	30.5
Magnesium (Mg)	mg/L	0.1	-	-	-	15.6	16.7	14.5	15.3
Potassium (K)	mg/L	2	-	-	-	<2	<2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	2.45	2.8	2.08	2.16
Sodium (Na)	mg/L	2	-	-	-	4.6	4.2	3.8	4
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	<0.005	0.009	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.2	<0.03	<0.02	0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	1.31	1.26
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.381

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 144 mg/L
   Cadmium Guideline = 0.045 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 144 mg/L
   Copper Guideline = 16 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 144 mg/L
   Lead Guideline = 130 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 144
   Manganese Guideline = 2.131 mg/L
   = 2131 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 144 mg/L
   Zinc Guideline = 74 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Data outlier, excluded from summary statistics

Table F2-18

Porkchop Lake (UN-07) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	239	285	259	253	18	8	7	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	133	155	144	143	9	4	6	0	0	0
pH	pH	5	7.93	8.28	8.11	8.08	0.13	0.06	2	0	0	0
Total Suspended Solids	mg/L	5	1.5	1.5	1.5	1.5	0.0	0.0	0	5	0	0
Total Dissolved Solids	mg/L	5	151	176	159	153	11	5	7	0	0	0
Turbidity	NTU	5	0.3	1.3	0.8	0.8	0.5	0.2	57	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	133	156	143	139	10	5	7	0	0	0
Ammonia as N	mg/L	4	0.01	0.03	0.02	0.02	0.01	0.01	59	2	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	2.4	3.0	2.7	2.6	0.3	0.1	9	0	0	0
Fluoride (F)	mg/L	5	1.10	1.35	1.24	1.25	0.10	0.04	8	0	0	0
Sulfate (SO_4)	mg/L	5	0.9	1.1	1.0	1.0	0.1	0.0	9	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.078	0.028	0.003	0.036	0.016	129	3	0	0
Nitrate (as N)	mg/L	2	0.003	0.078	0.040	0.040	0.054	0.038	133	1	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	58	1	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.49	0.53	0.51	0.51	0.02	0.01	3	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	43	4	0	0
Total Phosphate as P	mg/L	5	0.005	0.009	0.007	0.007	0.002	0.001	25	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	13.9	13.9	13.9	13.9	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	3	13.00	15.50	14.23	14.20	1.05	0.61	7	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	0.5	9.0	3.7	3.3	3.6	1.6	97	3	0	0
Antimony (Sb)	µg/L	5	0.05	0.36	0.11	0.05	0.14	0.06	124	4	0	0
Arsenic (As)	µg/L	5	0.69	1.00	0.79	0.74	0.13	0.06	16	0	0	0
Barium (Ba)	µg/L	5	35.5	41.6	39.2	39.2	2.4	1.1	6	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	15	17	16	15	1	0	7	0	0	0
Cadmium (Cd)	µg/L	5	0.020	0.025	0.024	0.025	0.002	0.001	9	4	0	0
Chromium (Cr)	µg/L	5	0.25	0.77	0.35	0.25	0.23	0.10	66	4	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.30	0.67	0.48	0.50	0.14	0.06	30	1	0	0
Iron (Fe)	µg/L	5	15	122	51	38	41	18	81	1	0	0
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	2.5	2.5	2.5	0.0	0.0	0	5	0	0
Manganese (Mn)	µg/L	5	8.6	89.3	29.0	12.2	34.4	15.4	119	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	4.070	4.460	4.326	4.420	0.162	0.073	4	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.83	0.37	0.25	0.26	0.12	71	4	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.012	0.006	0.005	0.003	0.001	49	4	0	0
Strontium (Sr)	µg/L	5	41.1	50.3	45.8	45.3	3.8	1.7	8	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.254	0.293	0.269	0.266	0.015	0.007	6	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	5.8	1.9	1.4	2.2	1.0	114	3	0	0
Calcium (Ca)	mg/L	5	27.0	33.9	31.4	32.7	2.9	1.3	9	0	0	0
Magnesium (Mg)	mg/L	5	14.0	17.1	15.7	15.5	1.3	0.6	8	0	0	0
Potassium (K)	mg/L	5	1.0	1.0	1.0	1.0	0.0	0.0	0	5	0	0
Silicon (Si)	mg/L	5	2.01	2.83	2.41	2.46	0.35	0.16	14	0	0	0
Sodium (Na)	mg/L	5	3.8	5.2	4.4	4.2	0.5	0.2	12	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	0.5	7.4	2.5	1.0	3.3	1.7	136	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.69	0.90	0.76	0.73	0.10	0.05	13	0	0	0
Barium (Ba)	µg/L	4	34.2	41.2	37.0	36.2	3.1	1.5	8	0	0	0
Beryllium (Be)	µg/L	4	0.25	2.11	0.72	0.25	0.93	0.47	130	3	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	14	16	15	15	1	0	5	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.22	0.09	0.05	0.09	0.04	92	3	0	0
Copper (Cu)	µg/L	4	0.43	0.54	0.47	0.45	0.06	0.03	12	0	0	0
Iron (Fe)	µg/L	4	15	35	20	15	10	5	50	3	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.307	18.300	5.080	0.856	8.828	4.414	174	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	3.680	4.540	4.228	4.345	0.390	0.195	9	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	40.0	49.7	44.5	44.1	4.1	2.0	9	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.239	0.310	0.267	0.259	0.030	0.015	11	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	1.2	0.7	0.5	0.4	0.2	52	3	0	0
Calcium (Ca)	mg/L	4	29.5	33.4	31.3	31.1	1.7	0.8	5	0	0	0
Magnesium (Mg)	mg/L	4	14.5	16.7	15.5	15.5	0.9	0.5	6	0	0	0
Potassium (K)	mg/L	4	1.0	1.0	1.0	1.0	0.0	0.0	0	4	0	0
Silicon (Si)	mg/L	4	2.08	2.80	2.37	2.31	0.33	0.16	14	0	0	0
Sodium (Na)	mg/L	4	3.8	4.6	4.2	4.1	0.3	0.2	8	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.009	0.004	0.003	0.003	0.002	79	3	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.10	0.03	0.01	0.04	0.02	131	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	1	1.260	1.310	1.285	1.285	-	-	-	0	-	-
Pheopigments	µg/L	1	0.381	0.381	0.381	0.38	-	-	-	0	-	-

Table F3-17

Kinnikinnick Lake (UN-08) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 20-Mar-08	October 2008 4-Oct-08	March 2009 15-Mar-09	June 2009 26-Jun-09	September 2009 16-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	197	176	195	177	184
Hardness (as $CaCO_3$)	mg/L	2	-	-	99.3	90.3	103	88.9	94.3
pH	pH	0.01	-	-	8.01	8.17	7.97	7.82	8.10
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	113	101	117	103	99
Turbidity	NTU	0.1	-	-	0.41	0.55	0.36	0.92	1.08
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	97.2	97.1	125	103	91.9
Ammonia as N	mg/L	0.02	-	-	-	<0.020	0.02	<0.020	0.0061
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	2.42	2.25	2.62	2.28	2.20
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.651	0.607	0.662	0.555	0.561
Sulfate (SO_4)	mg/L	0.5	-	100	0.93	0.77	0.96	0.93	0.69
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0627	<0.0050	0.0732	<0.0050	<0.0050
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	<0.0050	0.0732	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.348	0.336	0.344	0.464	0.357
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	0.0012	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0171	0.0061	0.0069	0.0065	0.0046
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	39	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	7.72	7.18	7.2	7.75
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	<1	2.1	1.2	<8	2
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	0.3	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.37	0.38	0.32	0.3	0.32
Barium (Ba)	µg/L	0.05	-	5000	27.5	26	28.6	27	26.1
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	15	14	16	18	15
Cadmium (Cd)	µg/L	**	0.032[i]	0.032	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	2 - 4[j]	11[k]	0.31	0.37	0.24	0.46	0.37
Iron (Fe)	µg/L	30	300	1000	<30	40	<30	<30	<30
Lead (Pb)	µg/L	0.05	1 - 7[l]	77[m]	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	1589[n]	7.74	20.1	10.7	11.6	12.8
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.729	0.755	0.707	0.704	0.703
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	1.36	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.01
Strontium (Sr)	µg/L	0.1	-	-	39.8	35.3	39.5	35.8	35.3
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009
					20-Mar-08	4-Oct-08	15-Mar-09	26-Jun-09	16-Sep-09
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.087	0.077	0.092	0.096	0.071
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	37[q]	<1	<1	<1	<4	<1
Calcium (Ca)	mg/L	0.05	-	-	21.1	19.8	22.3	18.3	20.2
Magnesium (Mg)	mg/L	0.1	-	-	11.3	10.4	11.3	9.21	10.7
Potassium (K)	mg/L	2	-	-	<2.0	<2	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	2.08	1.81	2.16	1.58	1.6
Sodium (Na)	mg/L	2	-	-	4.3	4	3.6	3.4	4.2
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	1.1	1	2.1	<1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	0.34	0.33	0.33	0.32
Barium (Ba)	µg/L	0.05	-	-	-	24.8	28.6	26.1	25.7
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	14	15	15	16
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.29	0.24	0.37	0.37
Iron (Fe)	µg/L	30	-	350	-	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.115	1.17	0.17	1.11
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.711	0.694	0.666	0.694
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	34.7	39.7	34.6	35.5
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	1.26
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.081	0.097	0.097	0.084
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	2	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	19.4	22.6	19.5	20.3
Magnesium (Mg)	mg/L	0.1	-	-	-	10.2	11.4	9.79	10.6
Potassium (K)	mg/L	2	-	-	-	<2	<2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	1.79	2.18	1.65	1.59
Sodium (Na)	mg/L	2	-	-	-	3.9	3.6	3.6	4
Radionuclides			GCDWQ MAC[s]						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	<0.02	<0.07	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	1.40	1.14
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.191

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 95 mg/L
   Cadmium Guideline = 0.032 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 95 mg/L
   Copper Guideline = 11 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 95 mg/L
   Lead Guideline = 77 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 95
   Manganese Guideline = 1.589 mg/L
   = 1589 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 95 mg/L
   Zinc Guideline = 37 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-19

Kinnikinnick Lake (UN-08) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	176	197	186	184	10	4	5	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	89	103	95	94	6	3	6	0	0	0
pH	pH	5	7.82	8.17	8.01	8.01	0.13	0.06	2	0	0	0
Total Suspended Solids	mg/L	5	1.5	1.5	1.5	1.5	0.0	0.0	0	5	0	0
Total Dissolved Solids	mg/L	5	99	117	107	103	8	4	7	0	0	0
Turbidity	NTU	5	0.4	1.1	0.7	0.6	0.3	0.1	48	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	92	125	103	97	13	6	13	0	0	0
Ammonia as N	mg/L	4	0.01	0.02	0.01	0.01	0.01	0.00	52	2	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	2.2	2.6	2.4	2.3	0.2	0.1	7	0	0	0
Fluoride (F)	mg/L	5	0.56	0.66	0.61	0.61	0.05	0.02	8	0	0	0
Sulfate (SO_4)	mg/L	5	0.7	1.0	0.9	0.9	0.1	0.1	14	0	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.073	0.029	0.003	0.036	0.016	126	3	0	0
Nitrate (as N)	mg/L	2	0.003	0.073	0.038	0.038	0.050	0.035	132	1	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.34	0.46	0.37	0.35	0.05	0.02	14	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	49	4	0	0
Total Phosphate as P	mg/L	5	0.005	0.017	0.008	0.007	0.005	0.002	61	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	39.0	39.0	39.0	39.0	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	3	7.18	7.75	7.46	7.46	0.32	0.18	4	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	0.5	4.0	2.0	2.0	1.3	0.6	67	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.30	0.10	0.05	0.11	0.05	112	4	0	0
Arsenic (As)	µg/L	5	0.30	0.38	0.34	0.32	0.03	0.02	10	0	0	0
Barium (Ba)	µg/L	5	26.0	28.6	27.0	27.0	1.1	0.5	4	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	14	18	16	15	2	1	10	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.24	0.46	0.35	0.37	0.08	0.04	23	0	0	0
Iron (Fe)	µg/L	5	15	40	20	15	11	5	56	4	0	0
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	2.5	2.5	2.5	0.0	0.0	0	5	0	0
Manganese (Mn)	µg/L	5	7.7	20.1	12.6	11.6	4.6	2.1	37	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	0.703	0.755	0.720	0.707	0.022	0.010	3	0	0	0
Nickel (Ni)	µg/L	5	0.25	1.36	0.47	0.25	0.50	0.22	105	4	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.010	0.006	0.005	0.002	0.001	37	4	0	0
Strontium (Sr)	µg/L	5	35.3	39.8	37.1	35.8	2.3	1.0	6	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.071	0.096	0.085	0.087	0.010	0.005	12	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	2.0	0.8	0.5	0.7	0.3	84	5	0	0
Calcium (Ca)	mg/L	5	18.3	22.3	20.3	20.2	1.5	0.7	7	0	0	0
Magnesium (Mg)	mg/L	5	9.2	11.3	10.6	10.7	0.9	0.4	8	0	0	0
Potassium (K)	mg/L	5	1.0	1.0	1.0	1.0	0.0	0.0	0	5	0	0
Silicon (Si)	mg/L	5	1.58	2.16	1.85	1.81	0.27	0.12	14	0	0	0
Sodium (Na)	mg/L	5	3.4	4.3	3.9	4.0	0.4	0.2	10	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	0.5	2.1	1.2	1.1	0.7	0.3	57	1	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.32	0.34	0.33	0.33	0.01	0.00	2	0	0	0
Barium (Ba)	µg/L	4	24.8	28.6	26.3	25.9	1.6	0.8	6	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	14	16	15	15	1	0	5	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.24	0.37	0.32	0.33	0.06	0.03	20	0	0	0
Iron (Fe)	µg/L	4	15	15	15	15	0	0	0	4	0	0
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.115	1.170	0.641	0.640	0.577	0.288	90	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.666	0.711	0.691	0.694	0.019	0.009	3	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	34.6	39.7	36.1	35.1	2.4	1.2	7	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	1.26	0.35	0.05	0.61	0.30	172	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.081	0.097	0.090	0.091	0.008	0.004	9	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	2.0	0.9	0.5	0.8	0.4	86	3	0	0
Calcium (Ca)	mg/L	4	19.4	22.6	20.5	19.9	1.5	0.7	7	0	0	0
Magnesium (Mg)	mg/L	4	9.8	11.4	10.5	10.4	0.7	0.3	7	0	0	0
Potassium (K)	mg/L	4	1.0	1.0	1.0	1.0	0.0	0.0	0	4	0	0
Silicon (Si)	mg/L	4	1.59	2.18	1.80	1.72	0.27	0.13	15	0	0	0
Sodium (Na)	mg/L	4	3.6	4.0	3.8	3.8	0.2	0.1	5	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.003	0.003	0.003	0.000	0.000	0	4	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.04	0.02	0.01	0.01	0.01	75	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	1	1.140	1.400	1.270	1.270	-	-	-	0	-	-
Pheopigments	µg/L	1	0.191	0.191	0.191	0.19	-	-	-	0	-	-

Table F3-18

Dinosaur Lake (UN-01 & UN-09) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 UN-01 20-Mar-08	October 2008 UN-09 3-Oct-08	March 2009 UN-09 14-Mar-09	June 2009 UN-09 27-Jun-09	September 2009 UN-09 19-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	303	187	306	164	179
Hardness (as $CaCO_3$)	mg/L	2	-	-	161	102	168	89.6	94.4
pH	pH	0.01	-	-	7.6	8.08	7.71	7.80	8.03
Total Suspended Solids	mg/L	3.0	-	-	24	18.2	27.5	10.3	17.7
Total Dissolved Solids	mg/L	10	-	-	207	145	233	141	151
Turbidity	NTU	0.1	-	-	10.3	5.25	6.94	4.39	5.35
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	174	104	188	86.2	90.5
Ammonia as N	mg/L	0.02	-	-	-	0.069	1.51	0.022	0.0242
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.05	<0.05
Chloride (Cl)	mg/L	0.5	-	600	1.56	1.04	1.76	0.83	0.81
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.2	0.907	1.32	0.737	0.79
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	<0.0050	<0.0050	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	3.03	2.18	3.75	1.050	2.06
Ortho Phosphate as P	mg/L	**[f]	-	-	<0.01	<0.0010	<0.010	<0.0010	<0.0010
Total Phosphate as P	mg/L	**	-	-	0.0344	0.0299	0.031	0.0266	0.026
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	44	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	31.9	-	27.6	25.7
Total Metals									
Aluminum (Al)	µg/L	1	100[g]	-	24.4	22.7	11.6	26.3	13.1
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	0.13	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	1.83	1.26	1.92	1.03	1.1
Barium (Ba)	µg/L	0.05	-	5000	72.8	38.1	67.3	26.7	36.6
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	20	16	20	16	21
Cadmium (Cd)	µg/L	**	0.040[i]	0.040	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	0.1	<0.1	0.12	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	14[k]	0.47	1.02	<0.5	0.57	<0.6
Iron (Fe)	µg/L	30	300	1000	**4510**	149	**6230**	278	143
Lead (Pb)	µg/L	0.05	1 - 7[l]	106[m]	0.102	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	5.6	<5	5.8	<5	<5
Manganese (Mn)	µg/L	0.05	-	1895[n]	428	28.1	358	38	39.5
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.733	0.637	0.841	0.508	0.507
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.02
Strontium (Sr)	µg/L	0.1	-	-	60.8	39.9	60.1	31.7	38.2
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 UN-01 20-Mar-08	October 2008 UN-09 3-Oct-08	March 2009 UN-09 14-Mar-09	June 2009 UN-09 27-Jun-09	September 2009 UN-09 19-Sep-09
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.079	0.069	0.093	0.047	0.044
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	58[q]	3.2	1.8	2	<3	1.6
Calcium (Ca)	mg/L	0.05	-	-	36.7	21.9	39	18.8	20.7
Magnesium (Mg)	mg/L	0.1	-	-	16.7	11.6	17.4	9.18	10.8
Potassium (K)	mg/L	2	-	-	2.4	<2	2.5	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	0.738	0.209	0.883	0.179	0.217
Sodium (Na)	mg/L	2	-	-	4.4	3.3	4	2.2	2.8
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	2.6	6.7	13.7	3
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.32	1.9	1.47	1.05
Barium (Ba)	µg/L	0.05	-	-	-	32.6	65.3	24.7	30.8
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	15	19	12	16
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	**	-	-	-	<0.5	<1	<0.5	<1
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	1.14	0.23	0.59	0.15
Iron (Fe)	µg/L	30	-	350	-	<30	**5870**	145	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	0.063	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.308	328	16.9	0.158
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.514	0.784	0.438	0.448
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	1	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	35.9	56.5	29.9	32.7
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	0.47	<0.1	1.73
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.051	0.087	0.046	0.033
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	4	3.3	1.5	<1
Calcium (Ca)	mg/L	0.05	-	-	-	21.9	38.8	20	20.2
Magnesium (Mg)	mg/L	0.1	-	-	-	11.6	17.2	9.65	10.7
Potassium (K)	mg/L	2	-	-	-	<2	2.5	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	0.15	0.87	0.168	0.211
Sodium (Na)	mg/L	2	-	-	-	3.3	3.9	2.4	2.7
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	-	<0.02	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	4.90	14.6
Pheopigments	µg/L	0.01	-	-	-	-	-	-	7.74

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$

Average hardness =	123	mg/L
Cadmium Guideline =	0.040	µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L
3 µg/L when [CaCO3] is 120 - 180 mg/L
4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness =	123	mg/L
Copper Guideline =	14	µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L
4 µg/L when [CaCO3] is 120 - 180 mg/L
7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
= e(1.273 x [ln(hardness)] - 1.460)

Average hardness =	123	mg/L
Lead Guideline =	106	µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness =	123	
Manganese Guideline =	1.895	mg/L
=	1895	µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L
110 µg/L when [CaCO3] is 120 - 180 mg/L
150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness =	123	mg/L
Zinc Guideline =	58	µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

Table F2-20

Dinosaur Lake (UN-01 & UN-09) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	164	306	228	187	71	32	31	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	90	168	123	102	38	17	31	0	0	0
pH	pH	5	7.60	8.08	7.84	7.80	0.21	0.09	3	0	0	0
Total Suspended Solids	mg/L	5	10.3	27.5	19.5	18.2	6.6	2.9	34	0	0	0
Total Dissolved Solids	mg/L	5	141	233	175	151	42	19	24	0	0	0
Turbidity	NTU	5	4.4	10.3	6.4	5.4	2.3	1.0	36	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	86	188	129	104	49	22	38	0	0	0
Ammonia as N	mg/L	4	0.02	1.51	0.41	0.05	0.74	0.37	181	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	0.8	1.8	1.2	1.0	0.4	0.2	36	0	0	0
Fluoride (F)	mg/L	5	0.74	1.32	0.99	0.91	0.26	0.11	26	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	0.3	0.3	0.3	0.0	0.0	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.003	0.003	0.003	0.000	0.000	0	5	0	0
Nitrate (as N)	mg/L	2	0.003	0.003	0.003	0.003	0.000	0.000	0	2	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.05	3.75	2.41	2.18	1.03	0.46	42	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.001	0.001	0.001	0.000	0.000	0	5	0	0
Total Phosphate as P	mg/L	5	0.026	0.034	0.030	0.030	0.003	0.002	12	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	44.0	44.0	44.0	44.0	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	3	25.70	31.90	28.40	27.60	3.18	1.83	11	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	11.6	26.3	19.6	22.7	6.8	3.0	35	0	0	0
Antimony (Sb)	µg/L	5	0.05	0.13	0.07	0.05	0.04	0.02	54	4	0	0
Arsenic (As)	µg/L	5	1.03	1.92	1.43	1.26	0.42	0.19	29	0	0	0
Barium (Ba)	µg/L	5	26.7	72.8	48.3	38.1	20.4	9.1	42	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	16	21	19	20	2	1	13	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.12	0.07	0.05	0.03	0.02	45	3	0	0
Copper (Cu)	µg/L	5	0.25	1.02	0.52	0.47	0.31	0.14	59	1	0	0
Iron (Fe)	µg/L	5	143	6230	2262	278	2902	1298	128	0	2	40
Lead (Pb)	µg/L	5	0.025	0.102	0.040	0.025	0.034	0.015	85	4	0	0
Lithium (Li)	µg/L	5	2.5	5.8	3.8	2.5	1.8	0.8	46	3	0	0
Manganese (Mn)	µg/L	5	28.1	428.0	178.3	39.5	197.6	88.4	111	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	0.507	0.841	0.645	0.637	0.145	0.065	22	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.020	0.008	0.005	0.007	0.003	84	4	0	0
Strontium (Sr)	µg/L	5	31.7	60.8	46.1	39.9	13.4	6.0	29	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.044	0.093	0.066	0.069	0.021	0.009	32	5	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	1.5	3.2	2.0	1.8	0.7	0.3	34	1	0	0
Calcium (Ca)	mg/L	5	18.8	39.0	27.4	21.9	9.6	4.3	35	0	0	0
Magnesium (Mg)	mg/L	5	9.2	17.4	13.1	11.6	3.7	1.6	28	0	0	0
Potassium (K)	mg/L	5	1.0	2.5	1.6	1.0	0.8	0.4	50	3	0	0
Silicon (Si)	mg/L	5	0.18	0.88	0.45	0.22	0.34	0.15	76	0	0	0
Sodium (Na)	mg/L	5	2.2	4.4	3.3	3.3	0.9	0.4	27	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	2.6	13.7	6.5	4.9	5.1	2.6	79	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	1.05	1.90	1.44	1.40	0.36	0.18	25	0	0	0
Barium (Ba)	µg/L	4	24.7	65.3	38.4	31.7	18.3	9.1	48	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	12	19	16	16	3	1	19	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.50	0.38	0.38	0.14	0.07	38	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Copper (Cu)	µg/L	4	0.15	1.14	0.53	0.41	0.45	0.23	85	0	0	0
Iron (Fe)	µg/L	4	15	5870	1511	80	2906	1453	192	2	1	25
Lead (Pb)	µg/L	4	0.025	0.063	0.035	0.025	0.019	0.010	55	3	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.158	328.000	86.342	8.604	161.297	80.649	187	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.438	0.784	0.546	0.481	0.162	0.081	30	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.63	0.35	0.25	0.19	0.10	55	3	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	29.9	56.5	38.8	34.3	12.1	6.0	31	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	1.73	0.58	0.26	0.80	0.40	138	2	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.033	0.087	0.054	0.049	0.023	0.012	43	0	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	4.0	2.3	2.4	1.6	0.8	69	1	0	0
Calcium (Ca)	mg/L	4	20.0	38.8	25.2	21.1	9.1	4.5	36	0	0	0
Magnesium (Mg)	mg/L	4	9.7	17.2	12.3	11.2	3.4	1.7	27	0	0	0
Potassium (K)	mg/L	4	1.0	2.5	1.4	1.0	0.8	0.4	55	3	0	0
Silicon (Si)	mg/L	4	0.15	0.87	0.35	0.19	0.35	0.17	99	0	0	0
Sodium (Na)	mg/L	4	2.4	3.9	3.1	3.0	0.7	0.3	22	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	4	0.003	0.003	0.003	0.003	0.000	0.000	0	4	0	0
Radium-228 (^{228}Ra)	Bq/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Thorium-230 (^{230}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	1	4.900	14.600	9.750	9.750	-	-	-	0	-	-
Pheopigments	µg/L	1	7.74	7.74	7.74	7.74	-	-	-	0	-	-

Table F3-19

Murky Lake (UN-02 & UN-10) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009	April 2010	June 2010	September 2010	October 2010	
					UN-02	UN-10	UN-10	UN-10	UN-10	UN-10	UN-10	UN-10	6-Oct-10	
					20-Mar-08	3-Oct-08	16-Mar-09	27-Jun-09	17-Sep-09	13-Apr-10	13-Jun-10	5-Sep-10	UN-10	Replicate
Physicals														
Conductivity	µS/cm	0.5	-	-	439	258	495	221	253	456	204	168	268	271
Hardness (as $CaCO_3$)	mg/L	2	-	-	220	144	267	116	140	238	115	140	140	138
pH	pH	0.01	-	-	7.75	8.23	7.75	8.27	8.21	7.78	7.43	8.12	8.12	8.13
Total Suspended Solids	mg/L	3.0	-	-	21	10.7	52.5	5.3	8.7	41.3	3.4	6.7	3.2	3.2
Total Dissolved Solids	mg/L	10	-	-	275	179	331	161	175	291	155	191	200	191
Turbidity	NTU	0.1	-	-	12.6	1.51	36.50	2.76	3.19	32.3	1.34	2.61	1.93	1.97
Anions														
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	225	141	270	115	128	253	107	138	146	146
Ammonia as N	mg/L	0.02	-	-	-	0.099	2.65	0.029	0.0416	2.32	0.016	1.21	2.61	2.60
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	6.19	4.39	8.14	3.74	3.98	6.82	2.82	3.46	3.53	3.55
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.390	0.983	1.220	0.736	0.874	1.400	0.735	0.914	0.989	1.010
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients														
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	0.0054	0.0235	<0.0050	<0.0050	0.007	<0.0050	0.0107	0.0062	0.0078
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0054	0.0235	-	-	0.007	<0.0050	0.0107	0.0062	0.0078
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	<0.0010	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	3.39	1.96	4.84	1.08	1.45	4.88	1.46	3.14	4.90	5.11
Ortho Phosphate as P	mg/L	**[f]	-	-	<0.0010	<0.0010	<0.010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	**	-	-	0.0212	0.0225	0.022	0.0152	0.0159	0.0491	0.0137	0.019	0.0215	0.021
Organics														
Total Organic Carbon (TOC)	mg/L	0.5	-	-	40.4	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	25.9	36.2	22.7	21.5	35.1	19.7	20.0	27.3	24.7
Total Metals														
Aluminum (Al)	µg/L	**	100[g]	-	10.9	10.7	14.2	<8	<6	8	<8	6.1	4.3	4.1
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	1.7	1.13	2.24	0.83	0.96	1.76	0.65	1.1	1.22	1.24
Barium (Ba)	µg/L	0.05	-	5000	109	35.3	95.7	23.6	39.4	119	29.4	57.5	63.4	63
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	28	23	29	21	27	34	19	27	19	21
Cadmium (Cd)	µg/L	**	0.054[i]	0.052	<0.05	<0.05	<0.05	<0.05	<0.017	<0.01	<0.017	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	0.15	<0.1	0.22	<0.1	<0.1	0.17	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	19[k]	0.56	0.54	<0.7	0.38	<0.5	0.46	<0.4	<0.5	<0.5	<0.5
Iron (Fe)	µg/L	30	300	1000	**4060**	148	**12700**	93	84	**10100**	83	125	105	87
Lead (Pb)	µg/L	0.05	1 - 7[l]	169[m]	<0.05	<0.05	<0.05	<0.05	<0.05	0.052	<0.05	<0.05	<0.05	0.062
Lithium (Li)	µg/L	5	-	870	7.8	6.2	8.2	<5	5.5	8.2	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	2495[n]	588	24.3	659	24.2	29.4	812	15.9	49.6	25.3	25.9
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.27	0.899	1.85	0.842	0.974	1.77	1.05	1.73	2.35	2.37
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	0.049	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	80.9	44.4	74.1	35.4	44.7	87.1	37	52.5	49.6	49.8
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.106	0.104	0.134	0.059	0.046	0.078	0.051	0.1	0.21	0.203
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	99[q]	3.6	1.7	3.7	<3	<5	2.4	<1	3	<3	<3
Calcium (Ca)	mg/L	0.05	-	-	49.4	32.4	58.5	23.3	29.5	52.4	24.3	29.7	30.3	30
Magnesium (Mg)	mg/L	0.1	-	-	23.5	15.8	26.8	11.9	14.8	25	12.6	14.8	14.9	15
Potassium (K)	mg/L	2	-	-	2.9	2.1	3.3	<2.0	<2.0	2.7	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	2.23	1.43	4.37	0.385	1.09	3.73	0.377	2.73	3.14	3.15
Sodium (Na)	mg/L	2	-	-	9.4	7.2	10	5	6.3	9.9	5.1	5.6	5.5	5.5

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008	March 2009	June 2009	September 2009	April 2010	June 2010	September 2010	October 2010	
					UN-02	UN-10	UN-10	UN-10	UN-10	UN-10	UN-10	UN-10	6-Oct-10	
					20-Mar-08	3-Oct-08	16-Mar-09	27-Jun-09	17-Sep-09	13-Apr-10	13-Jun-10	5-Sep-10	UN-10	Replicate
Dissolved Metals														
Aluminum (Al)	µg/L	1	-	100[f]	-	<1	3.6	5.2	<1	1.8	3.8	1.1	<3	<3
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	1.22	1.87	1	0.94	1.58	0.77	1.12	1.46	1.45
Barium (Ba)	µg/L	0.05	-	-	-	30.2	72.7	23.6	36.8	89.9	26.8	55.4	61.3	61
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	21	31	18	23	29	18	21	18	18
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017	<0.01	<0.017	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	0.12	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.35	0.43	0.29	0.16	0.22	0.25	0.18	<0.5	<0.5
Iron (Fe)	µg/L	30	-	350	-	<30	**1750**	69	<30	**2460**	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	5.3	9.3	<5	5	8.2	<5	5.2	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.553	428	17.3	0.445	737	0.8	0.61	1.75	1.75
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.794	1.86	0.826	0.85	1.58	0.954	1.57	2.31	2.25
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	0.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	40.1	73.5	35.2	42.2	80.9	35.4	49.7	48	48.6
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	0.92	<0.1	1.53	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	0.087	0.114	0.056	0.039	0.073	0.039	0.094	0.182	0.18
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	2.3	2.1	<1	<1	1.4	<1	1.5	<3	<3
Calcium (Ca)	mg/L	0.05	-	-	-	32	59.2	25.3	30.3	53.3	24.6	30.7	30.7	30.2
Magnesium (Mg)	mg/L	0.1	-	-	-	15.6	28.9	12.9	15.5	25.5	13.1	15.3	15.3	15.1
Potassium (K)	mg/L	2	-	-	-	<2	3.4	<2.0	<2.0	2.8	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	1.39	4.18	0.398	1.14	3.7	0.358	2.8	3.19	3.19
Sodium (Na)	mg/L	2	-	-	-	6.7	10.3	5.4	6.7	10.1	5.2	5.8	5.6	5.6
Radionuclides			**GCDWQ MAC[s]**											
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	-	<0.005	0.007	0.01	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	-	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota														
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	2.140	8.220	-	0.949	19.400	-	-
Pheopigments	µg/L	0.01	-	-	-	-	-	-	4.110	-	0.211	6.900	-	-

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{[0.86[Log(hardness)] - 3.2]}$

Average hardness = 169 mg/L

Cadmium Guideline = 0.052 µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L

3 µg/L when [CaCO3] is 120 - 180 mg/L

4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness = 169 mg/L

Copper Guideline = 18 µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L

4 µg/L when [CaCO3] is 120 - 180 mg/L

7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)

= e(1.273 x [ln(hardness)] - 1.460)

Average hardness = 169 mg/L

Lead Guideline = 159 µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness = 169

Manganese Guideline = 2.400 mg/L

= 2400 µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L

150 µg/L when [CaCO3] is > 180 mg/L

150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is ≤ 100 mg/L

3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness = 169 mg/L

Zinc Guideline = 92 µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted

u. **Bolded** result implies a guideline exceedance

Table F2-21

Murky Lake (UN-02 & UN-10) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	9	168	495	307	258	122	41	40	0	0	0
Hardness (as $CaCO_3$)	mg/L	9	115	267	169	140	57	19	34	0	0	0
pH	pH	9	7.43	8.27	7.96	8.12	0.29	0.10	4	0	0	0
Total Suspended Solids	mg/L	9	3.2	52.5	17.0	8.7	18.0	6.0	106	0	0	0
Total Dissolved Solids	mg/L	9	155	331	217	191	64	21	30	0	0	0
Turbidity	NTU	9	1.3	36.5	10.5	2.8	14.0	4.7	133	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	9	107	270	169	141	62	21	37	0	0	0
Ammonia as N	mg/L	8	0.02	2.65	1.12	0.65	1.23	0.44	110	0	0	0
Bromide (Br)	mg/L	8	0.03	0.03	0.03	0.03	0.00	0.00	0	8	0	0
Chloride (Cl)	mg/L	9	2.8	8.1	4.8	4.0	1.8	0.6	38	0	0	0
Fluoride (F)	mg/L	9	0.74	1.40	1.03	0.98	0.25	0.08	25	0	0	0
Sulfate (SO_4)	mg/L	9	0.3	0.3	0.3	0.3	0.0	0.0	0	9	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	9	0.003	0.024	0.007	0.005	0.007	0.002	96	5	0	0
Nitrate (as N)	mg/L	6	0.003	0.024	0.009	0.007	0.007	0.003	79	1	0	0
Nitrite (as N)	mg/L	6	0.001	0.001	0.001	0.001	0.000	0.000	0	6	0	0
Total Kjeldahl Nitrogen	mg/L	9	1.08	5.01	3.02	3.14	1.61	0.54	53	0	0	0
Ortho Phosphate as P	mg/L	9	0.001	0.001	0.001	0.001	0.000	0.000	0	9	0	0
Total Phosphate as P	mg/L	9	0.014	0.049	0.022	0.021	0.011	0.004	48	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	40.4	40.4	40.4	40.4	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	8	19.70	36.20	25.89	24.30	6.48	2.29	25	0	0	0
Total Metals												
Aluminum (Al)	µg/L	9	3.0	14.2	7.2	6.1	3.9	1.3	54	3	0	0
Antimony (Sb)	µg/L	9	0.05	0.05	0.05	0.05	0.00	0.00	0	9	0	0
Arsenic (As)	µg/L	9	0.65	2.24	1.29	1.13	0.51	0.17	40	0	0	0
Barium (Ba)	µg/L	9	23.6	119.0	63.6	57.5	36.0	12.0	57	0	0	0
Beryllium (Be)	µg/L	9	0.25	0.25	0.25	0.25	0.00	0.00	0	9	0	0
Bismuth (Bi)	µg/L	9	0.25	0.25	0.25	0.25	0.00	0.00	0	9	0	0
Boron (B)	µg/L	9	19	34	25	27	5	2	19	0	0	0
Cadmium (Cd)	µg/L	9	0.005	0.025	0.015	0.009	0.009	0.003	59	9	0	0
Chromium (Cr)	µg/L	9	0.25	0.25	0.25	0.25	0.00	0.00	0	9	0	0
Cobalt (Co)	µg/L	9	0.05	0.22	0.09	0.05	0.07	0.02	72	6	0	0
Copper (Cu)	µg/L	9	0.20	0.56	0.36	0.35	0.13	0.04	37	5	0	0
Iron (Fe)	µg/L	9	83	12700	3054	125	4948	1649	162	0	3	33
Lead (Pb)	µg/L	9	0.025	0.052	0.030	0.025	0.010	0.003	34	7	0	0
Lithium (Li)	µg/L	9	2.5	8.2	5.1	5.5	2.6	0.9	51	4	0	0
Manganese (Mn)	µg/L	9	15.9	812.0	247.6	29.4	334.1	111.4	135	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.011	0.005	0.010	0.004	91	6	0	0
Molybdenum (Mo)	µg/L	9	0.842	2.360	1.416	1.270	0.530	0.177	37	0	0	0
Nickel (Ni)	µg/L	9	0.25	0.25	0.25	0.25	0.00	0.00	0	9	0	0
Phosphorus (P)	µg/L	9	150	150	150	150	0	0	0	9	0	0
Selenium (Se)	µg/L	9	0.5	0.5	0.5	0.5	0.0	0.0	0	9	0	0
Silver (Ag)	µg/L	9	0.005	0.049	0.010	0.005	0.015	0.005	148	8	0	0
Strontium (Sr)	µg/L	9	35.4	87.1	56.2	49.7	19.4	6.5	35	0	0	0
Thallium (Tl)	µg/L	9	0.05	0.05	0.05	0.05	0.00	0.00	0	9	0	0
Tin (Sn)	µg/L	9	0.05	0.05	0.05	0.05	0.00	0.00	0	9	0	0
Titanium (Ti)	µg/L	9	5	5	5	5	0	0	0	9	0	0
Uranium (U)	µg/L	9	0.046	0.207	0.098	0.100	0.050	0.017	51	0	0	0
Vanadium (V)	µg/L	9	0.5	0.5	0.5	0.5	0.0	0.0	0	9	0	0
Zinc (Zn)	µg/L	9	0.5	3.7	2.3	2.4	1.1	0.4	47	4	0	0
Calcium (Ca)	mg/L	9	23.3	58.5	36.6	30.2	13.1	4.4	36	0	0	0
Magnesium (Mg)	mg/L	9	11.9	26.8	17.8	15.0	5.7	1.9	32	0	0	0
Potassium (K)	mg/L	9	1.0	3.3	1.8	1.0	1.0	0.3	55	5	0	0
Silicon (Si)	mg/L	9	0.38	4.37	2.17	2.23	1.44	0.48	67	0	0	0
Sodium (Na)	mg/L	9	5.0	10.0	7.1	6.3	2.1	0.7	30	0	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Dissolved Metals												
Aluminum (Al)	µg/L	8	0.5	5.2	2.3	1.7	1.7	0.6	77	3	0	0
Antimony (Sb)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Arsenic (As)	µg/L	8	0.77	1.87	1.24	1.17	0.37	0.13	29	0	0	0
Barium (Ba)	µg/L	8	23.6	89.9	49.6	46.1	24.1	8.5	49	0	0	0
Beryllium (Be)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Bismuth (Bi)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Boron (B)	µg/L	8	18	31	22	21	5	2	23	0	0	0
Cadmium (Cd)	µg/L	8	0.005	0.025	0.014	0.009	0.009	0.003	63	8	0	0
Chromium (Cr)	µg/L	8	0.25	0.25	0.25	0.25	0.00	0.00	0	8	0	0
Cobalt (Co)	µg/L	8	0.05	0.13	0.07	0.05	0.03	0.01	51	6	0	0
Copper (Cu)	µg/L	8	0.16	0.43	0.27	0.25	0.09	0.03	34	1	0	0
Iron (Fe)	µg/L	8	15	2460	544	15	982	347	180	5	2	25
Lead (Pb)	µg/L	8	0.025	0.025	0.025	0.025	0.000	0.000	0	8	0	0
Lithium (Li)	µg/L	8	2.5	9.3	5.1	5.1	2.6	0.9	51	3	0	0
Manganese (Mn)	µg/L	8	0.445	737.000	148.307	1.275	280.483	99.166	189	0	0	0
Mercury (Hg)	µg/L	7	0.005	0.025	0.011	0.005	0.010	0.004	91	7	0	0
Molybdenum (Mo)	µg/L	8	0.794	2.280	1.339	1.262	0.563	0.199	42	0	0	0
Nickel (Ni)	µg/L	8	0.25	0.55	0.29	0.25	0.11	0.04	37	7	0	0
Phosphorus (P)	µg/L	8	150	150	150	150	0	0	0	8	0	0
Selenium (Se)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Silver (Ag)	µg/L	8	0.01	0.01	0.01	0.01	0.00	0.00	37	7	0	0
Strontium (Sr)	µg/L	8	35.2	80.9	50.7	45.3	17.3	6.1	34	0	0	0
Thallium (Tl)	µg/L	8	0.05	0.05	0.05	0.05	0.00	0.00	0	8	0	0
Tin (Sn)	µg/L	8	0.05	1.53	0.34	0.05	0.57	0.20	165	6	0	0
Titanium (Ti)	µg/L	8	5	5	5	5	0	0	0	8	0	0
Uranium (U)	µg/L	8	0.039	0.181	0.085	0.080	0.047	0.017	55	0	0	0
Vanadium (V)	µg/L	8	0.5	0.5	0.5	0.5	0.0	0.0	0	8	0	0
Zinc (Zn)	µg/L	8	0.5	2.3	1.3	1.5	0.7	0.3	56	4	0	0
Calcium (Ca)	mg/L	8	24.6	59.2	35.7	30.6	13.0	4.6	36	0	0	0
Magnesium (Mg)	mg/L	8	12.9	28.9	17.8	15.4	6.0	2.1	34	0	0	0
Potassium (K)	mg/L	8	1.0	3.4	1.5	1.0	1.0	0.3	65	6	0	0
Silicon (Si)	mg/L	8	0.36	4.18	2.14	2.10	1.51	0.53	70	0	0	0
Sodium (Na)	mg/L	8	5.2	10.3	7.0	6.3	2.1	0.7	30	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	8	0.01	0.01	0.01	0.01	0.00	0.00	0	8	0	0
Radium-226 (^{226}Ra)	Bq/L	8	0.003	0.010	0.004	0.003	0.003	0.001	65	5	0	0
Radium-228 (^{228}Ra)	Bq/L	8	0.01	0.02	0.01	0.01	0.00	0.00	31	8	0	0
Thorium-230 (^{230}Th)	Bq/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Thorium-232 (^{232}Th)	Bq/L	8	0.005	0.005	0.005	0.005	0.000	0.000	0	8	0	0
Biota												
Chlorophyll *a*	µg/L	4	0.949	19.400	7.677	5.180	8.439	4.219	110	0	-	-
Pheopigments	µg/L	3	0.211	6.900	3.740	4.110	3.360	1.940	89.83	0	-	-

Table F3-20

Egg Lake (UN-03 & UN-11) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 UN-03 20-Mar-08	October 2008 UN-11 3-Oct-08	March 2009 UN-11 15-Mar-09	June 2009 UN-11 27-Jun-09	September 2009 UN-11 23-Sep-09
Physicals									
Conductivity	µS/cm	0.5	-	-	253	183	267	169	182
Hardness (as $CaCO_3$)	mg/L	2	-	-	132	98.5	144	91.2	93.5
pH	pH	0.01	-	-	7.75	8.12	7.80	8.04	8.16
Total Suspended Solids	mg/L	3.0	-	-	<3.0	3.7	8.5	<3.0	5.0
Total Dissolved Solids	mg/L	10	-	-	169	127	193	129	125
Turbidity	NTU	0.1	-	-	2.74	1.62	12.90	1.78	1.72
Anions									
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	148	97.7	170	91	95.1
Ammonia as N	mg/L	0.02	-	-	-	0.146	1.08	0.042	0.036
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	<0.05	<0.050	<0.05
Chloride (Cl)	mg/L	0.5	-	600	0.8	0.63	1.08	<0.50	0.83
Fluoride (F)	mg/L	0.02	-	0.3[d]	1.14	0.954	1.26	0.797	0.865
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients									
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	0.0065	0.0129	<0.0050	0.0058
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0065	0.0129	-	-
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	<0.0010	-	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	1.68	1.34	2.67	0.847	1.21
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	0.011	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0095	0.0115	0.0214	0.0096	0.0101
Organics									
Total Organic Carbon (TOC)	mg/L	0.5	-	-	26.6	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	24	25.4	19.7	22.1
Total Metals									
Aluminum (Al)	µg/L	**[f]	100[g]	-	<1	4.6	1.6	<8	3.7
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.85	0.72	0.92	0.83	0.67
Barium (Ba)	µg/L	0.05	-	5000	53.8	34.5	60.5	30.6	34.5
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	13	13	14	12	16
Cadmium (Cd)	µg/L	**	0.036[i]	0.036	<0.05	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	13[k]	0.25	0.5	0.35	0.48	<0.4
Iron (Fe)	µg/L	30	300	1000	213	80	**1480**	249	139
Lead (Pb)	µg/L	0.05	1 - 7[l]	94[m]	<0.05	<0.05	<0.05	0.118	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	1772[n]	81.8	17.4	649	25.7	28.9
Mercury (Hg)	µg/L	**	0.026	0.1	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.256	0.264	0.341	0.23	0.24
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	1.14	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	0.011	<0.01	<0.01	0.023
Strontium (Sr)	µg/L	0.1	-	-	32.4	26.3	34	23.2	24.6
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008 UN-03 20-Mar-08	October 2008 UN-11 3-Oct-08	March 2009 UN-11 15-Mar-09	June 2009 UN-11 27-Jun-09	September 2009 UN-11 23-Sep-09
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	**	30	49[q]	<1	1.3	<1	<4	<1
Calcium (Ca)	mg/L	0.05	-	-	31.2	22.4	35.2	20.1	21.7
Magnesium (Mg)	mg/L	0.1	-	-	13.3	10.7	14.4	8.83	9.71
Potassium (K)	mg/L	2	-	-	<2.0	<2	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	0.847	0.556	1.34	0.249	0.501
Sodium (Na)	mg/L	2	-	-	3.5	3.1	3.3	2.3	2.5
Dissolved Metals									
Aluminum (Al)	µg/L	1	-	100[r]	-	<1	1.3	2.4	<1
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	0.76	0.85	0.66	0.6
Barium (Ba)	µg/L	0.05	-	-	-	30.2	53.4	27.7	29.8
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	12	14	<10	12
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	<0.05	<0.05	<0.017
Chromium (Cr)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	0.72	0.18	0.28	0.17
Iron (Fe)	µg/L	30	-	350	-	<30	83	73	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	0.447	2.25	2.28	0.266
Mercury (Hg)	µg/L	**	-	-	-	-	<0.05	<0.05	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	0.209	0.265	0.205	0.195
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	23.6	34.5	20.8	21.4
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	<0.1	<0.1	0.19
Titanium (Ti)	µg/L	10	-	-	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	<0.01	<0.01	<0.01	<0.01
Vanadium (V)	µg/L	1	-	-	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	2	<1	<1	<1
Calcium (Ca)	mg/L	0.05	-	-	-	22.2	34.2	21.2	21.6
Magnesium (Mg)	mg/L	0.1	-	-	-	10.5	14.3	9.3	9.61
Potassium (K)	mg/L	2	-	-	-	<2	<2	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	0.535	1.3	0.235	0.495
Sodium (Na)	mg/L	2	-	-	-	2.9	3.3	2.4	2.4
Radionuclides			**GCDWQ MAC[s]**						
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	**	0.5	-	<0.02	<0.04	<0.03	<0.02	<0.01
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01
Biota									
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	2.69
Pheopigments	µg/L	0.01	-	-	-	-	-	-	0.40

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$

Average hardness =	112	mg/L
Cadmium Guideline =	0.036	µg/L

j. CCME FAL Total Copper guideline:
2 µg/L when [CaCO3] is 0 - 120 mg/L
3 µg/L when [CaCO3] is 120 - 180 mg/L
4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness =	112	mg/L
Copper Guideline =	13	µg/L

l. CCME FAL Total Lead guideline:
1 µg/L when [CaCO3] is 0 - 60 mg/L
4 µg/L when [CaCO3] is 120 - 180 mg/L
7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
= e(1.273 x [ln(hardness)] - 1.460)

Average hardness =	112	mg/L
Lead Guideline =	94	µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness =	112	
Manganese Guideline =	1.772	mg/L
=	1772	µg/L

o. CCME FAL Total Nickel guideline:
25 µg/L when [CaCO3] is 0 - 60 mg/L
110 µg/L when [CaCO3] is 120 - 180 mg/L
150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
0.1 µg/L when [CaCO3] is ≤ 100 mg/L
3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness =	112	mg/L
Zinc Guideline =	49	µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-22

Egg Lake (UN-03 & UN-11) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	169	267	211	183	46	20	22	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	91	144	112	99	24	11	22	0	0	0
pH	pH	5	7.75	8.16	7.97	8.04	0.19	0.08	2	0	0	0
Total Suspended Solids	mg/L	5	1.5	8.5	4.0	3.7	2.9	1.3	72	2	0	0
Total Dissolved Solids	mg/L	5	125	193	149	129	31	14	21	0	0	0
Turbidity	NTU	5	1.6	12.9	4.2	1.8	4.9	2.2	118	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	91	170	120	98	36	16	30	0	0	0
Ammonia as N	mg/L	4	0.04	1.08	0.33	0.09	0.51	0.25	155	0	0	0
Bromide (Br)	mg/L	4	0.03	0.03	0.03	0.03	0.00	0.00	0	4	0	0
Chloride (Cl)	mg/L	5	0.3	1.1	0.7	0.8	0.3	0.1	43	1	0	0
Fluoride (F)	mg/L	5	0.80	1.26	1.00	0.95	0.19	0.09	19	0	0	0
Sulfate (SO_4)	mg/L	5	0.3	0.3	0.3	0.3	0.0	0.0	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.003	0.013	0.006	0.006	0.004	0.002	70	2	0	0
Nitrate (as N)	mg/L	2	0.007	0.013	0.010	0.010	0.005	0.003	47	0	0	0
Nitrite (as N)	mg/L	2	0.001	0.001	0.001	0.001	0.000	0.000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.85	2.67	1.55	1.34	0.69	0.31	45	0	0	0
Ortho Phosphate as P	mg/L	5	0.001	0.011	0.003	0.001	0.005	0.002	181	4	0	0
Total Phosphate as P	mg/L	5	0.010	0.021	0.012	0.010	0.005	0.002	41	0	0	0
Organics												
Total Organic Carbon (TOC)	mg/L	1	26.6	26.6	26.6	26.6	-	-	-	0	0	0
Dissolved Organic Carbon (DOC)	mg/L	4	19.70	25.40	22.80	23.05	2.47	1.23	11	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	0.5	4.6	2.9	3.7	1.7	0.8	61	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.67	0.92	0.80	0.83	0.10	0.05	13	0	0	0
Barium (Ba)	µg/L	5	30.6	60.5	42.8	34.5	13.4	6.0	31	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	12	16	14	13	2	1	11	0	0	0
Cadmium (Cd)	µg/L	5	0.009	0.025	0.022	0.025	0.007	0.003	34	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.10	0.06	0.05	0.02	0.01	37	4	0	0
Copper (Cu)	µg/L	5	0.20	0.50	0.36	0.35	0.13	0.06	38	1	0	0
Iron (Fe)	µg/L	5	80	1480	432	213	589	264	136	0	1	20
Lead (Pb)	µg/L	5	0.025	0.118	0.044	0.025	0.042	0.019	95	4	0	0
Lithium (Li)	µg/L	5	2.5	2.5	2.5	2.5	0.0	0.0	0	5	0	0
Manganese (Mn)	µg/L	5	17.4	649.0	160.6	28.9	274.2	122.6	171	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	5	0.230	0.341	0.266	0.256	0.044	0.020	16	0	0	0
Nickel (Ni)	µg/L	5	0.25	1.14	0.43	0.25	0.40	0.18	93	4	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.023	0.010	0.005	0.008	0.003	80	3	0	0
Strontium (Sr)	µg/L	5	23.2	34.0	28.1	26.3	4.8	2.2	17	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	2.0	1.0	0.5	0.7	0.3	70	4	0	0
Calcium (Ca)	mg/L	5	20.1	35.2	26.1	22.4	6.7	3.0	26	0	0	0
Magnesium (Mg)	mg/L	5	8.8	14.4	11.4	10.7	2.4	1.1	21	0	0	0
Potassium (K)	mg/L	5	1.0	1.0	1.0	1.0	0.0	0.0	0	5	0	0
Silicon (Si)	mg/L	5	0.25	1.34	0.70	0.56	0.42	0.19	60	0	0	0
Sodium (Na)	mg/L	5	2.3	3.5	2.9	3.1	0.5	0.2	18	0	0	0
Dissolved Metals												
Aluminum (Al)	µg/L	4	0.5	2.4	1.2	0.9	0.9	0.4	77	2	0	0
Antimony (Sb)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	4	0.60	0.85	0.72	0.71	0.11	0.06	15	0	0	0
Barium (Ba)	µg/L	4	27.7	53.4	35.3	30.0	12.1	6.1	34	0	0	0
Beryllium (Be)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	4	5	14	11	12	4	2	37	0	0	0
Cadmium (Cd)	µg/L	4	0.009	0.025	0.021	0.025	0.008	0.004	40	4	0	0
Chromium (Cr)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	4	0.05	0.10	0.06	0.05	0.03	0.01	40	3	0	0
Copper (Cu)	µg/L	4	0.17	0.72	0.34	0.23	0.26	0.13	77	0	0	0
Iron (Fe)	µg/L	4	15	83	47	44	37	18	79	2	1	25
Lead (Pb)	µg/L	4	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	4	2.5	2.5	2.5	2.5	0.0	0.0	0	4	0	0
Manganese (Mn)	µg/L	4	0.266	2.280	1.311	1.349	1.104	0.552	84	0	0	0
Mercury (Hg)	µg/L	3	0.005	0.025	0.018	0.025	0.012	0.007	63	3	0	0
Molybdenum (Mo)	µg/L	4	0.195	0.265	0.219	0.207	0.032	0.016	14	0	0	0
Nickel (Ni)	µg/L	4	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	4	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	4	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Strontium (Sr)	µg/L	4	20.8	34.5	25.1	22.5	6.4	3.2	26	0	0	0
Thallium (Tl)	µg/L	4	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	4	0.05	0.19	0.09	0.05	0.07	0.04	82	3	0	0
Titanium (Ti)	µg/L	4	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	4	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Vanadium (V)	µg/L	4	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	4	0.5	2.0	0.9	0.5	0.8	0.4	86	3	0	0
Calcium (Ca)	mg/L	4	21.2	34.2	24.8	21.9	6.3	3.1	25	0	0	0
Magnesium (Mg)	mg/L	4	9.3	14.3	10.9	10.1	2.3	1.2	21	0	0	0
Potassium (K)	mg/L	4	1.0	1.0	1.0	1.0	0.0	0.0	0	4	0	0
Silicon (Si)	mg/L	4	0.24	1.30	0.64	0.52	0.46	0.23	72	0	0	0
Sodium (Na)	mg/L	4	2.4	3.3	2.8	2.7	0.4	0.2	16	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	0	4	0	0
Radium-226 (^{226}Ra)	Bq/L	5	0.003	0.003	0.003	0.003	0.000	0.000	0	4	0	0
Radium-228 (^{228}Ra)	Bq/L	5	0.01	0.02	0.01	0.01	0.01	0.00	48	4	0	0
Thorium-230 (^{230}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Thorium-232 (^{232}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Biota												
Chlorophyll *a*	µg/L	1	2.690	2.690	2.690	2.690	-	-	-	0	-	-
Pheopigments	µg/L	1	0.4	0.4	0.4	0.40	-	-	-	0	-	-

Table F3-21

Buck Lake (UN-12) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009 10-Sep-09	April 2010 13-Apr-10	June 2010 13-Jun-10 UN-12	June 2010 13-Jun-10 Replicate	September 2010 4-Sep-10	October 2010 6-Oct-10
Physicals										
Conductivity	µS/cm	0.5	-	-	231	441	192	192	221	230
Hardness (as $CaCO_3$)	mg/L	2	-	-	134	245	112	112	131	128
pH	pH	0.01	-	-	8.28	7.68	8.21	8.25	8.23	8.13
Total Suspended Solids	mg/L	3.0	-	-	6.80	35.80	4.90	4.90	6.2	6.7
Total Dissolved Solids	mg/L	10	-	-	174	318	149	157	177	184
Turbidity	NTU	0.1	-	-	3.75	16.5	2.09	2.04	2.15	1.95
Anions										
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	121	252	102	104	124	125
Ammonia as N	mg/L	0.02	-	-	0.072	2.89	0.015	0.013	0.344	0.714
Bromide (Br)	mg/L	0.05	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	0.92	1.94	0.74	0.73	0.93	0.97
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.978	1.560	0.790	0.780	1.000	1.080
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients										
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.005	<0.0050	<0.0050	<0.0050	<0.0051	0.0138
Nitrate (as N)	mg/L	-	2.9	31.3	-	<0.0050	<0.0050	<0.0050	<0.0050	0.0138
Nitrite (as N)	mg/L	-	0.06	0.12[e]	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	1.82	5.4	1.79	1.75	2.23	2.95
Ortho Phosphate as P	mg/L	0.001	-	-	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0179	0.0243	0.0184	0.0187	0.0179	0.0241
Organics										
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	27.4	52.3	24.3	24.1	25.8	33.2
Total Metals										
Aluminum (Al)	µg/L	7	100[g]	-	<7	95.5	<10	10	6.3	6.5
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.99	1.66	0.79	0.8	1.05	1.17
Barium (Ba)	µg/L	0.05	-	5000	26.4	80.9	16.5	16.3	22.9	19.6
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	24	27	15	15	23	19
Cadmium (Cd)	µg/L	0.05	0.047[i]	0.047	<0.05	<0.01	<0.017	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	0.12	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.5	2 - 4[j]	16[k]	<0.5	0.53	<0.4	<0.4	<0.3	<0.5
Iron (Fe)	µg/L	30	300	1000	87	**7460**	78	80	92	85
Lead (Pb)	µg/L	0.05	1 - 7[l]	137[m]	<0.05	<0.05	<0.05	0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	6.8	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	2193[n]	24.2	1210	27	27.8	25.8	28.8
Mercury (Hg)	µg/L	0.05	0.026	0.1	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.127	0.463	0.152	0.161	0.186	0.228
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.017	0.1	0.1 - 3[p]	0.017	0.028	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	38.1	76.7	31.9	31.9	38.9	37
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	<0.01	0.022	0.011	0.011	<0.01	0.015
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	30	78[q]	1.5	1.9	<1	<1	<1	<3
Calcium (Ca)	mg/L	0.05	-	-	29.9	55.6	24.7	24.7	28.5	29.3
Magnesium (Mg)	mg/L	0.1	-	-	13.5	24	12	12.1	14.2	14.5
Potassium (K)	mg/L	2	-	-	2.3	4	<2.0	<2.0	2.1	2.1
Silicon (Si)	mg/L	0.05	-	-	1.31	4.7	0.379	0.379	1.96	2.23
Sodium (Na)	mg/L	2	-	-	3.1	5.3	2.5	2.5	3.1	3

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009	April 2010	June 2010		September 2010	October 2010
					10-Sep-09	13-Apr-10	13-Jun-10 UN-12	Replicate	4-Sep-10	6-Oct-10
Dissolved Metals										
Aluminum (Al)	µg/L	1	-	100[r]	1	7.7	4.8	5.3	1.1	<3
Antimony (Sb)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	0.93	1.73	0.93	0.9	1.04	1.28
Barium (Ba)	µg/L	0.05	-	-	23.2	78.7	14.3	14.3	21.3	17.1
Beryllium (Be)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	18	23	14	14	18	17
Cadmium (Cd)	µg/L	0.05	-	-	<0.05	<0.01	<0.017	<0.017	0.024	<0.017
Chromium (Cr)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	0.21	0.17	0.22	0.23	0.18	<0.5
Iron (Fe)	µg/L	30	-	350	<30	**5610**	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	<5	6.1	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	0.538	1130	0.578	0.557	0.355	1.11
Mercury (Hg)	µg/L	0.05	-	-	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	0.1	0.425	0.124	0.132	0.155	0.176
Nickel (Ni)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	34.6	73.7	30.3	29.8	36.4	34
Thallium (Tl)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	1.43	<0.1	0.15	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Vanadium (V)	µg/L	1	-	-	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	<1	1.6	<1	<1	<1	<3
Calcium (Ca)	mg/L	0.05	-	-	30.9	57.3	24.8	24.7	28.7	28.3
Magnesium (Mg)	mg/L	0.1	-	-	13.8	24.8	12.2	12.1	14.3	14
Potassium (K)	mg/L	2	-	-	2.4	4.2	<2.0	<2.0	2.1	2.1
Silicon (Si)	mg/L	0.05	-	-	1.35	4.59	0.358	0.368	1.9	2.17
Sodium (Na)	mg/L	2	-	-	3.2	5.6	2.6	2.5	3	2.9
Radionuclides			**GCDWQ MAC[s]**							
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	<0.005	0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	<0.03	<0.02	<0.02	<0.03	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota										
Chlorophyll *a*	µg/L	0.01	-	-	-	-	1.21	1.53	24.5	-
Pheopigments	µg/L	0.01	-	-	-	-	0.237	0.21	2.37	-

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[\text{Log(hardness)}] - 3.2\}}$
   Average hardness = 150 mg/L
   Cadmium Guideline = 0.047 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 150 mg/L
   Copper Guideline = 16 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 150 mg/L
   Lead Guideline = 137 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 150
   Manganese Guideline = 2.193 mg/L
   = 2193 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 150 mg/L
   Zinc Guideline = 78 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance

Table F2-23

Buck Lake (UN-12) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	192	441	263	230	101	45	38	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	112	245	150	131	54	24	36	0	0	0
pH	pH	5	7.68	8.28	8.11	8.23	0.25	0.11	3	0	0	0
Total Suspended Solids	mg/L	5	4.9	35.8	12.1	6.7	13.3	5.9	110	0	0	0
Total Dissolved Solids	mg/L	5	153	318	201	177	66	30	33	0	0	0
Turbidity	NTU	5	1.95	16.50	5.28	2.15	6.31	2.82	120	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	103	252	145	124	60	27	42	0	0	0
Ammonia as N	mg/L	5	0.014	2.890	0.807	0.344	1.197	0.535	148	0	0	0
Bromide (Br)	mg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Chloride (Cl)	mg/L	5	0.74	1.94	1.10	0.93	0.48	0.21	44	0	0	0
Fluoride (F)	mg/L	5	0.785	1.560	1.081	1.000	0.289	0.129	27	0	0	0
Sulfate (SO_4)	mg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.0025	0.0138	0.0048	0.0025	0.0050	0.0023	106	4	0	0
Nitrate (as N)	mg/L	4	0.0025	0.0138	0.0053	0.0025	0.0057	0.0028	106	3	0	0
Nitrite (as N)	mg/L	4	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	4	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.77	5.40	2.83	2.23	1.51	0.68	53	0	0	0
Ortho Phosphate as P	mg/L	5	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	5	0	0
Total Phosphate as P	mg/L	5	0.0179	0.0243	0.0206	0.0186	0.0033	0.0015	16	0	0	0
Organics												
Dissolved Organic Carbon (DOC)	mg/L	5	24.2	52.3	32.6	27.4	11.5	5.2	35	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	3.5	95.5	23.9	6.5	40.1	17.9	168	1	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.80	1.66	1.13	1.05	0.32	0.15	29	0	0	0
Barium (Ba)	µg/L	5	16.4	80.9	33.2	22.9	26.9	12.0	81	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	15	27	22	23	5	2	22	0	0	0
Cadmium (Cd)	µg/L	5	0.005	0.025	0.011	0.009	0.008	0.004	71	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.12	0.06	0.05	0.03	0.01	49	4	0	0
Copper (Cu)	µg/L	5	0.15	0.53	0.28	0.25	0.15	0.07	54	4	0	0
Iron (Fe)	µg/L	5	79	7460	1561	87	3298	1475	211	0	2	40
Lead (Pb)	µg/L	5	0.025	0.038	0.028	0.025	0.006	0.003	20	5	0	0
Lithium (Li)	µg/L	5	2.5	6.8	3.4	2.5	1.9	0.9	57	4	0	0
Manganese (Mn)	µg/L	5	24.2	1210.0	263.2	27.4	529.3	236.7	201	0	0	0
Mercury (Hg)	µg/L	5	0.005	0.025	0.009	0.005	0.009	0.004	99	5	0	0
Molybdenum (Mo)	µg/L	5	0.127	0.463	0.232	0.186	0.134	0.060	58	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	5	0.005	0.028	0.012	0.005	0.010	0.005	86	3	0	0
Strontium (Sr)	µg/L	5	31.9	76.7	44.5	38.1	18.2	8.1	41	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.005	0.022	0.012	0.011	0.007	0.003	62	2	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	1.9	1.2	1.5	0.6	0.3	54	3	0	0
Calcium (Ca)	mg/L	5	24.7	55.6	33.6	29.3	12.5	5.6	37	0	0	0
Magnesium (Mg)	mg/L	5	12.1	24.0	15.7	14.2	4.8	2.1	30	0	0	0
Potassium (K)	mg/L	5	1.0	4.0	2.3	2.1	1.1	0.5	47	1	0	0
Silicon (Si)	mg/L	5	0.38	4.70	2.12	1.96	1.61	0.72	76	0	0	0
Sodium (Na)	mg/L	5	2.5	5.3	3.4	3.1	1.1	0.5	32	0	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Dissolved Metals												
Aluminum (Al)	µg/L	5	1.0	7.7	3.3	1.5	3.0	1.3	91	1	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.92	1.73	1.18	1.04	0.34	0.15	29	0	0	0
Barium (Ba)	µg/L	5	14.3	78.7	30.9	21.3	26.9	12.0	87	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	14	23	18	18	3	1	18	0	0	0
Cadmium (Cd)	µg/L	5	0.005	0.025	0.014	0.009	0.010	0.004	67	4	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Copper (Cu)	µg/L	5	0.17	0.25	0.21	0.21	0.03	0.01	16	1	0	0
Iron (Fe)	µg/L	5	15	5610	1134	15	2502	1119	221	4	1	20
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	6.1	3.2	2.5	1.6	0.7	50	4	0	0
Manganese (Mn)	µg/L	5	0.4	1130.0	226.5	0.6	505.1	225.9	223	0	0	0
Mercury (Hg)	µg/L	5	0.005	0.025	0.009	0.005	0.009	0.004	99	5	0	0
Molybdenum (Mo)	µg/L	5	0.100	0.425	0.197	0.155	0.131	0.058	66	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Strontium (Sr)	µg/L	5	30.1	73.7	41.8	34.6	18.0	8.1	43	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	1.43	0.34	0.05	0.61	0.27	182	3	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.005	0.020	0.008	0.005	0.007	0.003	84	4	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	1.6	0.9	0.5	0.6	0.3	63	4	0	0
Calcium (Ca)	mg/L	5	24.8	57.3	34.0	28.7	13.2	5.9	39	0	0	0
Magnesium (Mg)	mg/L	5	12.2	24.8	15.8	14.0	5.1	2.3	32	0	0	0
Potassium (K)	mg/L	5	1.0	4.2	2.4	2.1	1.2	0.5	49	1	0	0
Silicon (Si)	mg/L	5	0.36	4.59	2.07	1.90	1.57	0.70	76	0	0	0
Sodium (Na)	mg/L	5	2.6	5.6	3.5	3.0	1.2	0.5	35	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	0	5	0	0
Radium-226 (^{226}Ra)	Bq/L	5	0.003	0.004	0.003	0.003	0.001	0.000	20	4	0	0
Radium-228 (^{228}Ra)	Bq/L	5	0.01	0.02	0.01	0.01	0.00	0.00	19	5	0	0
Thorium-230 (^{230}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Thorium-232 (^{232}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Biota												
Chlorophyll *a*	µg/L	2	1.37	24.50	12.94	12.94	16.36	11.57	126	0	-	-
Pheopigments	µg/L	2	0.224	2.370	1.297	1.297	1.518	1.073	117.05	0	-	-

Table F3-22

Drizzle Lake (UN-13) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009	April 2010		June 2010	September 2010	October 2010
					19-Sep-09	13-Apr-10 UN-13	Replicate	13-Jun-10	5-Sep-10	6-Oct-10
Physicals										
Conductivity	µS/cm	0.5	-	-	252	434	436	200	236	242
Hardness (as $CaCO_3$)	mg/L	2	-	-	134	227	224	113	136	133
pH	pH	0.01	-	-	8.10	7.86	7.86	8.57	8.36	8.28
Total Suspended Solids	mg/L	3.0	-	-	7.20	19.3	20.8	<3.0	6.2	5.2
Total Dissolved Solids	mg/L	10	-	-	169	288	282	151	179	183
Turbidity	NTU	0.1	-	-	2.32	7.88	8.81	1.28	1.68	1.42
Anions										
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	129	241	241	107	126	132
Ammonia as N	mg/L	0.02	-	-	0.705	3.03	3.33	0.017	0.0265	0.0842
Bromide (Br)	mg/L	0.05	-	-	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	3.60	5.92	5.94	2.45	3.27	3.56
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.893	1.31	1.32	0.759	0.926	0.994
Sulfate (SO_4)	mg/L	0.5	-	100	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients										
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.005	0.0095	0.0151	<0.0050	<0.0051	<0.0051
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	0.0095	0.0151	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	2.26	4.98	5.00	1.02	1.68	1.63
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate as P	mg/L	0.002	-	-	0.0155	0.0156	0.0161	0.0146	0.0135	0.0143
Organics										
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	21.5	-	34.9	19.2	17.6	24.7
Total Metals										
Aluminum (Al)	µg/L	5	100[g]	-	<5	2.7	3.6	<9	7.1	24.2
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.84	1.24	1.32	0.66	0.86	0.97
Barium (Ba)	µg/L	0.05	-	5000	55.4	134	145	32.7	45.4	41.5
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	29	31	30	18	27	23
Cadmium (Cd)	µg/L	0.017	0.046[i]	0.046	<0.017	<0.01	<0.01	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	0.17	0.18	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.3	2 - 4[j]	16[k]	<0.3	0.36	0.41	<0.4	<0.5	<0.5
Iron (Fe)	µg/L	30	300	1000	58	**4190**	**6300**	55	57	42
Lead (Pb)	µg/L	0.05	1 - 7[l]	135[m]	<0.05	<0.05	0.055	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	5.1	8.0	8.0	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	2174[n]	32.7	818	862	21.1	22.2	19.8
Mercury (Hg)	µg/L	0.05	0.026	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	1.20	2.13	2.07	0.909	1.11	1.03
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	0.023	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	47.6	82.5	84.1	36.1	48.2	46.5
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.10	0.38	<0.10	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.056	0.155	0.161	0.061	0.051	0.058
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	30	77[q]	1.6	<1	<1	<1	<1	<3
Calcium (Ca)	mg/L	0.05	-	-	26.1	47.9	49.2	24.2	26.5	28.8
Magnesium (Mg)	mg/L	0.1	-	-	13.8	23.6	23.5	12	13.5	14.1
Potassium (K)	mg/L	2	-	-	<2.0	2.3	2.4	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.72	4.17	4.30	0.655	2.59	2.67
Sodium (Na)	mg/L	2	-	-	5.8	9.4	9.2	4.6	5.4	5.6

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009	April 2010		June 2010	September 2010	October 2010
					19-Sep-09	13-Apr-10 UN-13	13-Apr-10 Replicate	13-Jun-10	5-Sep-10	6-Oct-10
Dissolved Metals										
Aluminum (Al)	µg/L	1	-	100[r]	<1	3.9	1.3	4.1	37	<3
Antimony (Sb)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	0.81	1.40	1.34	0.77	0.86	1.11
Barium (Ba)	µg/L	0.05	-	-	50.8	147	137	30.4	74.6	39.8
Beryllium (Be)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	25	26	26	16	24	22
Cadmium (Cd)	µg/L	0.017	-	-	<0.017	<0.01	<0.01	<0.017	11.8	<0.017
Chromium (Cr)	µg/L	1.0	-	-	<1	<1	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	<0.1	0.17	0.16	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	0.13	0.26	0.15	0.26	0.26	<0.5
Iron (Fe)	µg/L	30	-	350	<30	**5380**	**4430**	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	5.0	7.7	7.6	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	0.693	814	795	1.23	1.04	0.315
Mercury (Hg)	µg/L	0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	1.04	2.09	2.02	0.897	1.04	0.967
Nickel (Ni)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	44.4	83.3	80.4	34.8	51.4	45.4
Thallium (Tl)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	0.53	<0.1	<0.1	0.73	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	0.045	0.162	0.142	0.049	0.045	0.05
Vanadium (V)	µg/L	1	-	-	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	<1	<1	<1	<1	22.9	<3
Calcium (Ca)	mg/L	0.05	-	-	29.6	50.3	49.9	24.7	31.1	29.4
Magnesium (Mg)	mg/L	0.1	-	-	14.5	24.7	24.1	12.4	14.1	14.5
Potassium (K)	mg/L	2	-	-	<2.0	2.4	2.4	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.8	4.32	4.32	0.661	2.69	2.74
Sodium (Na)	mg/L	2	-	-	6.2	9.8	9.5	4.7	5.6	5.7
Radionuclides			GCDWQ MAC[s]							
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	0.006	0.005	<0.005	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	<0.01	0.05	<0.02	<0.02	<0.02	<0.02
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota										
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	1.65	16.6	-
Pheopigments	µg/L	0.01	-	-	-	-	-	0.487	3.63	-

NOTES:

a. D.L. = laboratory detection limit

b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life

c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations

d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)

e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L

f. ** implies detection limit varied by season - '<' (less than) value implies detection limit

g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5

h. BC WQG for Total Beryllium is Working chronic criterion

i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$

Average hardness =	148	mg/L
Cadmium Guideline =	0.046	µg/L

j. CCME FAL Total Copper guideline:

2 µg/L when [CaCO3] is 0 - 120 mg/L
3 µg/L when [CaCO3] is 120 - 180 mg/L
4 µg/L when [CaCO3] is > 180 mg/L

k. BC WQG for Total Copper = 0.094 x (hardness) + 2

Average hardness =	148	mg/L
Copper Guideline =	16	µg/L

l. CCME FAL Total Lead guideline:

1 µg/L when [CaCO3] is 0 - 60 mg/L
4 µg/L when [CaCO3] is 120 - 180 mg/L
7 µg/L when [CaCO3] is > 180 mg/L

m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
= e(1.273 x [ln(hardness)] - 1.460)

Average hardness =	148	mg/L
Lead Guideline =	135	µg/L

n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54

Average hardness =	148	
Manganese Guideline =	2.174	mg/L
=	2174	µg/L

o. CCME FAL Total Nickel guideline:

25 µg/L when [CaCO3] is 0 - 60 mg/L
110 µg/L when [CaCO3] is 120 - 180 mg/L
150 µg/L when [CaCO3] is > 180 mg/L

p. BC WQG for Total Silver:

0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
3 µg/L when [CaCO3] is > 100 mg/L

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)

Average hardness =	148	mg/L
Zinc Guideline =	77	µg/L

r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH $\geq$ 6.5

s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)

t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.

u. **Bolded** result implies a guideline exceedance

v. Replicate result where precision threshold (RPD > 25%) was exceeded

w. Data outlier, excluded from summary statistics

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009	April 2010		June 2010	September 2010	October 2010
					19-Sep-09	13-Apr-10		13-Jun-10	5-Sep-10	6-Oct-10
						UN-13	Replicate			

q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
Average hardness = 161 mg/L
Zinc Guideline = 86 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity present without consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Replicate result where precision threshold (RPD > 25%) was exceeded
x. Data outlier, excluded from summary statistics

Table F2-24

Drizzle Lake (UN-13) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	200	435	273	242	93	41	34	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	113	226	148	134	44	20	30	0	0	0
pH	pH	5	7.86	8.57	8.23	8.28	0.27	0.12	3	0	0	0
Total Suspended Solids	mg/L	5	1.5	20.1	8.0	6.2	7.1	3.2	88	1	0	0
Total Dissolved Solids	mg/L	5	151	285	193	179	53	24	27	0	0	0
Turbidity	NTU	5	1.28	8.35	3.01	1.68	3.01	1.35	100	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	107	241	147	129	53	24	36	0	0	0
Ammonia as N	mg/L	5	0.017	3.180	0.803	0.084	1.360	0.608	169	0	0	0
Bromide (Br)	mg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Chloride (Cl)	mg/L	5	2.45	5.93	3.76	3.56	1.30	0.58	34	0	0	0
Fluoride (F)	mg/L	5	0.759	1.315	0.977	0.926	0.207	0.093	21	0	0	0
Sulfate (SO_4)	mg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	5	0.0025	0.0123	0.0045	0.0026	0.0044	0.0020	98	4	0	0
Nitrate (as N)	mg/L	4	0.0025	0.0123	0.0050	0.0025	0.0049	0.0025	99	3	0	0
Nitrite (as N)	mg/L	4	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	4	0	0
Total Kjeldahl Nitrogen	mg/L	5	1.02	4.99	2.32	1.68	1.56	0.70	67	0	0	0
Ortho Phosphate as P	mg/L	5	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	5	0	0
Total Phosphate as P	mg/L	5	0.0135	0.0159	0.0148	0.0146	0.0009	0.0004	6	0	0	0
Organics												
Dissolved Organic Carbon (DOC)	mg/L	5	17.6	34.9	23.6	21.5	6.9	3.1	29	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	2.5	24.2	8.3	4.5	9.1	4.1	109	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.66	1.28	0.92	0.86	0.23	0.10	25	0	0	0
Barium (Ba)	µg/L	5	32.7	139.5	62.9	45.4	43.6	19.5	69	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	18	31	26	27	5	2	20	0	0	0
Cadmium (Cd)	µg/L	5	0.005	0.009	0.008	0.009	0.002	0.001	20	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.50	0.17	0.05	0.19	0.09	118	4	0	0
Copper (Cu)	µg/L	5	0.15	0.39	0.25	0.25	0.09	0.04	35	4	0	0
Iron (Fe)	µg/L	5	42	5245	1091	57	2322	1038	213	0	1	20
Lead (Pb)	µg/L	5	0.025	0.040	0.028	0.025	0.007	0.003	24	4	0	0
Lithium (Li)	µg/L	5	2.5	8.0	4.1	2.5	2.4	1.1	59	3	0	0
Manganese (Mn)	µg/L	5	19.8	840.0	187.2	22.2	365.0	163.2	195	0	0	0
Mercury (Hg)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Molybdenum (Mo)	µg/L	5	0.909	2.100	1.270	1.110	0.476	0.213	38	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.023	0.009	0.005	0.008	0.004	94	4	0	0
Strontium (Sr)	µg/L	5	36.1	83.3	52.3	47.6	18.0	8.0	34	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.22	0.08	0.05	0.07	0.03	89	4	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.051	0.158	0.077	0.058	0.046	0.020	59	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	1.6	0.9	0.5	0.6	0.3	63	4	0	0
Calcium (Ca)	mg/L	5	24.2	48.6	30.8	26.5	10.0	4.5	33	0	0	0
Magnesium (Mg)	mg/L	5	12.0	23.6	15.4	13.8	4.6	2.1	30	0	0	0
Potassium (K)	mg/L	5	1.0	2.4	1.3	1.0	0.6	0.3	48	4	0	0
Silicon (Si)	mg/L	5	0.66	4.24	2.37	2.59	1.32	0.59	56	0	0	0
Sodium (Na)	mg/L	5	4.6	9.3	6.1	5.6	1.8	0.8	30	0	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Dissolved Metals												
Aluminum (Al)	µg/L	5	0.5	4.1	2.2	2.1	1.5	0.7	71	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.77	1.37	0.98	0.86	0.25	0.11	26	0	0	0
Barium (Ba)	µg/L	5	30.4	142.0	67.5	50.8	44.8	20.0	66	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	16	26	23	24	4	2	18	0	0	0
Cadmium (Cd)	µg/L	5	0.005	0.009	0.008	0.009	0.002	0.001	23	4	0	0
Chromium (Cr)	µg/L	5	0.25	0.50	0.33	0.25	0.11	0.05	34	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.50	0.16	0.05	0.19	0.09	120	4	0	0
Copper (Cu)	µg/L	5	0.13	0.26	0.22	0.25	0.06	0.02	25	0	0	0
Iron (Fe)	µg/L	5	15	4905	993	15	2187	978	220	4	1	20
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	7.7	4.0	2.5	2.3	1.0	57	3	0	0
Manganese (Mn)	µg/L	5	0.3	804.5	161.6	1.0	359.4	160.7	222	0	0	0
Mercury (Hg)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Molybdenum (Mo)	µg/L	5	0.897	2.055	1.200	1.040	0.482	0.215	40	0	0	0
Nickel (Ni)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Strontium (Sr)	µg/L	5	34.8	81.9	51.6	45.4	17.9	8.0	35	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.73	0.28	0.05	0.33	0.15	115	3	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.045	0.152	0.068	0.049	0.047	0.021	69	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	1.5	0.8	0.5	0.5	0.2	67	4	0	0
Calcium (Ca)	mg/L	5	24.7	50.1	33.0	29.6	9.9	4.4	30	0	0	0
Magnesium (Mg)	mg/L	5	12.4	24.4	16.0	14.5	4.8	2.1	30	0	0	0
Potassium (K)	mg/L	5	1.0	2.4	1.3	1.0	0.6	0.3	49	4	0	0
Silicon (Si)	mg/L	5	0.66	4.32	2.44	2.69	1.35	0.60	55	0	0	0
Sodium (Na)	mg/L	5	4.7	9.7	6.4	5.7	1.9	0.9	30	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	0	5	0	0
Radium-226 (^{226}Ra)	Bq/L	5	0.003	0.006	0.003	0.003	0.001	0.001	43	4	0	0
Radium-228 (^{228}Ra)	Bq/L	5	0.01	0.03	0.01	0.01	0.01	0.00	75	4	0	0
Thorium-230 (^{230}Th)	Bq/L	5	0.005	0.010	0.006	0.005	0.002	0.001	37	5	0	0
Thorium-232 (^{232}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Biota												
Chlorophyll *a*	µg/L	2	1.65	16.60	9.13	9.13	10.57	7.48	116	0	-	-
Pheopigments	µg/L	2	0.487	3.630	2.059	2.059	2.222	1.572	108	0	-	-

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL

Table F3-23

Redemption Lake (UN-14) Baseline Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009 28-Sep-09		April 2010	June 2010	September 2010	October 2010
					UN-14	Replicate	12-Apr-10	13-Jun-10	6-Sep-10	6-Oct-10
Physicals										
Conductivity	µS/cm	0.5	-	-	171	171	186	160	165	167
Hardness (as $CaCO_3$)	mg/L	2	-	-	89.2	87.7	99.1	85.5	90.8	90
pH	pH	0.01	-	-	8.06	7.95	7.67	7.28	7.81	8.04
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	10	-	-	106	112	116	112	118	102
Turbidity	NTU	0.1	-	-	1.92	1.74	1.04	1.39	1.62	1.39
Anions										
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	86.7	77.2	92.9	74.8	85.4	83.3
Ammonia as N	mg/L	0.02	-	-	<0.02	<0.02	0.031	<0.010	0.0074	0.0064
Bromide (Br)	mg/L	0.05	-	-	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	600	1.41	1.41	1.55	1.19	1.36	1.38
Fluoride (F)	mg/L	0.02	-	0.3[d]	0.054	0.053	0.059	0.045	0.051	0.050
Sulfate (SO_4)	mg/L	0.5	-	100	6.69	6.66	7.87	6.68	6.77	6.67
Nutrients										
Nitrate and Nitrite as N	mg/L	-	-	-	-	-	0.120	<0.0050	<0.0051	<0.0051
Nitrate (as N)	mg/L	0.005	2.9	31.3	<0.005	<0.005	0.120	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	0.06	0.12[e]	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.656	0.603	0.563	0.55	0.723	0.679
Ortho Phosphate as P	mg/L	0.001	-	-	0.0021	0.0019	0.0059	<0.0010	<0.0010	0.0045
Total Phosphate as P	mg/L	0.002	-	-	0.0209	0.0206	0.0152	0.0187	0.0186	0.0259
Organics										
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	14.3	14.4	13.4	13.1	13.1	14.1
Total Metals										
Aluminum (Al)	µg/L	**[f]	100[g]	-	<9	<8	<7	18.2	24.1	10.8
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	5.0	5.0	0.67	0.68	0.58	0.45	0.73	0.77
Barium (Ba)	µg/L	0.05	-	5000	12.0	12.3	12.7	13	11.8	11.7
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	1200	42	41	39	29	40	33
Cadmium (Cd)	µg/L	**	0.030[i]	0.030	<0.017	<0.017	<0.01	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**	2 - 4[j]	11[k]	0.40	0.45	0.62	<0.8	<0.5	0.72
Iron (Fe)	µg/L	30	300	1000	53	51	42	54	55	48
Lead (Pb)	µg/L	0.05	1 - 7[l]	72[m]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	1540[n]	90.8	93.1	38.6	45.2	72.3	63.6
Mercury (Hg)	µg/L	0.05	0.026	0.1	<0.01	<0.01	0.013	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	73	2000	0.14	0.131	0.154	0.216	0.151	0.148
Nickel (Ni)	µg/L	0.5	25 - 150[o]	25 - 150	0.84	0.85	0.86	0.84	0.84	0.79
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[p]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	37.6	38.6	42.5	34	42.4	37.3
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	300	0.041	0.039	0.060	0.046	0.054	0.043
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	30	34[q]	1.2	<1	<1	<1	<1	<3
Calcium (Ca)	mg/L	0.05	-	-	17.6	17.7	19.6	17.7	19.5	17.6
Magnesium (Mg)	mg/L	0.1	-	-	10.1	10.1	11.2	9.73	10.6	9.46
Potassium (K)	mg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.41	1.41	2.04	1.71	1.49	1.53
Sodium (Na)	mg/L	2	-	-	3.2	3.2	3.6	3.1	3.4	3

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	September 2009 28-Sep-09		April 2010	June 2010	September 2010	October 2010
					UN-14	Replicate	12-Apr-10	13-Jun-10	6-Sep-10	6-Oct-10
Dissolved Metals										
Aluminum (Al)	µg/L	1	-	100[r]	1	<1	1.2	3.1	<1	<3
Antimony (Sb)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	0.63	0.65	0.58	0.52	0.64	0.82
Barium (Ba)	µg/L	0.05	-	-	10.5	10.5	12.2	11	10.1	10.6
Beryllium (Be)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	34	35	34	31	32	32
Cadmium (Cd)	µg/L	**	-	-	<0.017	<0.017	<0.01	<0.017	<0.017	<0.017
Chromium (Cr)	µg/L	**	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	0.31	0.28	0.44	0.43	0.35	<0.5
Iron (Fe)	µg/L	30	-	350	<30	<30	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	<5	<5	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	0.666	1.08	0.906	0.714	0.255	0.433
Mercury (Hg)	µg/L	**	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	0.103	0.121	0.126	0.106	0.120	0.146
Nickel (Ni)	µg/L	0.5	-	-	0.72	0.65	0.85	0.72	0.65	0.62
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	<1	<1	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	35.2	35.6	40.9	32.7	38.9	36.7
Thallium (Tl)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	0.032	0.033	0.045	0.036	0.046	0.038
Vanadium (V)	µg/L	1	-	-	<1	<1	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	<1	<1	<1	<1	<1	<3
Calcium (Ca)	mg/L	0.05	-	-	18.3	18.0	20.4	18.0	19.1	19.2
Magnesium (Mg)	mg/L	0.1	-	-	10.50	10.40	11.70	9.86	10.50	10.20
Potassium (K)	mg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	1.46	1.45	2.13	1.68	1.40	1.65
Sodium (Na)	mg/L	2	-	-	3.3	3.3	3.7	3.1	3.3	3.2
Radionuclides			**GCDWQ MAC[s]**							
Lead-210 (^{210}Pb)	Bq/L[t]	0.02	0.1	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	0.008	<0.005	0.006	<0.005	<0.005
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	<0.02	<0.02	<0.01	<0.02	<0.02	0.01
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Biota										
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	1.870	15.000	-
Pheopigments	µg/L	0.01	-	-	-	-	-	0.438	2.790	-

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness ≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 91 mg/L
   Cadmium Guideline = 0.030 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. BC WQG for Total Copper = 0.094 x (hardness) + 2
   Average hardness = 91 mg/L
   Copper Guideline = 11 µg/L
l. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Lead (when water hardness (as $CaCO_3$) > 8 mg/L)
   = e(1.273 x [ln(hardness)] - 1.460)
   Average hardness = 91 mg/L
   Lead Guideline = 72 µg/L
n. BC WQG for Total Managnese should be less than or equal to 0.01102 x (hardness) + 0.54
   Average hardness = 91
   Manganese Guideline = 1.540 mg/L
   = 1540 µg/L
o. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
p. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is ≤ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
q. BCWQG for Total Zinc (maximum) = 33 + 0.75 x (hardness - 90)
   Average hardness = 91 mg/L
   Zinc Guideline = 34 µg/L
r. BC WQG for Dissolved Aluminum guideline 100 µg/L for pH ≥ 6.5
s. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
t. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.
u. **Bolded** result implies a guideline exceedance
v. Replicate result where precision threshold (RPD > 25%) was exceeded

Table F2-25

Redemption Lake (UN-14) Baseline Water Chemistry Summary Statistics
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Physicals												
Conductivity	uS/cm	5	160	186	170	167	10	4	6	0	0	0
Hardness (as $CaCO_3$)	mg/L	5	86	99	91	90	5	2	6	0	0	0
pH	pH	5	7.28	8.04	7.76	7.81	0.31	0.14	4	0	0	0
Total Suspended Solids	mg/L	5	1.5	1.5	1.5	1.5	0.0	0.0	0	0	0	0
Total Dissolved Solids	mg/L	5	102	118	111	112	6	3	6	0	0	0
Turbidity	NTU	5	1.04	1.83	1.45	1.39	0.30	0.13	20	0	0	0
Anions												
Alkalinity, Total (as $CaCO_3$)	mg/L	5	75	93	84	83	7	3	8	0	0	0
Ammonia as N	mg/L	5	0.0050	0.0310	0.0120	0.0074	0.0108	0.0048	90	0	0	0
Bromide (Br)	mg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Chloride (Cl)	mg/L	5	1.19	1.55	1.38	1.38	0.13	0.06	9	0	0	0
Fluoride (F)	mg/L	5	0.045	0.059	0.052	0.051	0.005	0.002	10	0	0	0
Sulfate (SO_4)	mg/L	5	6.67	7.87	6.93	6.68	0.53	0.23	8	5	0	0
Nutrients												
Nitrate and Nitrite as N	mg/L	4	0.0025	0.1200	0.0319	0.0026	0.0587	0.0294	184	3	0	0
Nitrate (as N)	mg/L	5	0.0025	0.1200	0.0260	0.0025	0.0525	0.0235	202	0	0	0
Nitrite (as N)	mg/L	5	0.0005	0.0005	0.0005	0.0005	0.0000	0.0000	0	2	0	0
Total Kjeldahl Nitrogen	mg/L	5	0.550	0.723	0.629	0.630	0.074	0.033	12	0	0	0
Ortho Phosphate as P	mg/L	5	0.0005	0.0059	0.0027	0.0020	0.0024	0.0011	91	5	0	0
Total Phosphate as P	mg/L	5	0.0152	0.0259	0.0198	0.0187	0.0039	0.0018	20	0	0	0
Organics												
Dissolved Organic Carbon (DOC)	mg/L	5	13.1	14.4	13.6	13.4	0.6	0.3	4	0	0	0
Total Metals												
Aluminum (Al)	µg/L	5	3.5	24.1	12.2	10.8	8.9	4.0	73	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Arsenic (As)	µg/L	5	0.45	0.77	0.64	0.68	0.13	0.06	20	0	0	0
Barium (Ba)	µg/L	5	11.7	13.0	12.3	12.2	0.6	0.3	5	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Boron (B)	µg/L	5	29	42	37	39	5	2	14	0	0	0
Cadmium (Cd)	µg/L	5	0.005	0.009	0.008	0.009	0.002	0.001	20	5	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	5	0	0
Cobalt (Co)	µg/L	5	0.05	0.06	0.05	0.05	0.01	0.00	11	3	0	0
Copper (Cu)	µg/L	5	0.25	0.72	0.48	0.43	0.19	0.08	39	2	0	0
Iron (Fe)	µg/L	5	42	55	50	52	5	2	11	0	2	40
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	5	0	0
Lithium (Li)	µg/L	5	2.5	2.5	2.5	2.5	0.0	0.0	0	0	0	0
Manganese (Mn)	µg/L	5	38.6	92.0	62.3	63.6	21.4	9.6	34	0	0	0
Mercury (Hg)	µg/L	5	0.005	0.013	0.007	0.005	0.004	0.002	54	3	0	0
Molybdenum (Mo)	µg/L	5	0.136	0.216	0.161	0.151	0.032	0.014	20	0	0	0
Nickel (Ni)	µg/L	5	0.79	0.86	0.84	0.84	0.03	0.01	3	5	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	5	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	4	0	0
Strontium (Sr)	µg/L	5	34.0	42.5	38.9	38.1	3.6	1.6	9	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	5	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	5	0	0
Uranium (U)	µg/L	5	0.040	0.060	0.049	0.046	0.008	0.004	17	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	5	0	0
Zinc (Zn)	µg/L	5	0.5	1.5	0.8	0.5	0.4	0.2	57	2	0	0
Calcium (Ca)	mg/L	5	17.6	19.6	18.4	17.7	1.0	0.5	6	0	0	0
Magnesium (Mg)	mg/L	5	9.5	11.2	10.2	10.1	0.7	0.3	7	0	0	0
Potassium (K)	mg/L	5	1.0	1.0	1.0	1.0	0.0	0.0	0	2	0	0
Silicon (Si)	mg/L	5	1.41	2.04	1.64	1.53	0.25	0.11	15	0	0	0
Sodium (Na)	mg/L	5	3.0	3.6	3.3	3.2	0.2	0.1	7	0	0	0

Parameter	Units	n	Minimum Value	Maximum Value	Mean Value	Median	Standard Deviation	Standard Error	Coefficient of Variation	No. < DL	No. > GL	% > GL
Dissolved Metals												
Aluminum (Al)	µg/L	5	0.5	3.1	1.4	1.2	1.0	0.5	72	2	0	0
Antimony (Sb)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Arsenic (As)	µg/L	5	0.52	0.82	0.64	0.64	0.11	0.05	18	0	0	0
Barium (Ba)	µg/L	5	10.1	12.2	10.9	10.6	0.8	0.4	7	0	0	0
Beryllium (Be)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Bismuth (Bi)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Boron (B)	µg/L	5	31	35	33	32	1	1	5	0	0	0
Cadmium (Cd)	µg/L	5	0.005	0.009	0.008	0.009	0.002	0.001	20	4	0	0
Chromium (Cr)	µg/L	5	0.25	0.25	0.25	0.25	0.00	0.00	0	4	0	0
Cobalt (Co)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Copper (Cu)	µg/L	5	0.25	0.44	0.35	0.35	0.08	0.04	23	0	0	0
Iron (Fe)	µg/L	5	15	15	15	15	0	0	0	2	1	25
Lead (Pb)	µg/L	5	0.025	0.025	0.025	0.025	0.000	0.000	0	4	0	0
Lithium (Li)	µg/L	5	2.5	2.5	2.5	2.5	0.0	0.0	0	1	0	0
Manganese (Mn)	µg/L	5	0.3	0.9	0.6	0.7	0.3	0.1	45	0	0	0
Mercury (Hg)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	3	0	0
Molybdenum (Mo)	µg/L	5	0.106	0.146	0.122	0.120	0.015	0.007	13	0	0	0
Nickel (Ni)	µg/L	5	0.62	0.85	0.71	0.69	0.09	0.04	13	3	0	0
Phosphorus (P)	µg/L	5	150	150	150	150	0	0	0	4	0	0
Selenium (Se)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Silver (Ag)	µg/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	3	0	0
Strontium (Sr)	µg/L	5	32.7	40.9	36.9	36.7	3.2	1.4	9	0	0	0
Thallium (Tl)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	4	0	0
Tin (Sn)	µg/L	5	0.05	0.05	0.05	0.05	0.00	0.00	0	3	0	0
Titanium (Ti)	µg/L	5	5	5	5	5	0	0	0	4	0	0
Uranium (U)	µg/L	5	0.033	0.046	0.040	0.038	0.006	0.003	15	0	0	0
Vanadium (V)	µg/L	5	0.5	0.5	0.5	0.5	0.0	0.0	0	4	0	0
Zinc (Zn)	µg/L	5	0.5	1.5	0.7	0.5	0.4	0.2	64	2	0	0
Calcium (Ca)	mg/L	5	18.0	20.4	19.0	19.1	1.0	0.4	5	0	0	0
Magnesium (Mg)	mg/L	5	9.9	11.7	10.5	10.5	0.7	0.3	7	0	0	0
Potassium (K)	mg/L	5	1.0	1.0	1.0	1.0	0.0	0.0	0	3	0	0
Silicon (Si)	mg/L	5	1.40	2.13	1.66	1.65	0.29	0.13	17	0	0	0
Sodium (Na)	mg/L	5	3.1	3.7	3.3	3.3	0.2	0.1	7	0	0	0
Radionuclides												
Lead-210 (^{210}Pb)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	0	5	0	0
Radium-226 (^{226}Ra)	Bq/L	5	0.006	0.003	0.004	0.003	0.002	0.001	46	4	0	0
Radium-228 (^{228}Ra)	Bq/L	5	0.01	0.01	0.01	0.01	0.00	0.00	25	4	0	0
Thorium-230 (^{230}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Thorium-232 (^{232}Th)	Bq/L	5	0.005	0.005	0.005	0.005	0.000	0.000	0	5	0	0
Biota												
Chlorophyll *a*	µg/L	2	1.87	15.00	8.44	8.44	9.28	6.57	110	0	-	-
Pheopigments	µg/L	2	0.438	2.790	1.614	1.614	1.663	1.176	103	0	-	-

Table F1-1

Field and Travel Blank Water Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008		March 2009	June 2009	September 2009		April 2010	June 2010	September 2010	October 2010
						Field Blank	Travel Blank			Field Blank	Travel Blank	Field Blank	Field Blank	Field Blank	Filter Blank
					22-Mar-08	7-Oct-08	-	15-Mar-09	28-Jun-09	16-Sep-09	-	14-Apr-10	14-Jun-10	5-Sep-10	7-Oct-10
Physicals															
Conductivity	µS/cm	0.5	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-
Hardness (as $CaCO_3$)	mg/L	2	-	-	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.77	-
pH	pH	0.01	-	-	5.39	5.58	5.59	5.63	5.76	5.56	5.51	5.74	7.64	5.48	-
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	-
Total Dissolved Solids	mg/L	10	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
Turbidity	NTU	0.1	-	-	<0.10	<0.10	<0.10	<0.10	0.35	0.14	<0.10	<0.10	<0.10	<0.10	-
Anions															
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-
Ammonia as N	mg/L	0.02	-	-	-	<0.020	0.050	<0.020	<0.020	<0.0050	<0.020	<0.020	<0.010	<0.0050	-
Bromide (Br)	mg/L	0.05	-	-	<0.05	-	-	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-
Chloride (Cl)	mg/L	0.5	-	600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Fluoride (F)	mg/L	0.02	-	0.2[d]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-
Sulfate (SO_4)	mg/L	0.5	-	100	<0.50	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	-
Nutrients															
Nitrate and Nitrite as N	mg/L	0.005	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0051	-
Nitrate (as N)	mg/L	0.005	2.9	31.3	-	<0.0050	<0.0050	<0.0050	-	-	-	<0.0050	<0.0050	<0.0050	-
Nitrite (as N)	mg/L	0.001	0.06	0.06[e]	-	<0.0010	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	<0.0010	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-
Total Phosphate as P	mg/L	0.002	-	-	<0.0020	<0.0020	<0.0020	0.0215	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	-
Organics															
Total Organic Carbon (TOC)	mg/L	0.5	-	-	<0.50	-		-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	36.8	<0.50	<0.50	<0.50	<0.50	-	0.67	<0.50	<0.50	1.06
Total Metals															
Aluminum (Al)	µg/L	**[f]	100[g]	-	<1	<1	<1	<1	<1	<1	<1	<1	<3	<2	-
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Arsenic (As)	µg/L	0.1	5.0	5.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Barium (Ba)	µg/L	0.05	-	5000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.094	<0.05	<0.05	-
Beryllium (Be)	µg/L	0.5	-	5.3[h]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Boron (B)	µg/L	10	-	1200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
Cadmium (Cd)	µg/L	**	0.001[i]	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.017	<0.017	<0.01	<0.017	<0.017	-
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Copper (Cu)	µg/L	**	2 - 4[j]	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	<0.1	<0.1	-
Iron (Fe)	µg/L	30	300	1000	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	-
Lead (Pb)	µg/L	0.05	1 - 7[k]	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Lithium (Li)	µg/L	5	-	870	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Manganese (Mn)	µg/L	0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.059	<0.05	<0.05	<0.05	0.077	-
Mercury (Hg)	µg/L	0.05	0.026	0.1	-	-	-	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-
Molybdenum (Mo)	µg/L	0.05	73	2000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Nickel (Ni)	µg/L	0.5	25 - 150[l]	25 - 150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Phosphorus (P)	µg/L	300	-	-	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	-
Selenium (Se)	µg/L	1	1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[m]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Strontium (Sr)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Titanium (Ti)	µg/L	10	-	2000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
Uranium (U)	µg/L	0.01	-	300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Vanadium (V)	µg/L	1	-	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Zinc (Zn)	µg/L	1	30	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Calcium (Ca)	mg/L	0.05	-	-	<0.050	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-
Magnesium (Mg)	mg/L	0.1	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-
Potassium (K)	mg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-
Silicon (Si)	mg/L	0.05	-	-	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-
Sodium (Na)	mg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008	October 2008		March 2009	June 2009	September 2009		April 2010	June 2010	September 2010	October 2010
						Field Blank	Travel Blank			Field Blank	Travel Blank	Field Blank	Field Blank	Field Blank	Filter Blank
					22-Mar-08	7-Oct-08	-	15-Mar-09	28-Jun-09	16-Sep-09	-	14-Apr-10	14-Jun-10	5-Sep-10	7-Oct-10
Dissolved Metals															
Aluminum (Al)	µg/L	1	-	-	-	<1	-	<1	<1	<1	-	<1	<1	4.9	<3
Antimony (Sb)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Barium (Ba)	µg/L	0.05	-	-	-	<0.05	-	0.229	<0.05	<0.05	-	0.131	<0.05	3.51	0.07
Beryllium (Be)	µg/L	0.5	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bismuth (Bi)	µg/L	0.5	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Boron (B)	µg/L	10	-	-	-	<10	-	<10	<10	<10	-	<10	<10	<10	<10
Cadmium (Cd)	µg/L	**	-	-	-	<0.05	-	<0.05	<0.05	<0.017	-	<0.01	<0.017	2.04	<0.017
Chromium (Cr)	µg/L	**	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Cobalt (Co)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	0.38	<0.1	<0.1	<0.5
Iron (Fe)	µg/L	30	-	350	-	<30	-	<30	<30	<30	-	<30	<30	<30	<30
Lead (Pb)	µg/L	0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	5	-	-	-	<5	-	<5	<5	<5	-	<5	<5	<5	<5
Manganese (Mn)	µg/L	0.05	-	-	-	<0.05	-	0.088	<0.05	<0.05	-	<0.05	<0.05	0.115	<0.05
Mercury (Hg)	µg/L	**	-	-	-	-	-	<0.05	<0.05	<0.01	-	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Nickel (Ni)	µg/L	0.5	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Phosphorus (P)	µg/L	300	-	-	-	<300	-	<300	<300	<300	-	<300	<300	<300	<300
Selenium (Se)	µg/L	1	-	-	-	<1	-	<1	<1	<1	-	<1	<1	<1	<1
Silver (Ag)	µg/L	0.01	-	-	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
Strontium (Sr)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	0.78	<0.1
Thallium (Tl)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Titanium (Ti)	µg/L	10	-	-	-	<10	-	<10	<10	<10	-	<10	<10	<10	<10
Uranium (U)	µg/L	0.01	-	-	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
Vanadium (V)	µg/L	1	-	-	-	<1	-	<1	<1	<1	-	<1	<1	<1	<1
Zinc (Zn)	µg/L	1	-	-	-	3.2	-	<1	<1	<1	-	<1	<1	4.1	<3
Calcium (Ca)	mg/L	0.05	-	-	-	<0.05	-	<0.05	<0.050	<0.050	-	<0.050	<0.050	0.308	<0.050
Magnesium (Mg)	mg/L	0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.10	-	<0.10	<0.10	<0.10	<0.10
Potassium (K)	mg/L	2	-	-	-	<2.0	-	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0
Silicon (Si)	mg/L	0.05	-	-	-	<0.05	-	<0.05	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050
Sodium (Na)	mg/L	2	-	-	-	<2.0	-	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0
Radionuclides			**GCDWQ MAC[n]**												
Lead-210 (^{210}Pb)	Bq/L[q]	0.02	0.1	-	<0.02	0.13	-	<0.02	<0.02	-	-	<0.02	<0.02	<0.02	-
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	<0.005	<0.005	-	<0.005	<0.005	-	-	<0.005	<0.005	<0.005	-
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	<0.02	<0.02	-	<0.02	<0.02	-	-	<0.02	<0.03	<0.02	-
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	0.01	-	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	-
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	<0.01	-	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	-
Biota															
Chlorophyll *a*	µg/L	0.01	-	-	-	-	-	-	<0.01	<0.01	-	-	<0.01	0.014	-
Pheopigments	µg/L	0.01	-	-	-	-	-	-	-	<0.01	-	-	<0.01	0.014	-

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness $\geq$ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{\{0.86[Log(hardness)] - 3.2\}}$
   Average hardness = 2 mg/L
   Cadmium Guideline = 0.001 µg/L
j. CCME FAL Total Copper guideline:
   2 µg/L when [CaCO3] is 0 - 120 mg/L
   3 µg/L when [CaCO3] is 120 - 180 mg/L
   4 µg/L when [CaCO3] is > 180 mg/L
k. CCME FAL Total Lead guideline:
   1 µg/L when [CaCO3] is 0 - 60 mg/L
   4 µg/L when [CaCO3] is 120 - 180 mg/L
   7 µg/L when [CaCO3] is > 180 mg/L
l. CCME FAL Total Nickel guideline:
   25 µg/L when [CaCO3] is 0 - 60 mg/L
   110 µg/L when [CaCO3] is 120 - 180 mg/L
   150 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Silver:
   0.1 µg/L when [CaCO3] is $\leq$ 100 mg/L
   3 µg/L when [CaCO3] is > 100 mg/L
n. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
o. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.
p. **Bolded** result implies a guideline exceedance
q. Data outlier, excluded from summary statistics

Table F1-2 **Replicate Water Chemistry & Relative Percent Differences (RPDs)**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008			October 2008			June 2009			September 2009			April 2010			June 2010			September 2010			October 2010		
					Long - 1	19-Mar-08 Replicate	RPD[d]	Ring	21-Mar-08 Replicate	RPD[d]	A	4-Oct-08 Replicate	RPD[d]	Great Slave	28-Jun-09 Replicate	RPD[d]	Cressy	8-Sep-09 Replicate	RPD[d]	Redemption	28-Sep-09 Replicate	RPD[d]	Drizzle	13-Apr-10 Replicate	RPD[d]	Buck	13-Jun-10 Replicate	RPD[d]	Long	2-Sep-10 Replicate	RPD[d]	Murky	6-Oct-10 Replicate	RPD[d]
Physicals																																
Conductivity	µS/cm	0.5	-	-	294	297	1.02	569	545	4.31	303	305	0.66	171	170	0.01	249	248	0.40	171	171	0.00	434	436	-0.46	192	192	0.00	265	266	-0.38	268	271	-1.11
Hardness (as $CaCO_3$)	mg/L	2	-	-	157	156	0.64	301	309	2.62	171	170	0.59	74.3	74.4	0.00	139	139	0.00	89.2	87.7	1.70	227	224	1.33	112	112	0.00	156	154	1.29	140	138	1.44
pH	pH	0.01	-	-	8.09	8.14	0.62	7.65	7.19	6.20	8.17	8.20	0.37	7.77	7.74	0.00	8.15	8.14	0.12	8.06	7.95	1.37	7.86	7.86	0.00	8.21	8.25	-0.49	8.33	8.33	0.00	8.12	8.13	-0.12
Total Suspended Solids	mg/L	3.0	-	-	<3.0	<3.0	-	40.5	63.1	43.63	<3.0	<3.0	-	<3.0	<3.0	-	<3.0	<3.0	-	<3.0	<3.0	-	19.3	20.8	-7.48	4.9	4.9	-	<3.0	<3.0	-	3.2	3.2	-
Total Dissolved Solids	mg/L	10	-	-	174	173	0.58	386	347	10.64	188	188	0.00	99	95	0.04	158	158	0.00	106	112	5.50	288	282	2.11	149	157	-5.23	173	164	5.34	200	191	4.60
Turbidity	NTU	0.1	-	-	0.46	0.49	-	25.3	52.9	70.59	0.91	0.96	5.35	0.48	0.49	-	1.14	1.16	-1.74	1.92	1.74	9.84	7.88	8.81	-11.14	2.09	2.04	2.42	0.70	0.65	7.41	1.93	1.97	-2.05
Anions																																
Alkalinity, Total (as $CaCO_3$)	mg/L	2	-	-	160	154	3.82	300	293	2.36	158	163	3.12	61.4	60.8	0.01	127	124	2.39	86.7	77.2	11.59	241	241	0.00	102	104	-1.94	141	142	-0.71	146	146	0.00
Ammonia as N	mg/L	0.02	-	-	-	-	-	-	-	-	0.022	<0.020	-	<0.020	<0.020	-	0.024	0.23	162.20	<0.02	<0.02	-	3.03	3.33	-9.43	0.015	0.013	-	<0.0050	0.0077	-	2.61	2.6	0.38
Bromide (Br^-)	mg/L	0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	-	-	-	<0.050	<0.050	-	<0.050	<0.050	-	<0.05	<0.05	-	<0.050	<0.050	-	<0.050	<0.050	-	<0.050	<0.050	-	<0.050	<0.050	-
Chloride (Cl^-)	mg/L	0.5	-	600	3.75	3.75	0.00	1.91	2.01	-	4.71	4.73	0.42	5.34	5.31	0.01	0.64	0.66	-	1.41	1.41	-	5.92	5.94	-0.34	0.74	0.73	-	3.44	3.45	-0.29	3.53	3.55	-0.56
Fluoride (F)	mg/L	0.02	-	0.2[e]	1.2	1.2	0.00	1.57	1.48	5.90	1.04	1.04	0.00	0.049	0.049	-	0.960	0.965	-0.52	0.054	0.053	-	1.31	1.32	-0.76	0.79	0.78	1.27	1.10	1.11	-0.90	0.989	1.01	-2.10
Sulfate (SO_4)	mg/L	0.5	-	100	1.45	1.45	-	<0.50	<0.50	-	0.83	0.83	0.00	16.1	16.0	0.01	2.53	2.59	-2.34	6.69	6.66	0.45	<0.50	<0.50	0.00	<0.50	<0.50	-	1.56	1.22	24.46	<0.50	<0.50	-
Nutrients																																
Nitrate and Nitrite as N	mg/L	0.005	-	-	0.0693	0.0689	0.58	<0.0050	<0.0050	-	0.0097	0.0104	-	0.0752	0.0755	0.00	-	-	-	-	-	-	0.0095	0.0151	-	<0.0050	<0.0050	-	-	-	-	0.0062	0.0078	-
Nitrate (as N^-)	mg/L	0.005	2.9	31.3	-	-	-	-	-	-	0.0087	0.0092	-	-	-	-	<0.0050	<0.0050	-	<0.005	<0.005	-	0.0095	0.0151	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.0062	0.0078	-
Nitrite (as N)	mg/L	0.001	0.06	0.06[f]	-	-	-	-	-	-	0.001	0.0012	-	-	-	-	<0.0010	<0.0010	-	<0.001	<0.001	-	<0.0010	<0.0010	0.00	<0.0010	<0.0010	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.490	0.475	3.109	6.030	7.230	2.491	0.646	0.588	9.400	0.236	0.152	0.433	0.644	0.609	5.587	0.656	0.603	8.419	4.980	5.000	-0.401	1.790	1.750	2.260	1.170	1.060	9.865	4.900	5.110	-4.20
Ortho Phosphate as P	mg/L	0.001	-	-	<0.0010	<0.0010	-	<0.010	<0.0010	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	0.0021	0.0019	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-
Total Phosphate as P	mg/L	0.002	-	-	0.0077	0.0069	-	0.0220	0.0110	-	0.0068	0.0069	-	0.0029	0.0028	0.0351	0.0138	0.0105	27.1605	0.0209	0.0206	1.4458	0.0156	0.0161	-3.1546	0.0184	0.0187	-1.6173	0.0063	0.0067	-6.1538	0.0215	0.0210	2.35
Organics																																
Total Organic Carbon (TOC)	mg/L	0.5	-	-	13.1	13.3	1.52	7.69	65	157.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	0.5	-	-	-	-	-	-	-	-	16.2	15.9	1.87	3.87	3.80	0.02	17.7	Lost sample	-	14.3	14.4	0.70	Lost sample	34.9	-	24.3	24.1	0.83	13.1	12.7	3.10	27.3	24.7	10.00
Total Metals																																
Aluminum (Al)	µg/L	**9	100[h]	-	<1	<1	-	6.9	15.9	78.95	6.8	7.3	7.09	10.1	<8	0.87	<6	<6	-	<9	<8	-	2.7	3.6	-	<10	10	-66.67	6.2	5.6	10.17	4.3	4.1	-
Antimony (Sb)	µg/L	0.1	-	20	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	0.19	0.12	-	<0.1	<0.1	-	<0.1	<0.1	0.00	<0.1	<0.1	0.00	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Arsenic (As)	µg/L	0.1	5.0	5.0	0.68	0.68	0.00	2.86	2.82	1.41	1.26	1.34	6.15	0.25	0.22	-	1.48	1.35	9.19	0.67	0.68	1.48	1.24	1.32	-6.25	0.79	0.8	-1.26	0.59	0.56	5.22	1.22	1.24	-1.63
Barium (Ba)	µg/L	0.05	-	5000	54.1	55	1.65	165	164	0.61	48.7	49.6	1.83	33.3	32	0.04	22.7	21.3	6.36	12	12.3	2.47	134	145	-7.89	16.5	16.3	1.22	53.4	54.5	-2.04	63.4	63	0.63
Beryllium (Be)	µg/L	0.5	-	5.3[i]	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Bismuth (Bi)	µg/L	0.5	-	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Boron (B)	µg/L	10	-	1200	24	24	-	25	23	-	18	19	-	14	14	-	21	19	-	42	41	-	31	30	-	15	15	-	28	29	-	19	21	-
Cadmium (Cd)	µg/L	**	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.017	<0.017	-	<0.01	<0.01	-	<0.017	<0.017	-	<0.017	<0.017	-	<0.017	<0.017	-
Chromium (Cr)	µg/L	0.5	8.9	8.9	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Cobalt (Co)	µg/L	0.1	-	110	<0.1	<0.1	-	0.19	0.19	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	0.1	<0.1	-	0.17	0.18	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Copper (Cu)	µg/L	**	2 - 4[j]	-	0.78	0.87	10.91	0.45	0.54	18.18	1.02	1.02	0.00	1.29	1.09	0.17	1.44	<0.8	-	0.40	0.45	-	0.36	0.41	-	<0.4	<0.4	-	<0.5	<0.5	-	<0.5	<0.5	-
Iron (Fe)	µg/L	30	300	1000	<30	<30	-	**8910**	**10300**	14.47	62	60	-	<30	<30	-	95	88	8.70	53	51	-	4190	6300	-40.23	78	80	-	<30	<30	-	105	87	-
Lead (Pb)	µg/L	0.05	1 - 7[k]	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	0.055	-	<0.05	0.05	-	<0.05	<0.05	-	<0.05	0.062	-
Lithium (Li)	µg/L	5	-	870	<5	<5	-	6.2	6.1	-	5.1	5.2	-	<5	<5	-	8.2	7.5	8.92	<5	<5	-	8.0	8.0	-	<5	5.3	-	<5	5.3	-	<5	<5	-
Manganese (Mn)	µg/L	0.05	-	-	9.29	8.92	4.06	1270	1240	2.39	46.6	47.4	1.70	0.37	0.339	0.09	69.7	63.6	9.15	90.8	93.1	2.50	818	862	-5.24	27	27.8	-2.92	17.2	17.2	0.00	25.3	25.9	-2.34
Mercury (Hg)	µg/L	0.05	0.026	0.1	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Molybdenum (Mo)	µg/L	0.05	73	2000	4.35	4.33	0.46	1.23	1.24	0.81	1.73	1.82	5.07	0.635	0.62	0.02	2.05	1.95	5.00	0.14	0.131	-	2.13	2.07	2.86	0.152	0.161	-	4.87	5.03	-3.23	2.35	2.37	-0.85
Nickel (Ni)	µg/L	0.5	25 - 150[l]	25 - 150	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	0.93	0.81	-	<0.5	<0.5	-	0.84	0.85	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	0.5	-
Phosphorus (P)	µg/L	300	-	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-
Selenium (Se)	µg/L	1	1	2	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	1	-
Silver (Ag)	µg/L	0.01	0.1	0.1 - 3[m]	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Strontium (Sr)	µg/L	0.1	-	-	57.7	56.8	1.57	96.2	95.6	0.63	53.3	54.3	1.86	87.1	84	0.04	49.1	45.3	8.05	37.6	38.6	2.62	82.5	84.1	-1.92	31.9	31.9	0.00	58	58.6	-1.03	49.6	49.8	-0.40
Thallium (Tl)	µg/L	0.1	0.8	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Tin (Sn)	µg/L	0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	0.1	<0.1	-	<0.1	<0.1	-	0.38	<0.10	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Titanium (Ti)	µg/L	10	-	2000	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-
Uranium (U)	µg/L	0.01	-	300	0.95	0.92	3.21	0.105	0.115	9.09	0.529	0.537	1.50	0.366	0.345	0.06	2.1	2	4.88	0.041	0.039	-	0.155	0.161	-3.80	0.011	0.011	-	0.99	1.01	-2.00	0.21	0.203	3.39
Vanadium (V)	µg/L	1	-	6	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Zinc (Zn)	µg/L	1	30	-	<1	<1	-	3.4	2.9	-	<1	<1	-	<4	<3	-	1.3	1.4	-	1.2	<1	-	<1	<1	-	<1	<1	-	<1	1.2	-	<3	<3	-
Calcium (Ca)	mg/L	0.05	-	-	32.5	32.5	0.00	67.7	70.3	3.77	37	36.3	1.91	20.4	20.3	0.00	29.8	26.9	10.23	17.6	17.7	0.57	47.9	49.2	-2.68	24.7	24.7	0.00	31.5	31.5	0.00	30.3	30	1.00
Magnesium (Mg)	mg/L	0.1	-	-	18.3	18.1	1.10	31.9	32.4	1.56	19.4	19.4	0.00	4.84	4.75	0.02	16.2	15.6	3.77	10.1	10.1	0.00	23.6	23.5	0.42	12	12.1	-0.83	17.1	17.2	-0.58	14.9	15	-0.67
Potassium (K)	mg/L	2	-	-	<2.0	<2.0	-	5.4	6	-	2.1	2.2	-	<2.0	<2.0	-	2.5	2.4	-	<2.0	<2.0	-	2.3	2.4	-	<2.0	<2.0	-	<2.0	<2.0	-	<2.0	<2.0	-
Silicon (Si)	mg/L	0.05	-	-	2.62	2.62	0.00	1.3	1.4	7.41	3.19	3.18	0.31	1.12	1.12	0.00	1.10	1.06	3.70	1.41	1.41	0.00	4.17	4.30	-3.07	0.379	0.379	0.00	2.07	2.09	-0.96	3.14	3.15	-0.32
Sodium (Na)	mg/L	2	-	-	6.4	6.3	-	5	5.6	-	7.1	7.3	-	5.6	5.5	0.02	3.8	3.6	-	3.2	3.2	-	9.4	9.2	-	2.5	2.5	-	5.4	5.4	-	5.5	5.5	0.00

Parameter	Units	D.L.[a]	CCME FAL[b]	BC WQG[c]	March 2008						October 2008			June 2009			September 2009			April 2010			June 2010			September 2010			October 2010		
					19-Mar-08			21-Mar-08			4-Oct-08			28-Jun-09			8-Sep-09			28-Sep-09			13-Apr-10			13-Jun-10			2-Sep-10			6-Oct-10		
					Long - 1	Replicate	RPD[d]	Ring	Replicate	RPD[d]	A	Replicate	RPD[d]	Great Slave	Replicate	RPD[d]	Cressy	Replicate	RPD[d]	Redemption	Replicate	RPD[d]	Drizzle	Replicate	RPD[d]	Buck	Replicate	RPD[d]	Long	Replicate	RPD[d]	Murky	Replicate	RPD[d]
Dissolved Metals																																
Aluminum (Al)	µg/L	1	-	100[h]	-	-	-	-	-	-	2.4	1.2	-	1.1	<1	-	<1	1.3	-	1	<1	-	3.9	1.3	-	4.8	5.3	-9.90	3.3	1.6	-	<3	<3	-
Antimony (Sb)	µg/L	0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Arsenic (As)	µg/L	0.1	-	-	-	-	-	-	-	-	1.25	1.19	4.92	0.31	0.25	-	1.23	1.13	8.47	0.63	0.65	3.13	1.40	1.34	4.38	0.93	0.9	3.28	0.67	0.65	3.03	1.46	1.45	0.69
Barium (Ba)	µg/L	0.05	-	-	-	-	-	-	-	-	48.3	47.7	1.25	31.9	31.5	0.01	19.6	18.8	4.17	10.5	10.5	-	147	137	7.04	14.3	14.3	0.00	50.5	50.7	-0.40	61.3	61	0.49
Beryllium (Be)	µg/L	0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Bismuth (Bi)	µg/L	0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Boron (B)	µg/L	10	-	-	-	-	-	-	-	-	18	18	0.00	11	11	0.00	18	17	-	34	35	-	26	26	-	14	14	-	23	24	-	18	18	-
Cadmium (Cd)[r]	µg/L	**	-	-	-	-	-	-	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.017	<0.017	-	<0.01	<0.01	-	<0.017	<0.017	-	0.214	0.167	24.67	<0.017	<0.017	-
Chromium (Cr)	µg/L	**	-	-	-	-	-	-	-	-	<1	<1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<1	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Cobalt (Co)	µg/L	0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	0.17	0.16	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Copper (Cu)	µg/L	0.1	-	-	-	-	-	-	-	-	0.74	0.86	15.00	0.93	0.87	0.07	0.37	0.35	-	0.31	0.28	-	0.26	0.15	-	0.22	0.23	-	0.38	0.33	-	<0.5	<0.5	-
Iron (Fe)	µg/L	30	-	350	-	-	-	-	-	-	<30	<30	-	<30	<30	-	<30	<30	-	<30	<30	19.37	<30	4430	19.37	<30	<30	-	<30	<30	-	<30	<30	-
Lead (Pb)	µg/L	0.05	-	-	-	-	-	-	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Lithium (Li)	µg/L	5	-	-	-	-	-	-	-	-	5	<5	-	<5	<5	-	7.4	7.2	-	<5	<5	-	7.7	7.6	-	<5	<5	-	<5	<5	-	<5	<5	-
Manganese (Mn)	µg/L	0.05	-	-	-	-	-	-	-	-	4.13	4.04	2.20	0.095	0.082	-	0.848	0.779	8.48	0.666	1.08	47.42	814	795	2.36	0.578	0.557	3.70	0.327	0.252	25.91	1.75	1.75	0.00
Mercury (Hg)	µg/L	**	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	0.01	<0.01	-
Molybdenum (Mo)	µg/L	0.05	-	-	-	-	-	-	-	-	1.82	1.78	2.22	0.603	0.57	0.06	1.67	1.53	8.75	0.103	0.121	-	2.09	2.02	3.41	0.124	0.132	-	4.28	4.31	-0.70	2.31	2.25	2.63
Nickel (Ni)	µg/L	0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-	1	0.69	-	<0.5	<0.5	-	0.72	0.65	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Phosphorus (P)	µg/L	300	-	-	-	-	-	-	-	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-	<300	<300	-
Selenium (Se)	µg/L	1	-	-	-	-	-	-	-	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Silver (Ag)	µg/L	0.01	-	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Strontium (Sr)	µg/L	0.1	-	-	-	-	-	-	-	-	53.0	53.1	0.19	81	81.5	0.01	40.3	38.3	5.09	35.2	35.6	1.13	83.3	80.4	3.54	30.3	29.8	1.66	54.3	54	0.55	48	48.6	-1.24
Thallium (Tl)	µg/L	0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Tin (Sn)	µg/L	0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	0.15	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Titanium (Ti)	µg/L	10	-	-	-	-	-	-	-	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-
Uranium (U)	µg/L	0.01	-	-	-	-	-	-	-	-	0.550	0.553	0.54	0.349	0.346	0.01	1.83	1.78	2.77	0.032	0.033	-	0.162	0.142	13.16	<0.01	<0.01	-	0.869	0.869	0.00	0.182	0.180	1.10
Vanadium (V)	µg/L	1	-	-	-	-	-	-	-	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Zinc (Zn)	µg/L	1	-	-	-	-	-	-	-	-	1.7	4.4	-	1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	1.7	1.8	-5.71	<3	<3	-
Calcium (Ca)	mg/L	0.05	-	-	-	-	-	-	-	-	36.9	35.8	3.03	21.5	21.5	0.00	29.6	29.6	0.00	18.3	18	1.65	50.3	49.9	0.80	24.8	24.7	0.40	33.2	32.6	1.82	30.7	30.2	1.64
Magnesium (Mg)	mg/L	0.1	-	-	-	-	-	-	-	-	19.1	19.4	1.56	5.01	5.04	0.01	15.8	15.8	0.00	10.5	10.4	0.96	24.7	24.1	2.46	12.2	12.1	0.82	17.6	17.5	0.57	15.3	15.1	1.32
Potassium (K)	mg/L	2	-	-	-	-	-	-	-	-	2.1	2.2	-	<2.0	<2.0	-	2.4	2.3	4.26	<2.0	<2.0	-	2.4	2.4	-	<2.0	<2.0	-	<2.0	<2.0	-	<2.0	<2.0	-
Silicon (Si)	mg/L	0.05	-	-	-	-	-	-	-	-	3.13	3.13	0.00	1.17	1.18	0.01	1.05	1.05	0.00	1.46	1.45	0.69	4.32	4.32	0.00	0.358	0.368	-2.75	2.13	2.13	0.00	3.19	3.19	0.00
Sodium (Na)	mg/L	2	-	-	-	-	-	-	-	-	7	7.3	-	5.7	5.7	-	3.5	3.5	-	3.3	3.3	-	9.8	9.5	-	2.6	2.5	-	5.5	5.5	0.00	5.6	5.6	0.00
Radionuclides			**GCDWQ MAC[n]**																															
Lead-210 (^{210}Pb)	Bq/L[p]	0.02	0.1	-	<0.02	-	-	-	-	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-
Radium-226 (^{226}Ra)	Bq/L	0.005	0.6	-	0.01	-	-	-	-	-	<0.005	0.007	-	0.006	0.007	-	<0.005	<0.005	-	<0.005	0.008	-	0.006	0.005	-	0.005	<0.005	-	<0.005	0.01	-	<0.005	<0.005	-
Radium-228 (^{228}Ra)	Bq/L	0.02	0.5	-	0.08	-	-	-	-	-	<0.04	NR	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	0.05	<0.02	-	<0.02	<0.03	-	<0.01	<0.01	-	<0.02	<0.02	-
Thorium-230 (^{230}Th)	Bq/L	0.01	0.4	-	<0.01	-	-	-	-	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Thorium-232 (^{232}Th)	Bq/L	0.01	0.1	-	<0.01	-	-	-	-	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Biota																																		
Chlorophyll a	µg/L	0.01	-	-	-	-	-	-	-	-	-	-	-	1.05	1.01	-	3.75	3.02	21.57	-	-	-	-	-	-	1.21	1.53	-23.36	0.708	0.285	85.20	-	-	-
Pheopigments	µg/L	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.32	1.08	20.00	-	-	-	-	-	-	0.237	0.21	12.08	0.196	0.044	126.67	-	-	-

q.

NOTES:

a. D.L. = laboratory detection limit
b. CCME FAL - Canadian Council of Ministers of the Environment Freshwater Aquatic Life
c. BC WQG - British Columbia Water Quality Guidelines (Approved and Working) for maximum concentrations
d. BC WQG for Fluoride is 0.3 mg/L (maximum) where water hardness≥ 50 mg/L (as $CaCO_3$)
e. BC WQG for Nitrite 0.12 mg/L when chloride is 2 - 4 mg/L
f. ** implies detection limit varied by season - '<' (less than) value implies detection limit
g. CCME FAL Total Aluminum guideline is 100 µg/L when pH > 6.5
h. BC WQG for Total Beryllium is Working chronic criterion
i. CCME FAL Total Cadmium guideline = $10^{(0.86[Log(hardness)] - 3.2)}$

Average hardness =	2	mg/L
Cadmium Guideline =	0.001	µg/L

j. CCME FAL Total Copper guideline:
2 µg/L when [CaCO3] is 0 - 120 mg/L
3 µg/L when [CaCO3] is 120 - 180 mg/L
4 µg/L when [CaCO3] is > 180 mg/L
k. CCME FAL Total Lead guideline:
1 µg/L when [CaCO3] is 0 - 60 mg/L
4 µg/L when [CaCO3] is 120 - 180 mg/L
7 µg/L when [CaCO3] is > 180 mg/L
l. CCME FAL Total Nickel guideline:
25 µg/L when [CaCO3] is 0 - 60 mg/L
110 µg/L when [CaCO3] is 120 - 180 mg/L
150 µg/L when [CaCO3] is > 180 mg/L
m. BC WQG for Total Silver:
0.1 µg/L when [CaCO3] is ≤ 100 mg/L
3 µg/L when [CaCO3] is > 100 mg/L
n. GCDWQ MAC - Health Canada's Guidelines for Canadian Drinking Water Quality Maximum Acceptable Concentration for Radionuclides; based on adults consuming 2 L of water per day or 730 L of water per year (May 2008)
o. Bq/L = Becquerel per litre; the becquerel (Bq) measures the quantity of radioactivity presentwithout consideration for what kind of radiation is emitted.
p. **Bolded** result implies a guideline exceedance
q. Replicate result where precision threshold (RPD > 25%) was exceeded
r. Data outlier, excluded from summary statistics

APPENDIX G

Sediment Chemistry Data

Table G1-1

Replicate Sediment Chemistry & Coefficient of Variation (CV) in 2009
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009																	
					Cressy			Elbow North				Elbow South				Thorn				Wasp			
					8-Sep-09			30-Sep-09				29-Sep-09				23-Sep-09				23-Sep-09			
			ISQG[c]	PEL[d]	FL-02	Replicate	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1	Replicate 2	Replicate 3[f]	CV[e]	Replicate 1[f]	Replicate 2	Replicate 3	CV[e]
Organics & Nutrients																							
Inorganic Carbon	mg/kg	0.1	-	-	-	-	-	0.44	0.36	0.34	14	0.29	0.33	0.31	6	0.17	0.14	0.12	18	0.13	0.12	<0.10	6
Total Organic Carbon	mg/kg	0.1	-	-	-	-	-	6.33	16.90	13.30	44	26.2	21.5	25.9	11	30.2	30.6	31.2	2	33.5	33.3	32.3	2
CaCO3 Equivalent	mg/kg	0.7	-	-	-	-	-	4.09	3.53	3.24	12	2.98	3.24	3.1	4	1.69	1.56	1.32	12	1.40	1.36	0.84	26
Total Carbon (by combustion)	mg/kg	0.1	-	-	-	-	-	6.8	17.3	13.7	42	26.5	21.8	26.2	11	30.4	30.8	31.3	1	33.6	33.5	32.3	2
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	-	-	-	0.694	1.81	1.33	44	2.80	2.29	2.77	11	2.58	2.71	2.73	3	2.89	2.89	2.82	1
Total Phosphorus	mg/kg	90	-	-	-	-	-	1180	1290	1110	8	2070	1650	1860	11	1160	937	1200	13	791	759	656	10
Total Metals																							
Mercury (Hg)	mg/kg	0.05	0.17	0.486	-	-	-	<0.050	<0.050	<0.050	0	0.056	0.057	0.051	6	0.071	0.078	0.081	7	0.064	0.052	0.052	12
Silver (Ag)	mg/kg	1	0.5[g]	-	-	-	-	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<2.0	43	<2.0	<1.0	<1.0	43
Arsenic (As)	mg/kg	0.2	5.9	17.0	-	-	-	**15.60**	3.20	3.77	93	4.37	6.81	4.74	25	**9.91**	**8.93**	**9.13**	6	**7.43**	5.70	**5.96**	15
Barium (Ba)	mg/kg	5	-	-	-	-	-	163	168	181	5	109	134	103	14	149	152	137	5	147	158	143	5
Beryllium (Be)	mg/kg	1	-	-	-	-	-	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<2.0	43	<2.0	<1.0	<1.0	43
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	-	-	-	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50	<1.0	43	<1.0	<0.50	<0.50	43
Cobalt (Co)	mg/kg	1	-	-	-	-	-	7.7	7.1	7.3	4	5.1	5.4	5.3	3	7.0	6.8	6.6	3	4.7	5.5	5.8	11
Chromium (Cr)	mg/kg	0.5	37.3	90.0	-	-	-	16.0	17.9	19.0	9	10.9	12.4	11.7	6	15.3	14.3	13.4	7	9.2	10.5	10.9	9
Copper (Cu)	mg/kg	2	35.7	197.0	-	-	-	12.9	24.6	25.7	34	29.1	24.0	28.3	10	33.0	34.8	31.6	5	28.4	29.1	32.3	7
Molybdenum (Mo)	mg/kg	1	-	-	-	-	-	2.6	2.8	2.2	12	4.6	1.5	5.1	52	10.5	9.7	11.8	10	9.4	12.1	13.6	18
Nickel (Ni)	mg/kg	2	16.0[h]	75.0[i]	-	-	-	13.5	**16.9**	**17.5**	14	13.4	13.7	13.6	1	**17.3**	**16.1**	**16.6**	4	11.8	12.3	12.8	4
Lead (Pb)	mg/kg	5	35.0	91.3	-	-	-	<5.0	5.4	5.6	39	<5.0	<5.0	<5.0	0	6.2	6.8	<10	15	<10	<5.0	<5.0	43
Antimony (Sb)	mg/kg	0.2	-	-	-	-	-	0.21	0.30	0.30	19	0.34	0.30	0.35	8	0.55	0.70	0.63	12	<0.40	0.35	0.37	30
Selenium (Se)	mg/kg	0.2	5.0[g]	-	-	-	-	0.31	0.68	0.74	40	0.83	0.81	0.83	1	1.05	1.13	1.01	6	0.87	0.93	1.05	10
Tin (Sn)	mg/kg	5	-	-	-	-	-	<5.0	<5.0	<5.0	0	<5.0	<5.0	<5.0	0	<5.0	<5.0	<10	43	<10	<5.0	<5.0	43
Thallium (Tl)	mg/kg	1	-	-	-	-	-	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<2.0	43	<2.0	<1.0	<1.0	43
Uranium (U)	mg/kg	2	-	-	-	-	-	<2.0	2.9	2.8	48	4.6	<2.0	5.0	62	3.8	3.9	<4.0	33	<4.0	<2.0	<2.0	43
Vanadium (V)	mg/kg	1	-	-	-	-	-	44.1	30.8	32.8	20	18.8	23.6	20.9	11	28.5	28.1	26.5	4	21.2	22.1	22.3	3
Zinc (Zn)	mg/kg	10	123	315	-	-	-	38	47	50	14	33	35	35	3	63	67	65	3	62	60	68	7
Particle Size																							
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	-	-	-	55.0	5.0	16.0	104	3.0	15.0	5.0	84	4.0	12.0	2.0	88	5.0	5.0	7.0	20
% Silt (0.05 mm - 2 um)	%	1	-	-	-	-	-	35.0	79.0	69.0	38	76.0	66.0	74.0	7	53.0	31.0	49.0	26	69.0	66.0	60.0	7
% Clay (< 2 um)	%	1	-	-	-	-	-	9.0	16.0	15.0	28	21.0	19.0	21.0	6	43.0	58.0	49.0	15	26.0	29.0	33.0	12
Texture	-	-	-	-	-	-	-	Sandy loam	Silt loam	Silt loam	-	Silt loam	Silt loam	Silt loam	-	Silty clay	Clay	Silty clay	-	Silt loam	Silty clay loam	Silty clay loam	-
Radionuclides					**Composite**	**Composite**																	
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.88	0.6	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.05	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	<0.04	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.02	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rare Earth Elements					**Composite**	**Composite**																	
Cerium (Ce)	µg/g	0.05	-	-	61	60	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysprosium (Dy)	µg/g	0.05	-	-	5.2	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erbium (Er)	µg/g	0.05	-	-	1.8	1.7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Europium (Eu)	µg/g	0.05	-	-	1.6	1.6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gadolinium (Gd)	µg/g	0.05	-	-	8.9	8.6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hafnium (Hf)	µg/g	0.1	-	-	<0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Holmium (Ho)	µg/g	0.05	-	-	0.73	0.71	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lanthanum (La)	µg/g	0.05	-	-	33	32	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neodymium (Nd)	µg/g	0.05	-	-	43	42	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niobium (Nb)	µg/g	0.1	-	-	0.6	0.7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Praseodymium (Pr)	µg/g	0.05	-	-	9.7	9.5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Samarium (Sm)	µg/g	0.05	-	-	9.5	9.4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tantalum (Ta)	µg/g	0.1	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terbium (Tb)	µg/g	0.05	-	-	1.1	1.1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thulium '(Tm)	µg/g	0.05	-	-	0.2	0.19	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ytterbium (Yb)	µg/g	0.05	-	-	1.1	1.1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium (Y)	µg/g	0.05	-	-	22	20	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)	µg/g	0.1	-	-	2.9	5	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

a. D.L. = Detection Limit
b. Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines
c. ISQG = Interim Sediment Quality Guidelines
d. PEL = Probable Effects Level
e. C.V. = Coefficient of Variation between replicate samples when all results > 5 times the detection limit
f. Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample
g. BCWSQ guidelines
h. BCWSQ Lowest Effects Level (LEL)
i. BCWSQ Severe Effects Level (SEL)
j. **Bolded** result implies ISQG exceedance
k. **Bolded & shaded** result implies PEL exceedance
l. Replicate result where precision threshold (CV > 20%) was exceeded (when all results > 5 times detection limit)

Table G1-1

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		Porkchop 24-Sep-09				Egg 22-Sep-09				Redemption 28-Sep-09							
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1[f]	Replicate 2	Replicate 3[f]	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]
Organics & Nutrients																				
Inorganic Carbon	mg/kg	0.1	-	-	0.11	0.11	<0.10	38	0.12	0.13	<0.10	44	<0.10	<0.10	<0.10	0	-	-	-	-
Total Organic Carbon	mg/kg	0.1	-	-	17.4	17.7	15.6	7	32.9	33.5	33.8	1	13.2	11.9	13.3	6	-	-	-	-
CaCO3 Equivalent	mg/kg	0.7	-	-	1.21	1.23	0.97	13	1.48	1.61	1.28	11	1.04	0.88	1.06	10	-	-	-	-
Total Carbon (by combustion)	mg/kg	0.1	-	-	17.5	17.8	15.6	7	33.0	33.6	33.8	1	13.2	11.9	13.3	6	-	-	-	-
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	1.50	1.63	1.40	8	2.40	3.01	2.55	12	1.47	1.32	1.56	8	-	-	-	-
Total Phosphorus	mg/kg	90	-	-	1610	1220	969	26	1260	1200	1300	4	918	937	1090	10	-	-	-	-
Total Metals																				
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.117	0.083	0.088	19	0.109	0.088	0.113	13	0.060	0.059	0.066	6	-	-	-	-
Silver (Ag)	mg/kg	1	0.5[g]	-	<1.0	<1.0	<1.0	0	<2.0	<1.0	<2.0	35	<1.0	<1.0	<1.0	0	-	-	-	-
Arsenic (As)	mg/kg	0.2	5.9	17.0	**18.70**	**12.80**	**10.70**	29	**11.00**	**13.10**	**11.80**	9	**17.90**	**13.00**	**19.90**	21	-	-	-	-
Barium (Ba)	mg/kg	5	-	-	253	221	160	22	106	128	105	12	185	160	234	20	-	-	-	-
Beryllium (Be)	mg/kg	1	-	-	1.2	1.2	<1.0	42	<2.0	<1.0	<2.0	35	<1.0	<1.0	<1.0	0	-	-	-	-
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	0	<1.0	<0.50	<1.0	35	<0.50	<0.50	<0.50	0	-	-	-	-
Cobalt (Co)	mg/kg	1	-	-	8.6	9.9	9.7	7	2.7	2.7	2.5	4	11.7	12.4	10.5	8	-	-	-	-
Chromium (Cr)	mg/kg	0.5	37.3	90.0	22.1	24.0	24.9	6	6.60	6.98	6.20	6	30.0	30.9	26.6	8	-	-	-	-
Copper (Cu)	mg/kg	2	35.7	197.0	**47.0**	**48.9**	**51.0**	4	19.3	21.2	18.6	7	**41.6**	**39.2**	**41.1**	3	-	-	-	-
Molybdenum (Mo)	mg/kg	1	-	-	10.6	13.6	20.4	34	4.3	4.5	4.0	6	2.2	2.2	1.9	8	-	-	-	-
Nickel (Ni)	mg/kg	2	16.0[h]	75.0[i]	**20.9**	**22.2**	**22.5**	4	9.0	9.2	8.8	2	**39.8**	**39.9**	**38.4**	2	-	-	-	-
Lead (Pb)	mg/kg	5	35.0	91.3	10.2	9.9	8.0	13	<10	6.1	<10	12	11.7	10.7	11.1	5	-	-	-	-
Antimony (Sb)	mg/kg	0.2	-	-	0.62	0.49	0.37	20	<0.40	0.38	<0.40	44	0.43	0.38	0.38	7	-	-	-	-
Selenium (Se)	mg/kg	0.2	5.0[g]	-	1.12	1.09	1.03	4	0.90	1.11	0.84	15	0.77	0.88	0.84	7	-	-	-	-
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	0	<10	<5.0	<10	35	<5.0	<5.0	<5.0	0	-	-	-	-
Thallium (Tl)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0	<2.0	<1.0	<2.0	35	<1.0	<1.0	<1.0	0	-	-	-	-
Uranium (U)	mg/kg	2	-	-	2.2	2.3	3.9	34	<4.0	<2.0	<4.0	35	2.3	2.4	2.1	7	-	-	-	-
Vanadium (V)	mg/kg	1	-	-	40.1	41.8	36.7	7	14.2	14.4	13.3	4	43.2	42.1	39.2	5	-	-	-	-
Zinc (Zn)	mg/kg	10	123	315	72	80	72	6	61	59	61	2	88	87	84	2	-	-	-	-
Particle Size																				
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	3.0	2.0	2.0	25	2.0	3.0	3.0	22	<1.0	1.0	1.0	35	-	-	-	-
% Silt (0.05 mm - 2 um)	%	1	-	-	73.0	57.0	63.0	13	37.0	27.0	36.0	17	71.0	70.0	67.0	3	-	-	-	-
% Clay (< 2 um)	%	1	-	-	24.0	40.0	35.0	25	61.0	70.0	61.0	8	29.0	29.0	32.0	5.8	-	-	-	-
Texture	-	-	-	-	Silt loam	Silt clay loam/ Silty clay	Silty clay loam	-	Clay	Clay	Clay	-	Silty clay loam	Silty clay loam	Silty clay loam	-	-	-	-	-
Radionuclides													**Composite**				**Composite**			
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	-	-	-	-	-	-	-	-	0.46			-	0.5			6
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	-	-	-	-	-	-	-	-	0.06			-	0.08			20
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	-	-	-	-	-	-	-	-	0.62			-	0.18			78
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	-	-	-	-	-	-	-	-	0.05			-	0.06			-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	-	-	-	-	-	-	-	-	0.05			-	0.06			-
Rare Earth Elements													**Composite**				**Composite**			
Cerium (Ce)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	72			-	72			0
Dysprosium (Dy)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	2.7			-	2.7			0
Erbium (Er)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	1.3			-	1.3			0
Europium (Eu)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	0.92			-	0.91			1
Gadolinium (Gd)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	4.5			-	4.5			0
Hafnium (Hf)	µg/g	0.1	-	-	-	-	-	-	-	-	-	-	0.2			-	0.2			-
Holmium (Ho)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	0.47			-	0.46			2
Lanthanum (La)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	35			-	35			0
Neodymium (Nd)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	30			-	30			0
Niobium (Nb)	µg/g	0.1	-	-	-	-	-	-	-	-	-	-	0.3			-	0.3			-
Praseodymium (Pr)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	7.9			-	7.9			0
Samarium (Sm)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	5.2			-	5.1			1
Tantalum (Ta)	µg/g	0.1	-	-	-	-	-	-	-	-	-	-	<0.1			-	<0.1			-
Terbium (Tb)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	0.53			-	0.54			1
Thulium '(Tm)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	0.17			-	0.17			0
Ytterbium (Yb)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	1.1			-	1.1			0
Yttrium (Y)	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	12			-	12			0
Zirconium (Zr)	µg/g	0.1	-	-	-	-	-	-	-	-	-	-	10			-	11			7

Table G1-2

Replicate Sediment Chemistry & Coefficient of Variation (CV) in 2010
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10050

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2010																			
					Long				Long Replicate				Long & Replicate	Thor East				Thor West				Redemption			
					2-Sep-10				2-Sep-10					1-Sep-10				1-Sep-10				6-Sep-10			
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]	Replicate 1	Replicate 2	Replicate 3	CV[e]
Organics & Nutrients																								
Inorganic Carbon	mg/kg	0.1	-	-	0.15	0.12	0.13	11	0.11	0.11	0.11	0	13	0.13	0.15	0.22	28	0.2	0.21	0.18	8	<0.10	<0.10	<0.10	0
Total Organic Carbon	mg/kg	0.1	-	-	18.4	19.2	16.8	7	19.7	19.7	18.5	4	6	22.4	20.5	22.6	5	24.8	24.8	25.5	2	13.3	12.6	12.5	3
CaCO3 Equivalent	mg/kg	0.7	-	-	1.4	1.17	1.21	10	1.02	1.09	1.05	3	12	1.26	1.35	1.95	25	1.83	1.85	1.7	5	1.21	0.99	1.02	11
Total Carbon (by combustion)	mg/kg	0.1	-	-	18.6	19.3	16.9	7	19.8	19.9	18.6	4	6	22.5	20.6	22.9	6	25	25	25.7	2	13.3	12.6	12.5	3
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	1.87	1.9	1.66	7	1.96	2.01	1.85	4	6	2.4	2.17	2.39	6	2.71	2.72	2.85	3	1.41	1.38	1.32	3
Total Phosphorus	mg/kg	90	-	-	1190	1160	1030	8	1320	1320	1230	4	9	1910	1450	1700	14	1680	1810	1920	7	911	1310	982	20
Total Metals																								
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.091	0.064	0.069	19	0.110	0.117	0.094	11	23	0.061	0.055	0.058	5	0.051	0.052	0.05	2	0.097	**0.141**	0.082	29
Silver (Ag)	mg/kg	1	0.5[g]	-	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**13**	**6.64**	**7.57**	38	**13.00**	**18.70**	**9.55**	34	39	**8.17**	**8.21**	**8.75**	4	**9.27**	**9.48**	**11.4**	12	**16.4**	**6.11**	**12.1**	45
Barium (Ba)	mg/kg	5	-	-	235	158	181	21	229	330	178	31	29	118	121	120	1	112	123	112	5	235	177	161	20
Beryllium (Be)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0	<1.0	<1.0	<1.0	0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	0	<0.50	<0.50	0.50	43	35	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0
Cobalt (Co)	mg/kg	1	-	-	10.1	11.5	12.8	12	10.0	9.0	12.3	16	14	7.1	7.9	7.8	6	6.1	6.3	6.3	2	12	12.9	14.2	8
Chromium (Cr)	mg/kg	0.5	37.3	90.0	32.5	**45.1**	**72.1**	41	**45.3**	22.2	**50.4**	38	38	30.3	**53.4**	**67.2**	37	**43.4**	**37.8**	**55.1**	19	32.3	**70.4**	**60.8**	36
Copper (Cu)	mg/kg	2	35.7	197.0	**57.1**	**53.3**	**58.8**	5	**57.8**	**56.3**	**57.4**	1	3	23.5	25.6	26.4	6	21.3	21.5	21.4	0	**43.1**	**37.5**	**42.1**	7
Molybdenum (Mo)	mg/kg	1	-	-	36.4	34.4	29.1	11	38.6	34.4	37.3	6	10	9	11	12.6	17	6.8	6.8	7.9	9	1.9	1.4	2.2	22
Nickel (Ni)	mg/kg	2	16.0[h]	75.0[i]	**35.2**	**36.3**	**51.3**	22	**42.2**	**31.4**	**40.8**	15	18	**21.3**	**31.6**	**37.0**	27	**25.4**	**22.8**	**30.0**	14	**42.2**	**55.4**	**55.4**	15
Lead (Pb)	mg/kg	5	35.0	91.3	10.4	7.1	7.9	20	10.9	10.6	18.2	33	36	6.9	7.5	7.9	7	6.5	6.5	6.8	3	12.3	11	12.6	7
Antimony (Sb)	mg/kg	0.2	-	-	0.64	0.34	0.38	36	0.69	0.69	0.39	29	32	0.44	0.55	0.55	12	2.74	0.45	0.47	108	0.53	0.31	0.38	28
Selenium (Se)	mg/kg	0.2	5.0[g]	-	1.42	1.33	1.47	5	1.46	1.51	1.50	2	5	0.89	0.82	0.93	6	0.77	0.84	0.78	5	0.72	0.72	0.69	2
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	0	<5.0	<5.0	<5.0	0	0	<5.0	<5.0	<5.0	0	<5.0	<5.0	<5.0	0	<5.0	<5.0	<5.0	0
Thallium (Tl)	mg/kg	1	-	-	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0	0	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0	<0.50	<0.50	<0.50	0
Uranium (U)	mg/kg	2	-	-	9.6	13.3	10.5	17	10.1	8.0	10.5	14	17	5	6.1	6	11	5.2	5.4	4.8	6	2.2	2.4	2.6	8
Vanadium (V)	mg/kg	1	-	-	41	36.4	38.1	6	41.9	39.5	38.8	4	5	26.1	28.1	28.4	5	22.5	23.1	23.3	2	44.8	40	42.6	6
Zinc (Zn)	mg/kg	10	123	315	77	74	83	6	77	73	80	5	5	48	73	55	22	47	51	51	5	88	92	90	2
Particle Size																									
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	39.7	83.6	83.6	37	48.0	66.0	64.8	17	28	45.4	-	48.2	4	33.5	-	-	-	71.4	67.6	81.4	10
% Silt (0.05 mm - 2 um)	%	1	-	-	54.6	13.1	13.7	88	45.1	28.0	32.9	25	53	48.5	-	49	1	64.8	-	-	-	21.5	21.6	15	20
% Clay (< 2 um)	%	1	-	-	5.74	3.25	2.76	41	6.87	6.02	2.30	48	43	6.02	-	2.83	51	1.73	-	-	-	7.08	10.8	3.64	50
Texture	-	-	-	-	Silt loam	Loamy sand	Loamy sand	-	Sandy loam	Sandy loam	Sandy loam	-	-	Sandy loam	-	Silt loam / Sandy loam	-	Silt loam	-	-	-	Sandy loam	Sandy loam	Loamy sand	-

Notes:

[a] D.L. = Detection Limit
[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines
[c] ISQG = Interim Sediment Quality Guidelines
[d] PEL = Probable Effects Level
[e] C.V. = Coefficient of Variation between replicate samples when all results > 5 times the detection limit
[f] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample
[g] BCWSQ guidelines
[h] BCWSQ Lowest Effects Level (LEL)
[i] BCWSQ Severe Effects Level (SEL)
[j] **Bolded** result implies ISQG exceedance
[k] **Bolded & shaded** result implies PEL exceedance
[l] Replicate result where precision threshold (CV > 20%) was exceeded (when all results > 5 times detection limit)

Table G2-1

Blachford Lake (BL-02) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		BL-02
			ISQG[c]	PEL[d]	21-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	2.50
CaCO3 Equivalent	mg/kg	0.7	-	-	<0.70
Total Carbon (by combustion)	mg/kg	0.1	-	-	2.5
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	0.196
Total Phosphorus	mg/kg	90	-	-	400
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	4.42
Barium (Ba)	mg/kg	5	-	-	82.6
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	6.8
Chromium (Cr)	mg/kg	0.5	37.3	90.0	22.9
Copper (Cu)	mg/kg	2	35.7	197.0	13.0
Molybdenum (Mo)	mg/kg	1	-	-	<1.0
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	15.6
Lead (Pb)	mg/kg	5	35.0	91.3	6.7
Antimony (Sb)	mg/kg	0.2	-	-	0.21
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.21
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	<2.0
Vanadium (V)	mg/kg	1	-	-	35.7
Zinc (Zn)	mg/kg	10	123	315	38
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	62.0
% Silt (0.05 mm - 2 um)	%	1	-	-	37.0
% Clay (< 2 um)	%	1	-	-	1.0
Texture	-	-	-	-	Sandy loam
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	<0.04
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.03
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.04
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.03
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	75
Dysprosium (Dy)	µg/g	0.05	-	-	2.7
Erbium (Er)	µg/g	0.05	-	-	1.1
Europium (Eu)	µg/g	0.05	-	-	0.79
Gadolinium (Gd)	µg/g	0.05	-	-	4.6
Hafnium (Hf)	µg/g	0.1	-	-	0.1
Holmium (Ho)	µg/g	0.05	-	-	0.4
Lanthanum (La)	µg/g	0.05	-	-	34
Neodymium (Nd)	µg/g	0.05	-	-	31

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		BL-02
			ISQG[c]	PEL[d]	21-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.1
Praseodymium (Pr)	µg/g	0.05	-	-	8.1
Samarium (Sm)	µg/g	0.05	-	-	5.5
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.54
Thulium '(Tm)	µg/g	0.05	-	-	0.13
Ytterbium (Yb)	µg/g	0.05	-	-	0.78
Yttrium (Y)	µg/g	0.05	-	-	11
Zirconium (Zr)	µg/g	0.1	-	-	7.2

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-2 **Elbow Lake (EL-01 & EL-02) Baseline Sediment Chemistry**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		EL-01 30-Sep-09					EL-02 29-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Organics & Nutrients														
Inorganic Carbon	mg/kg	0.1	-	-	0.44	0.36	0.34	0.38	0.05	0.29	0.33	0.31	0.31	0.02
Total Organic Carbon	mg/kg	0.1	-	-	6.33	16.90	13.30	12.18	5.37	26.2	21.5	25.9	24.5	2.6
CaCO3 Equivalent	mg/kg	0.7	-	-	4.09	3.53	3.24	3.62	0.43	2.98	3.24	3.10	3.11	0.13
Total Carbon (by combustion)	mg/kg	0.1	-	-	6.8	17.3	13.7	12.6	5.3	26.5	21.8	26.2	24.8	2.6
Total Kjeldahl Nitrogen	%	0.02	-	-	0.694	1.81	1.33	1.28	0.56	2.80	2.29	2.77	2.62	0.29
Total Phosphorus	mg/kg	90	-	-	1180	1290	1110	1193	91	2070	1650	1860	1860	210
Total Metals														
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050	<0.050	<0.050	0.025	0.000	0.056	0.057	0.051	0.055	0.003
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0	<1.0	<1.0	0.5	0.0	<1.0	<1.0	<1.0	0.5	0.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**15.60**	3.20	3.77	7.52	7.00	4.37	**6.81**	4.74	5.31	1.32
Barium (Ba)	mg/kg	5	-	-	163	168	181	171	9	109	134	103	115	16
Beryllium (Be)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0.5	0	<1.0	<1.0	<1.0	0.5	0.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	0.25	0.00	<0.50	<0.50	<0.50	0.25	0
Cobalt (Co)	mg/kg	1	-	-	7.7	7.1	7.3	7.4	0.3	5.1	5.4	5.3	5.3	0.2
Chromium (Cr)	mg/kg	0.5	37.3	90.0	16.0	17.9	19.0	17.6	1.5	10.9	12.4	11.7	11.7	0.8
Copper (Cu)	mg/kg	2	35.7	197.0	12.9	24.6	25.7	21.1	7.1	29.1	24.0	28.3	27.1	2.7
Molybdenum (Mo)	mg/kg	1	-	-	2.6	2.8	2.2	2.5	0.3	4.6	1.5	5.1	3.7	2.0
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	13.5	**16.9**	**17.5**	**16.0**	2.2	13.4	**13.7**	13.6	**13.6**	0.2
Lead (Pb)	mg/kg	5	35.0	91.3	<5.0	5.4	5.6	4.5	1.7	<5.0	<5.0	<5.0	2.5	0.0
Antimony (Sb)	mg/kg	0.2	-	-	0.21	0.30	0.30	0.27	0.05	0.34	0.30	0.35	0.33	0.03
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.31	0.68	0.74	0.58	0.23	0.83	0.81	0.83	0.82	0.01
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	2.5	0.0	<5.0	<5.0	<5.0	2.5	0.0
Thallium (Tl)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0.5	0.0	<1.0	<1.0	<1.0	0.5	0.0
Uranium (U)	mg/kg	2	-	-	<2.0	2.9	2.8	2.2	1.1	4.6	<2.0	5.0	3.5	2.2
Vanadium (V)	mg/kg	1	-	-	44.1	30.8	32.8	35.9	7.2	18.8	23.6	20.9	21.1	2.4
Zinc (Zn)	mg/kg	10	123	315	38	47	50	45	6	33	35	35	34	1
Particle Size														
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	55.0	5.0	16.0	25.3	26.3	3.0	15.0	5.0	7.7	6.4
% Silt (0.05 mm - 2 um)	%	1	-	-	35.0	79.0	69.0	61.0	23.1	76.0	66.0	74.0	72.0	5.3
% Clay (< 2 um)	%	1	-	-	9.0	16.0	15.0	13.3	3.8	21.0	19.0	21.0	20.3	1.2
Texture	-	-	-	-	Sandy loam	Silt loam	Silt loam	-	-	Silt loam	Silt loam	Silt loam	-	-
Radionuclides					**Composite**					**Composite**				
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.16			-	-	0.44			-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.04			-	-	<0.01			-	-
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03			-	-	<0.03			-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02			-	-	0.02			-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02			-	-	0.03			-	-
Rare Earth Elements					**Composite**					**Composite**				
Cerium (Ce)	µg/g	0.05	-	-	53			-	-	36			-	-
Dysprosium (Dy)	µg/g	0.05	-	-	2.2			-	-	1.7			-	-
Erbium (Er)	µg/g	0.05	-	-	0.96			-	-	0.74			-	-
Europium (Eu)	µg/g	0.05	-	-	0.76			-	-	0.54			-	-
Gadolinium (Gd)	µg/g	0.05	-	-	3.9			-	-	2.9			-	-
Hafnium (Hf)	µg/g	0.1	-	-	<0.1			-	-	<0.1			-	-
Holmium (Ho)	µg/g	0.05	-	-	0.36			-	-	0.27			-	-
Lanthanum (La)	µg/g	0.05	-	-	26			-	-	18			-	-

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		EL-01 30-Sep-09					EL-02 29-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Neodymium (Nd)	µg/g	0.05	-	-		24		-	-		18		-	-
Niobium (Nb)	µg/g	0.1	-	-		0.3		-	-		0.2		-	-
Praseodymium (Pr)	µg/g	0.05	-	-		6.2		-	-		4.4		-	-
Samarium (Sm)	µg/g	0.05	-	-		4.5		-	-		3.4		-	-
Tantalum (Ta)	µg/g	0.1	-	-		<0.1		-	-		<0.1		-	-
Terbium (Tb)	µg/g	0.05	-	-		0.46		-	-		0.35		-	-
Thulium ‘(Tm)	µg/g	0.05	-	-		0.12		-	-		0.09		-	-
Ytterbium (Yb)	µg/g	0.05	-	-		0.75		-	-		0.58		-	-
Yttrium (Y)	µg/g	0.05	-	-		9.6		-	-		7.2		-	-
Zirconium (Zr)	µg/g	0.1	-	-		3.4		-	-		1.8		-	-

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-3

Fred Lake (FL-01) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		FL-01
			ISQG[c]	PEL[d]	5-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	0.15
Total Organic Carbon	mg/kg	0.1	-	-	30.6
CaCO3 Equivalent	mg/kg	0.7	-	-	2.25
Total Carbon (by combustion)	mg/kg	0.1	-	-	30.7
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	2.75
Total Phosphorus	mg/kg	90	-	-	920
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	4.66
Barium (Ba)	mg/kg	5	-	-	163
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	2.4
Chromium (Cr)	mg/kg	0.5	37.3	90.0	9.35
Copper (Cu)	mg/kg	2	35.7	197.0	12.8
Molybdenum (Mo)	mg/kg	1	-	-	9.6
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	9.1
Lead (Pb)	mg/kg	5	35.0	91.3	<5.0
Antimony (Sb)	mg/kg	0.2	-	-	0.21
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.56
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	4.9
Vanadium (V)	mg/kg	1	-	-	12.2
Zinc (Zn)	mg/kg	10	123	315	34
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	16.0
% Silt (0.05 mm - 2 um)	%	1	-	-	52.0
% Clay (< 2 um)	%	1	-	-	32.0
Texture	-	-	-	-	Silty clay loam
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.64
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.02
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	20
Dysprosium (Dy)	µg/g	0.05	-	-	1.1
Erbium (Er)	µg/g	0.05	-	-	0.43
Europium (Eu)	µg/g	0.05	-	-	0.36
Gadolinium (Gd)	µg/g	0.05	-	-	1.8
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.16
Lanthanum (La)	µg/g	0.05	-	-	10
Neodymium (Nd)	µg/g	0.05	-	-	10

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		FL-01
			ISQG[c]	PEL[d]	5-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.5
Praseodymium (Pr)	µg/g	0.05	-	-	2.5
Samarium (Sm)	µg/g	0.05	-	-	1.9
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.22
Thulium '(Tm)	µg/g	0.05	-	-	0.05
Ytterbium (Yb)	µg/g	0.05	-	-	0.34
Yttrium (Y)	µg/g	0.05	-	-	4.5
Zirconium (Zr)	µg/g	0.1	-	-	2.2

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-4

Cressy Lake (FL-02) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		Cressy 8-Sep-09	
			ISQG[c]	PEL[d]	FL-02	Replicate
Organics & Nutrients						
Inorganic Carbon	mg/kg	0.1	-	-	0.11	-
Total Organic Carbon	mg/kg	0.1	-	-	32.5	-
CaCO3 Equivalent	mg/kg	0.7	-	-	1.79	-
Total Carbon (by combustion)	mg/kg	0.1	-	-	32.6	-
Total Kjeldahl Nitrogen	%	0.02	-	-	2.99	-
Total Phosphorus	mg/kg	90	-	-	1210	-
Total Metals						
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.111	-
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0	-
Arsenic (As)	mg/kg	0.2	5.9	17.0	**33.90**	-
Barium (Ba)	mg/kg	5	-	-	109	-
Beryllium (Be)	mg/kg	1	-	-	2.0	-
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	-
Cobalt (Co)	mg/kg	1	-	-	4.2	-
Chromium (Cr)	mg/kg	0.5	37.3	90.0	13.0	-
Copper (Cu)	mg/kg	2	35.7	197.0	34.3	-
Molybdenum (Mo)	mg/kg	1	-	-	13.1	-
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	12.0	-
Lead (Pb)	mg/kg	5	35.0	91.3	7.2	-
Antimony (Sb)	mg/kg	0.2	-	-	0.47	-
Selenium (Se)	mg/kg	0.2	5.0[e]	-	1.70	-
Tin (Sn)	mg/kg	5	-	-	<5.0	-
Thallium (Tl)	mg/kg	1	-	-	<1.0	-
Uranium (U)	mg/kg	2	-	-	23.6	-
Vanadium (V)	mg/kg	1	-	-	25.2	-
Zinc (Zn)	mg/kg	10	123	315	**374**	-
Particle Size						
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	3.0	-
% Silt (0.05 mm - 2 um)	%	1	-	-	42.0	-
% Clay (< 2 um)	%	1	-	-	54.0	-
Texture	-	-	-	-	Silty clay	-
Radionuclides					**Composite**	**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.88	0.6
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.05	0.02
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	<0.04	<0.03
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.02	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02	<0.02
Rare Earth Elements					**Composite**	**Composite**
Cerium (Ce)	µg/g	0.05	-	-	61	60
Dysprosium (Dy)	µg/g	0.05	-	-	5.2	5
Erbium (Er)	µg/g	0.05	-	-	1.8	1.7
Europium (Eu)	µg/g	0.05	-	-	1.6	1.6
Gadolinium (Gd)	µg/g	0.05	-	-	8.9	8.6
Hafnium (Hf)	µg/g	0.1	-	-	<0.1	0.1
Holmium (Ho)	µg/g	0.05	-	-	0.73	0.71
Lanthanum (La)	µg/g	0.05	-	-	33	32
Neodymium (Nd)	µg/g	0.05	-	-	43	42

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		Cressy 8-Sep-09	
			ISQG[c]	PEL[d]	FL-02	Replicate
Niobium (Nb)	µg/g	0.1	-	-	0.6	0.7
Praseodymium (Pr)	µg/g	0.05	-	-	9.7	9.5
Samarium (Sm)	µg/g	0.05	-	-	9.5	9.4
Tantalum (Ta)	µg/g	0.1	-	-	<0.1	<0.1
Terbium (Tb)	µg/g	0.05	-	-	1.1	1.1
Thulium '(Tm)	µg/g	0.05	-	-	0.2	0.19
Ytterbium (Yb)	µg/g	0.05	-	-	1.1	1.1
Yttrium (Y)	µg/g	0.05	-	-	22	20
Zirconium (Zr)	µg/g	0.1	-	-	2.9	5

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-5

Lake A (FL-03) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		FL-03
			ISQG[d]	PEL[e]	20-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	7.89
CaCO3 Equivalent	mg/kg	0.7	-	-	0.91
Total Carbon (by combustion)	mg/kg	0.1	-	-	7.9
Total Kjeldahl Nitrogen	%	0.02	-	-	0.62
Total Phosphorus	mg/kg	90	-	-	779
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.087
Silver (Ag)	mg/kg	2	0.5[f]	-	<2.0
Arsenic (As)	mg/kg	0.4	5.9	17.0	5.38
Barium (Ba)	mg/kg	10	-	-	225
Beryllium (Be)	mg/kg	2	-	-	<2.0
Cadmium (Cd)	mg/kg	1	0.6	3.5	<1.0
Cobalt (Co)	mg/kg	2	-	-	10.1
Chromium (Cr)	mg/kg	1	37.3	90.0	33.4
Copper (Cu)	mg/kg	4	35.7	197.0	30.7
Molybdenum (Mo)	mg/kg	2	-	-	<2.0
Nickel (Ni)	mg/kg	4	16.0[g]	75.0[h]	**22.5**
Lead (Pb)	mg/kg	10	35.0	91.3	10
Antimony (Sb)	mg/kg	0.4	-	-	<0.40
Selenium (Se)	mg/kg	0.4	5.0[f]	-	0.43
Tin (Sn)	mg/kg	10	-	-	<10
Thallium (Tl)	mg/kg	2	-	-	<2.0
Uranium (U)	mg/kg	4	-	-	<4.0
Vanadium (V)	mg/kg	2	-	-	43.2
Zinc (Zn)	mg/kg	20	123	315	83
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	1.0
% Silt (0.05 mm - 2 um)	%	1	-	-	73.0
% Clay (< 2 um)	%	1	-	-	26.0
Texture	-	-	-	-	Silt loam
Polycyclic Aromatic Hydrocarbons (PAHs)					**Composite**
% Moisture	%	0.1	-		81.1
Acenaphthene	µg/g	0.3	0.00671	0.0889	<0.30
Acenaphthylene	µg/g	0.3	0.00587	0.128	<0.30
Anthracene	µg/g	0.3	0.0469	0.245	<0.30
Benz(a)anthracene	µg/g	0.3	0.0317	0.385	<0.30
Benzo(a)pyrene	µg/g	0.3	0.0319	0.782	<0.30
Benzo(b&j)fluoranthene	µg/g	0.3	-	-	<0.30
Benzo(g,h,i)perylene	µg/g	0.3	0.17[g]	3.2[h]	<0.30
Benzo(k)fluoranthene	µg/g	0.3	0.24[g]	13.4[i]	<0.30
Chrysene	µg/g	0.3	0.0571	0.862	<0.30
Dibenz(a,h)anthracene	µg/g	0.3	0.00622	0.135	<0.30
Fluoranthene	µg/g	0.3	0.111	2.355	<0.30
Fluorene	µg/g	0.3	0.0212	0.144	<0.30
Indeno(1,2,3-c,d)pyrene	µg/g	0.3	0.2[g]	3.2[i]	<0.30
2-Methylnaphthalene	µg/g	0.3	0.0202	0.201	<0.30
Naphthalene	µg/g	0.3	0.0346	0.391	<0.30

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		FL-03
			ISQG[d]	PEL[e]	20-Sep-09
Phenanthrene	µg/g	0.3	0.0419	0.515	<0.30
Pyrene	µg/g	0.3	0.053	0.875	<0.30
Surrogate: Nitrobenezene d5	%	1	-	-	47
Surrogate: 2-Fluorobiphenyl	%	1	-	-	57
Surrogate: p-Terphenyl d14	%	1	-	-	62
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.16
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.06
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.05
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.08
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	80
Dysprosium (Dy)	µg/g	0.05	-	-	2.9
Erbium (Er)	µg/g	0.05	-	-	1.4
Europium (Eu)	µg/g	0.05	-	-	1
Gadolinium (Gd)	µg/g	0.05	-	-	5.1
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.47
Lanthanum (La)	µg/g	0.05	-	-	38
Neodymium (Nd)	µg/g	0.05	-	-	34
Niobium (Nb)	µg/g	0.1	-	-	0.4
Praseodymium (Pr)	µg/g	0.05	-	-	8.8
Samarium (Sm)	µg/g	0.05	-	-	6
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.6
Thulium '(Tm)	µg/g	0.05	-	-	0.17
Ytterbium (Yb)	µg/g	0.05	-	-	1.1
Yttrium (Y)	µg/g	0.05	-	-	13
Zirconium (Zr)	µg/g	0.1	-	-	5.5

Notes:

[a] D.L. = Detection Limit

[b] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[c] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[d] ISQG = Interim Sediment Quality Guidelines

[e] PEL = Probable Effects Level

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] BCWSQ SEL when sediment contains 1% organic carbon

[j] **Bolded** result implies ISQG exceedance

[k] **Bolded & shaded** result implies PEL exceedance

Table G2-6

Great Slave Lake (GL-01) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		GL-01
			ISQG[c]	PEL[d]	30-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	0.11
Total Organic Carbon	mg/kg	0.1	-	-	2.24
CaCO3 Equivalent	mg/kg	0.7	-	-	1.43
Total Carbon (by combustion)	mg/kg	0.1	-	-	2.4
Total Kjeldahl Nitrogen	%	0.02	-	-	0.31
Total Phosphorus	mg/kg	90	-	-	553
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	4.65
Barium (Ba)	mg/kg	5	-	-	135
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	7.4
Chromium (Cr)	mg/kg	0.5	37.3	90.0	18.3
Copper (Cu)	mg/kg	2	35.7	197.0	26.9
Molybdenum (Mo)	mg/kg	1	-	-	<1.0
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	**22.6**
Lead (Pb)	mg/kg	5	35.0	91.3	6.1
Antimony (Sb)	mg/kg	0.2	-	-	0.53
Selenium (Se)	mg/kg	0.2	5.0[e]	-	1.34
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	3.3
Vanadium (V)	mg/kg	1	-	-	42.2
Zinc (Zn)	mg/kg	10	123	315	46
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	57.0
% Silt (0.05 mm - 2 um)	%	1	-	-	31.0
% Clay (< 2 um)	%	1	-	-	12.0
Texture	-	-	-	-	Sandy loam

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-7

Long Lake (LL-02) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009 11-Sep-09	September 2010 LL-02 2-Sep-10					LL-02 Replicate 2-Sep-10				
			ISQG[c]	PEL[d]	LL-02	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Organics & Nutrients															
Inorganic Carbon	mg/kg	0.1	-	-	0.2	0.15	0.12	0.13	0.13	0.02	0.11	0.11	0.11	0.11	0.00
Total Organic Carbon	mg/kg	0.1	-	-	19.9	18.4	19.2	16.8	18.1	1.2	19.7	19.7	18.5	19.3	0.7
CaCO3 Equivalent	mg/kg	0.7	-	-	2.11	1.40	1.17	1.21	1.26	0.12	1.02	1.09	1.05	1.05	0.04
Total Carbon (by combustion)	mg/kg	0.1	-	-	20	18.6	19.3	16.9	18.3	1.2	19.8	19.9	18.6	19.4	0.7
Total Kjeldahl Nitrogen	%	0.02	-	-	2	1.87	1.90	1.66	1.81	0.13	1.96	2.01	1.85	1.94	0.08
Total Phosphorus	mg/kg	90	-	-	1390	1190	1160	1030	1127	85	1320	1320	1230	1290	52
Total Metals															
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.097	0.091	0.064	0.069	0.075	0.014	0.110	0.117	0.094	0.107	0.012
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0	<1.0	<1.0	<1.0	0.5	0.0	<1.0	<1.0	<1.0	0.5	0.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**9.07**	**13.00**	**6.64**	**7.57**	**9.07**	3.44	**13.00**	**18.70**	**9.55**	**13.75**	4.62
Barium (Ba)	mg/kg	5	-	-	171	235	158	181	191	40	229	330	178	246	77
Beryllium (Be)	mg/kg	1	-	-	<1.0	<1.0	<1.0	<1.0	0.5	0.0	<1.0	<1.0	<1.0	0.5	0.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	<0.50	0.25	0.00	<0.50	<0.50	0.50	0.33	0.14
Cobalt (Co)	mg/kg	1	-	-	10.3	10.1	11.5	12.8	11.5	1.4	10.0	9.0	12.3	10.4	1.7
Chromium (Cr)	mg/kg	0.5	37.3	90.0	21.5	32.5	**45.1**	**72.1**	**49.9**	**20.2**	**45.3**	22.2	**50.4**	39.3	15.0
Copper (Cu)	mg/kg	2	35.7	197.0	**53.1**	**57.1**	**53.3**	**58.8**	**56.4**	**2.8**	**57.8**	**56.3**	**57.4**	57.2	0.8
Molybdenum (Mo)	mg/kg	1	-	-	44.8	36.4	34.4	29.1	33.3	3.8	38.6	34.4	37.3	36.8	2.2
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	**25.8**	**35.2**	**36.3**	**51.3**	**40.9**	**9.0**	**42.2**	**31.4**	**40.8**	38.1	5.9
Lead (Pb)	mg/kg	5	35.0	91.3	8.8	10.4	7.1	7.9	8.5	1.7	10.9	10.6	18.2	13.2	4.3
Antimony (Sb)	mg/kg	0.2	-	-	0.51	0.64	0.34	0.38	0.45	0.16	0.69	0.69	0.39	0.59	0.17
Selenium (Se)	mg/kg	0.2	5.0[e]	-	1.28	1.42	1.33	1.47	1.41	0.07	1.46	1.51	1.50	1.49	0.03
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	<5.0	2.5	0.0	<5.0	<5.0	<5.0	2.5	0.0
Thallium (Tl)	mg/kg	1	-	-	<1.0	<0.50	<0.50	<0.50	0.3	0.0	<0.50	<0.50	<0.50	0.3	0.0
Uranium (U)	mg/kg	2	-	-	19.3	9.6	13.3	10.5	11.1	1.9	10.1	8.0	10.5	9.5	1.3
Vanadium (V)	mg/kg	1	-	-	35.7	41.0	36.4	38.1	38.5	2.3	41.9	39.5	38.8	40.1	1.6
Zinc (Zn)	mg/kg	10	123	315	69	77	74	83	78	5	77	73	80	77	4
Particle Size															
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	7.0	39.7	83.6	83.6	69.0	25.3	48.0	66.0	64.8	59.6	10.1
% Silt (0.05 mm - 2 um)	%	1	-	-	53.0	54.6	13.1	13.7	27.1	23.8	45.1	28.0	32.9	35.3	8.8
% Clay (< 2 um)	%	1	-	-	40.00	5.74	3.25	2.76	3.92	1.60	6.87	6.02	2.30	5.06	2.43
Texture	-	-	-	-	Silty clay loam	Silt loam	Loamy sand	Loamy sand	-	-	Sandy loam	Sandy loam	Sandy loam	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)					**Composite**										
% Moisture	%	0.1	-		95.1	-					-				
Acenaphthene	µg/g	1	0.00671	0.0889	<1.0	-					-				
Acenaphthylene	µg/g	1	0.00587	0.128	<1.0	-					-				
Anthracene	µg/g	1	0.0469	0.245	<1.0	-					-				
Benz(a)anthracene	µg/g	1	0.0317	0.385	<1.0	-					-				
Benzo(a)pyrene	µg/g	1	0.0319	0.782	<1.0	-					-				
Benzo(b&j)fluoranthene	µg/g	1	-	-	<1.0	-					-				
Benzo(g,h,i)perylene	µg/g	1	0.17[f]	3.2[g]	<1.0	-					-				
Benzo(k)fluoranthene	µg/g	1	0.24[f]	13.4[h]	<1.0	-					-				
Chrysene	µg/g	1	0.0571	0.862	<1.0	-					-				
Dibenz(a,h)anthracene	µg/g	1	0.00622	0.135	<1.0	-					-				
Fluoranthene	µg/g	1	0.111	2.355	<1.0	-					-				
Fluorene	µg/g	1	0.0212	0.144	<1.0	-					-				
Indeno(1,2,3-c,d)pyrene	µg/g	1	0.2[f]	3.2[h]	<1.0	-					-				

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009 11-Sep-09	September 2010									
						LL-02 2-Sep-10					LL-02 Replicate 2-Sep-10				
			ISQG[c]	PEL[d]	LL-02	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
2-Methylnaphthalene	µg/g	1	0.0202	0.201	<1.0	-					-				
Naphthalene	µg/g	1	0.0346	0.391	<1.0	-					-				
Phenanthrene	µg/g	1	0.0419	0.515	<1.0	-					-				
Pyrene	µg/g	1	0.053	0.875	<1.0	-					-				
Surrogate: Nitrobenezene d5	%	1	-	-	50	-					-				
Surrogate: 2-Fluorobiphenyl	%	1	-	-	58	-					-				
Surrogate: p-Terphenyl d14	%	1	-	-	78	-					-				
Radionuclides					**Composite**										
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.14	-					-				
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.02	-					-				
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	0.04	-					-				
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.04	-					-				
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.04	-					-				
Rare Earth Elements					**Composite**										
Cerium (Ce)	µg/g	0.05	-	-	59	-					-				
Dysprosium (Dy)	µg/g	0.05	-	-	3	-					-				
Erbium (Er)	µg/g	0.05	-	-	1.4	-					-				
Europium (Eu)	µg/g	0.05	-	-	0.96	-					-				
Gadolinium (Gd)	µg/g	0.05	-	-	4.8	-					-				
Hafnium (Hf)	µg/g	0.1	-	-	<0.1	-					-				
Holmium (Ho)	µg/g	0.05	-	-	0.48	-					-				
Lanthanum (La)	µg/g	0.05	-	-	29	-					-				
Neodymium (Nd)	µg/g	0.05	-	-	28	-					-				
Niobium (Nb)	µg/g	0.1	-	-	0.4	-					-				
Praseodymium (Pr)	µg/g	0.05	-	-	7.1	-					-				
Samarium (Sm)	µg/g	0.05	-	-	5.5	-					-				
Tantalum (Ta)	µg/g	0.1	-	-	<0.1	-					-				
Terbium (Tb)	µg/g	0.05	-	-	0.6	-					-				
Thulium '(Tm)	µg/g	0.05	-	-	0.17	-					-				
Ytterbium (Yb)	µg/g	0.05	-	-	1.1	-					-				
Yttrium (Y)	µg/g	0.05	-	-	13	-					-				
Zirconium (Zr)	µg/g	0.1	-	-	5.5	-					-				

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] BCWSQ SEL when sediment contains 1% organic carbon

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

[k] Replicate result where precision threshold (CV > 20%) was exceeded (when all results > 5 times detection limit)

Table G2-8

North Tardiff Lake (NT-01) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		NT-01
			ISQG[d]	PEL[e]	13-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	38.4
CaCO3 Equivalent	mg/kg	0.7	-	-	0.99
Total Carbon (by combustion)	mg/kg	0.1	-	-	38.4
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	3.11
Total Phosphorus	mg/kg	90	-	-	755
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.057
Silver (Ag)	mg/kg	2	0.5[f]	-	<2.0
Arsenic (As)	mg/kg	0.4	5.9	17.0	3.07
Barium (Ba)	mg/kg	10	-	-	114
Beryllium (Be)	mg/kg	2	-	-	<2.0
Cadmium (Cd)	mg/kg	1	0.6	3.5	<1.0
Cobalt (Co)	mg/kg	2	-	-	3.6
Chromium (Cr)	mg/kg	1	37.3	90.0	9.8
Copper (Cu)	mg/kg	4	35.7	197.0	16.2
Molybdenum (Mo)	mg/kg	2	-	-	2.1
Nickel (Ni)	mg/kg	4	16.0[g]	75.0[h]	11.0
Lead (Pb)	mg/kg	10	35.0	91.3	<10
Antimony (Sb)	mg/kg	0.4	-	-	<0.40
Selenium (Se)	mg/kg	0.4	5.0[f]	-	0.99
Tin (Sn)	mg/kg	10	-	-	<10
Thallium (Tl)	mg/kg	2	-	-	<2.0
Uranium (U)	mg/kg	4	-	-	7.0
Vanadium (V)	mg/kg	2	-	-	15.3
Zinc (Zn)	mg/kg	20	123	315	88
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	7.0
% Silt (0.05 mm - 2 um)	%	1	-	-	49.0
% Clay (< 2 um)	%	1	-	-	44.0
Texture	-	-	-	-	Silty clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.13
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.02
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	<0.04
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	19
Dysprosium (Dy)	µg/g	0.05	-	-	0.82
Erbium (Er)	µg/g	0.05	-	-	0.36
Europium (Eu)	µg/g	0.05	-	-	0.29
Gadolinium (Gd)	µg/g	0.05	-	-	1.3
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.13
Lanthanum (La)	µg/g	0.05	-	-	9.7
Neodymium (Nd)	µg/g	0.05	-	-	8.8

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		NT-01
			ISQG[d]	PEL[e]	13-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.3
Praseodymium (Pr)	µg/g	0.05	-	-	2.3
Samarium (Sm)	µg/g	0.05	-	-	1.6
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.16
Thulium '(Tm)	µg/g	0.05	-	-	<0.05
Ytterbium (Yb)	µg/g	0.05	-	-	0.3
Yttrium (Y)	µg/g	0.05	-	-	3.3
Zirconium (Zr)	µg/g	0.1	-	-	1.2

Notes:

[a] D.L. = Detection Limit

[b] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[c] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[d] ISQG = Interim Sediment Quality Guidelines

[e] PEL = Probable Effects Level

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-9

South Tardiff Lake (ST-01) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		ST-01
			ISQG[c]	PEL[d]	13-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	41.2
CaCO3 Equivalent	mg/kg	0.7	-	-	1.02
Total Carbon (by combustion)	mg/kg	0.1	-	-	41.2
Total Kjeldahl Nitrogen	mg/kg	0.02	-	-	3.41
Total Phosphorus	mg/kg	90	-	-	796
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.078
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	4.17
Barium (Ba)	mg/kg	5	-	-	104
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	2.5
Chromium (Cr)	mg/kg	0.5	37.3	90.0	6.96
Copper (Cu)	mg/kg	2	35.7	197.0	14.2
Molybdenum (Mo)	mg/kg	1	-	-	2.9
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	9.7
Lead (Pb)	mg/kg	5	35.0	91.3	<5.0
Antimony (Sb)	mg/kg	0.2	-	-	0.25
Selenium (Se)	mg/kg	0.2	5.0[e]	-	1.12
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	21.9
Vanadium (V)	mg/kg	1	-	-	9.2
Zinc (Zn)	mg/kg	10	123	315	65
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	9.0
% Silt (0.05 mm - 2 um)	%	1	-	-	39.0
% Clay (< 2 um)	%	1	-	-	51.0
Texture	-	-	-	-	Silty clay / Clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.42
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.03
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	<0.04
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.04
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	15
Dysprosium (Dy)	µg/g	0.05	-	-	0.7
Erbium (Er)	µg/g	0.05	-	-	0.32
Europium (Eu)	µg/g	0.05	-	-	0.23
Gadolinium (Gd)	µg/g	0.05	-	-	1.2
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.11
Lanthanum (La)	µg/g	0.05	-	-	7.8
Neodymium (Nd)	µg/g	0.05	-	-	7.2

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		ST-01
			ISQG[c]	PEL[d]	13-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.4
Praseodymium (Pr)	µg/g	0.05	-	-	1.8
Samarium (Sm)	µg/g	0.05	-	-	1.3
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.14
Thulium '(Tm)	µg/g	0.05	-	-	<0.05
Ytterbium (Yb)	µg/g	0.05	-	-	0.25
Yttrium (Y)	µg/g	0.05	-	-	2.8
Zirconium (Zr)	µg/g	0.1	-	-	0.9

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-10 **Thorn Lake (TL-03) Baseline Sediment Chemistry**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		TL-03 23-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Organics & Nutrients									
Inorganic Carbon	mg/kg	0.1	-	-	0.17	0.14	0.12	0.14	0.03
Total Organic Carbon	mg/kg	0.1	-	-	30.2	30.6	31.2	30.7	0.5
CaCO3 Equivalent	mg/kg	0.7	-	-	1.69	1.56	1.32	1.52	0.19
Total Carbon (by combustion)	mg/kg	0.1	-	-	30.4	30.8	31.3	30.8	0.5
Total Kjeldahl Nitrogen	%	0.02	-	-	2.58	2.71	2.73	2.67	0.08
Total Phosphorus	mg/kg	90	-	-	1160	937	1200	1099	142
Total Metals									
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.071	0.078	0.081	0.077	0.005
Silver (Ag)	mg/kg	1	0.5[f]	-	<1.0	<1.0	<2.0	0.7	0.3
Arsenic (As)	mg/kg	0.2	5.9	17.0	**9.91**	**8.93**	**9.13**	**9.32**	0.52
Barium (Ba)	mg/kg	5	-	-	149	152	137	146	8
Beryllium (Be)	mg/kg	1	-	-	<1.0	<1.0	<2.0	0.7	0.3
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<1.0	0.33	0.14
Cobalt (Co)	mg/kg	1	-	-	7.0	6.8	6.6	6.8	0.2
Chromium (Cr)	mg/kg	0.5	37.3	90.0	15.3	14.3	13.4	14.3	1.0
Copper (Cu)	mg/kg	2	35.7	197.0	33.0	34.8	31.6	33.1	1.6
Molybdenum (Mo)	mg/kg	1	-	-	10.5	9.7	11.8	10.7	1.1
Nickel (Ni)	mg/kg	2	16.0[g]	75.0[h]	**17.3**	**16.1**	**16.6**	**16.7**	0.6
Lead (Pb)	mg/kg	5	35.0	91.3	6.2	6.8	<10	6.0	0.9
Antimony (Sb)	mg/kg	0.2	-	-	0.55	0.70	0.63	0.63	0.08
Selenium (Se)	mg/kg	0.2	5.0[f]	-	1.05	1.13	1.01	1.06	0.06
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<10	3.3	1.4
Thallium (Tl)	mg/kg	1	-	-	<1.0	<1.0	<2.0	0.7	0.3
Uranium (U)	mg/kg	2	-	-	3.8	3.9	<4.0	3.2	1.1
Vanadium (V)	mg/kg	1	-	-	28.5	28.1	26.5	27.7	1.1
Zinc (Zn)	mg/kg	10	123	315	63	67	65	65	2
Particle Size									
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	4.0	12.0	2.0	6.0	5.3
% Silt (0.05 mm - 2 um)	%	1	-	-	53.0	31.0	49.0	44.3	11.7
% Clay (< 2 um)	%	1	-	-	43.0	58.0	49.0	50.0	7.5
Texture	-	-	-	-	Silty clay	Clay	Silty clay	-	-
Radionuclides					**Composite**				
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.37			-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.03			-	-
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03			-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02			-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.02			-	-
Rare Earth Elements					**Composite**				
Cerium (Ce)	µg/g	0.05	-	-	39			-	-
Dysprosium (Dy)	µg/g	0.05	-	-	1.90			-	-
Erbium (Er)	µg/g	0.05	-	-	0.78			-	-
Europium (Eu)	µg/g	0.05	-	-	0.58			-	-
Gadolinium (Gd)	µg/g	0.05	-	-	3.1			-	-
Hafnium (Hf)	µg/g	0.1	-	-	<0.1			-	-
Holmium (Ho)	µg/g	0.05	-	-	0.28			-	-
Lanthanum (La)	µg/g	0.05	-	-	19			-	-
Neodymium (Nd)	µg/g	0.05	-	-	18			-	-
Niobium (Nb)	µg/g	0.1	-	-	0.5			-	-
Praseodymium (Pr)	µg/g	0.05	-	-	4.70			-	-
Samarium (Sm)	µg/g	0.05	-	-	3.40			-	-
Tantalum (Ta)	µg/g	0.1	-	-	<0.1			-	-
Terbium (Tb)	µg/g	0.05	-	-	0.39			-	-
Thulium '(Tm)	µg/g	0.05	-	-	0.10			-	-
Ytterbium (Yb)	µg/g	0.05	-	-	0.60			-	-
Yttrium (Y)	µg/g	0.05	-	-	7.70			-	-
Zirconium (Zr)	µg/g	0.1	-	-	4.1			-	-

Notes:

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		TL-03 23-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-11

Ring Lake (TL-04) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		TL-04
			ISQG[d]	PEL[e]	9-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	33.4
CaCO3 Equivalent	mg/kg	0.7	-	-	1.11
Total Carbon (by combustion)	mg/kg	0.1	-	-	33.4
Total Kjeldahl Nitrogen	%	0.02	-	-	2.92
Total Phosphorus	mg/kg	90	-	-	950
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.054
Silver (Ag)	mg/kg	2	0.5[f]	-	<2.0
Arsenic (As)	mg/kg	0.4	5.9	17.0	**10.80**
Barium (Ba)	mg/kg	10	-	-	87
Beryllium (Be)	mg/kg	2	-	-	<2.0
Cadmium (Cd)	mg/kg	1	0.6	3.5	<1.0
Cobalt (Co)	mg/kg	2	-	-	3.2
Chromium (Cr)	mg/kg	1	37.3	90.0	6.9
Copper (Cu)	mg/kg	4	35.7	197.0	25.7
Molybdenum (Mo)	mg/kg	2	-	-	14.3
Nickel (Ni)	mg/kg	4	16.0[g]	75.0[h]	10.1
Lead (Pb)	mg/kg	10	35.0	91.3	<10
Antimony (Sb)	mg/kg	0.4	-	-	0.68
Selenium (Se)	mg/kg	0.4	5.0[f]	-	0.95
Tin (Sn)	mg/kg	10	-	-	<10
Thallium (Tl)	mg/kg	2	-	-	<2.0
Uranium (U)	mg/kg	4	-	-	<4.0
Vanadium (V)	mg/kg	2	-	-	14.6
Zinc (Zn)	mg/kg	20	123	315	91
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	1.0
% Silt (0.05 mm - 2 um)	%	1	-	-	37.0
% Clay (< 2 um)	%	1	-	-	62.0
Texture	-	-	-	-	Clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.20
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.01
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	19
Dysprosium (Dy)	µg/g	0.05	-	-	1.5
Erbium (Er)	µg/g	0.05	-	-	0.56
Europium (Eu)	µg/g	0.05	-	-	0.51
Gadolinium (Gd)	µg/g	0.05	-	-	2.6
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.22
Lanthanum (La)	µg/g	0.05	-	-	11
Neodymium (Nd)	µg/g	0.05	-	-	13

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		TL-04
			ISQG[d]	PEL[e]	9-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.4
Praseodymium (Pr)	µg/g	0.05	-	-	3.1
Samarium (Sm)	µg/g	0.05	-	-	2.8
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.31
Thulium '(Tm)	µg/g	0.05	-	-	0.07
Ytterbium (Yb)	µg/g	0.05	-	-	0.43
Yttrium (Y)	µg/g	0.05	-	-	6.2
Zirconium (Zr)	µg/g	0.1	-	-	3.5

Notes:

[a] D.L. = Detection Limit

[b] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[c] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[d] ISQG = Interim Sediment Quality Guidelines

[e] PEL = Probable Effects Level

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-12

Megan Lake (TL-05) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		TL-05
			ISQG[c]	PEL[d]	14-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	4.03
Total Organic Carbon	mg/kg	0.1	-	-	24.7
CaCO3 Equivalent	mg/kg	0.7	-	-	33.9
Total Carbon (by combustion)	mg/kg	0.1	-	-	28.7
Total Kjeldahl Nitrogen	%	0.02	-	-	2.08
Total Phosphorus	mg/kg	90	-	-	819
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.061
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**13.80**
Barium (Ba)	mg/kg	5	-	-	665
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	2.7
Chromium (Cr)	mg/kg	0.5	37.3	90.0	6.50
Copper (Cu)	mg/kg	2	35.7	197.0	15.2
Molybdenum (Mo)	mg/kg	1	-	-	4.3
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	8.6
Lead (Pb)	mg/kg	5	35.0	91.3	6.1
Antimony (Sb)	mg/kg	0.2	-	-	0.44
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.82
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	<2.0
Vanadium (V)	mg/kg	1	-	-	11.9
Zinc (Zn)	mg/kg	10	123	315	32
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	11.0
% Silt (0.05 mm - 2 um)	%	1	-	-	62.0
% Clay (< 2 um)	%	1	-	-	27.0
Texture	-	-	-	-	Silt loam / Silty clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.91
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	<0.01
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	<0.04
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	8.7
Dysprosium (Dy)	µg/g	0.05	-	-	0.64
Erbium (Er)	µg/g	0.05	-	-	0.25
Europium (Eu)	µg/g	0.05	-	-	0.33
Gadolinium (Gd)	µg/g	0.05	-	-	0.96
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.09
Lanthanum (La)	µg/g	0.05	-	-	4.3

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		TL-05
			ISQG[c]	PEL[d]	14-Sep-09
Neodymium (Nd)	µg/g	0.05	-	-	4.7
Niobium (Nb)	µg/g	0.1	-	-	0.1
Praseodymium (Pr)	µg/g	0.05	-	-	1.1
Samarium (Sm)	µg/g	0.05	-	-	0.99
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.12
Thulium '(Tm)	µg/g	0.05	-	-	<0.05
Ytterbium (Yb)	µg/g	0.05	-	-	0.21
Yttrium (Y)	µg/g	0.05	-	-	2.7
Zirconium (Zr)	µg/g	0.1	-	-	0.9

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-13

Thor Lake (TL-06 & TL-07) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009 5-Sep-09		TL-06 1-Sep-10			
			ISQG[c]	PEL[d]	TL-06	TL-07	Replicate 1	Replicate 2	Replicate 3	Mean
Organics & Nutrients										
Inorganic Carbon	mg/kg	0.1	-	-	0.33	0.14	0.13	0.15	0.22	0.17
Total Organic Carbon	mg/kg	0.1	-	-	21.3	25.2	22.4	20.5	22.6	21.8
CaCO3 Equivalent	mg/kg	0.7	-	-	3.25	2.02	1.26	1.35	1.95	1.52
Total Carbon (by combustion)	mg/kg	0.1	-	-	21.6	25.3	22.5	20.6	22.9	22.0
Total Kjeldahl Nitrogen	%	0.02	-	-	2.36	2.92	2.40	2.17	2.39	2.32
Total Phosphorus	mg/kg	90	-	-	1610	1890	1910	1450	1700	1687
Total Metals										
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.053	<0.050	0.061	0.055	0.058	0.058
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0	<1.0	<1.0	<1.0	<1.0	0.5
Arsenic (As)	mg/kg	0.2	5.9	17.0	**8.51**	**13.20**	**8.17**	**8.21**	**8.75**	**8.38**
Barium (Ba)	mg/kg	5	-	-	126	123	118	121	120	120
Beryllium (Be)	mg/kg	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	0.5
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	<0.50	<0.50	0.25
Cobalt (Co)	mg/kg	1	-	-	5.9	4.5	7.1	7.9	7.8	7.6
Chromium (Cr)	mg/kg	0.5	37.3	90.0	15.0	13.4	30.3	**53.4**	**67.2**	**50.3**
Copper (Cu)	mg/kg	2	35.7	197.0	21.7	16.8	23.5	25.6	26.4	25.2
Molybdenum (Mo)	mg/kg	1	-	-	5.0	2.4	9.0	11.0	12.6	10.9
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	12.9	10.5	**21.3**	**31.6**	**37.0**	**30.0**
Lead (Pb)	mg/kg	5	35.0	91.3	6.5	5.2	6.9	7.5	7.9	7.4
Antimony (Sb)	mg/kg	0.2	-	-	0.49	0.36	0.44	0.55	0.55	0.51
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.80	0.65	0.89	0.82	0.93	0.88
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	2.5
Thallium (Tl)	mg/kg	1	-	-	<1.0	<1.0	<0.50	<0.50	<0.50	0.3
Uranium (U)	mg/kg	2	-	-	3.4	2.2	5.0	6.1	6.0	5.7
Vanadium (V)	mg/kg	1	-	-	25.5	19.1	26.1	28.1	28.4	27.5
Zinc (Zn)	mg/kg	10	123	315	45	60	48	73	55	59
Particle Size										
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	9.0	9.0	45.4	-	48.2	46.8
% Silt (0.05 mm - 2 um)	%	1	-	-	48.00	43.00	48.50	-	49.00	48.75
% Clay (< 2 um)	%	1	-	-	43.00	48.00	6.02	-	2.83	4.43
Texture	-	-	-	-	Silty clay	Silty clay	Sandy loam	-	Silt loam / Sandy loam	-

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009 5-Sep-09		TL-06 1-Sep-10			
			ISQG[c]	PEL[d]	TL-06	TL-07	Replicate 1	Replicate 2	Replicate 3	Mean
Radionuclides					**Composite**	**Composite**				
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.65	0.63	-	-	-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.03	0.04	-	-	-	-
Radium-228 (^{228}Ra)	Bq/g	0.04	-	-	<0.04	<0.04	-	-	-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.03	<0.02	-	-	-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.02	0.04	-	-	-	-
Rare Earth Elements										
Cerium (Ce)	µg/g	0.05	-	-	52	45	-	-	-	-
Dysprosium (Dy)	µg/g	0.05	-	-	2	2	-	-	-	-
Erbium (Er)	µg/g	0.05	-	-	0.86	0.78	-	-	-	-
Europium (Eu)	µg/g	0.05	-	-	0.68	0.64	-	-	-	-
Gadolinium (Gd)	µg/g	0.05	-	-	3.6	3.3	-	-	-	-
Hafnium (Hf)	µg/g	0.1	-	-	<0.1	<0.1	-	-	-	-
Holmium (Ho)	µg/g	0.05	-	-	0.31	0.29	-	-	-	-
Lanthanum (La)	µg/g	0.05	-	-	25	22	-	-	-	-
Neodymium (Nd)	µg/g	0.05	-	-	24	21	-	-	-	-
Niobium (Nb)	µg/g	0.1	-	-	0.5	0.7	-	-	-	-
Praseodymium (Pr)	µg/g	0.05	-	-	6	5.4	-	-	-	-
Samarium (Sm)	µg/g	0.05	-	-	4.2	3.8	-	-	-	-
Tantalum (Ta)	µg/g	0.1	-	-	<0.1	<0.1	-	-	-	-
Terbium (Tb)	µg/g	0.05	-	-	0.43	0.42	-	-	-	-
Thulium '(Tm)	µg/g	0.05	-	-	0.1	0.1	-	-	-	-
Ytterbium (Yb)	µg/g	0.05	-	-	0.67	0.6	-	-	-	-
Yttrium (Y)	µg/g	0.05	-	-	8.5	8	-	-	-	-
Zirconium (Zr)	µg/g	0.1	-	-	2.6	1.7	-	-	-	-

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

September 2010	TL-07 1-Sep-10				
Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
0.05	0.20	0.21	0.18	0.20	0.02
1.2	24.8	24.8	25.5	25.0	0.4
0.38	1.83	1.85	1.70	1.79	0.08
1.2	25.0	25.0	25.7	25.2	0.4
0.13	2.71	2.72	2.85	2.76	0.08
230	1680	1810	1920	1803	120
0.003	0.051	0.052	0.05	0.051	0.001
0.0	<1.0	<1.0	<1.0	0.5	0.0
0.32	**9.27**	**9.48**	**11.40**	**10.05**	1.17
2	112	123	112	116	6
0.0	<1.0	<1.0	<1.0	0.5	0.0
0.00	<0.50	<0.50	<0.50	0.25	0.00
0.4	6.1	6.3	6.3	6.2	0.1
18.6	**43.4**	**37.8**	**55.1**	**45.4**	8.8
1.5	21.3	21.5	21.4	21.4	0.1
1.8	6.8	6.8	7.9	7.2	0.6
8.0	**25.4**	**22.8**	**30.0**	**26.1**	3.6
0.5	6.5	6.5	6.8	6.6	0.2
0.06	2.74	0.45	0.47	1.22	1.32
0.06	0.77	0.84	0.78	0.80	0.04
0.0	<5.0	<5.0	<5.0	2.5	0.0
0.0	<0.50	<0.50	<0.50	0.3	0.0
0.6	5.2	5.4	4.8	5.1	0.3
1.3	22.5	23.1	23.3	23.0	0.4
13	47	51	51	50	2
2.0	33.5	-	-	-	-
0.35	64.80	-	-	-	-
2.26	1.73	-	-	-	-
-	Silt loam	-	-	-	-

September 2010	TL-07 1-Sep-10				
Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

Table G2-14

Wasp Lake (UN-04) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-04 23-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1[e]	Replicate 2	Replicate 3	Mean	Standard Deviation
Organics & Nutrients									
Inorganic Carbon	mg/kg	0.1	-	-	0.13	0.12	<0.10	0.13	0.01
Total Organic Carbon	mg/kg	0.1	-	-	33.5	33.3	32.3	33.0	0.6
CaCO3 Equivalent	mg/kg	0.7	-	-	1.40	1.36	0.84	1.20	0.31
Total Carbon (by combustion)	mg/kg	0.1	-	-	33.6	33.5	32.3	33.1	0.7
Total Kjeldahl Nitrogen	%	0.02	-	-	2.89	2.89	2.82	2.87	0.04
Total Phosphorus	mg/kg	90	-	-	791	759	656	735	71
Total Metals									
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.064	0.052	0.052	0.056	0.007
Silver (Ag)	mg/kg	1	0.5[f]	-	<2.0	<1.0	<1.0	0.7	0.3
Arsenic (As)	mg/kg	0.2	5.9	17.0	**7.43**	5.70	**5.96**	**6.36**	0.93
Barium (Ba)	mg/kg	5	-	-	147	158	143	149	8
Beryllium (Be)	mg/kg	1	-	-	<2.0	<1.0	<1.0	0.7	0.3
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<1.0	<0.50	<0.50	0.33	0.14
Cobalt (Co)	mg/kg	1	-	-	4.7	5.5	5.8	5.3	0.6
Chromium (Cr)	mg/kg	0.5	37.3	90.0	9.2	10.5	10.9	10.2	0.9
Copper (Cu)	mg/kg	2	35.7	197.0	28.4	29.1	32.3	29.9	2.1
Molybdenum (Mo)	mg/kg	1	-	-	9.4	12.1	13.6	11.7	2.1
Nickel (Ni)	mg/kg	2	16.0[g]	75.0[h]	11.8	12.3	12.8	12.3	0.5
Lead (Pb)	mg/kg	5	35.0	91.3	<10	<5.0	<5.0	3.3	1.4
Antimony (Sb)	mg/kg	0.2	-	-	<0.40	0.35	0.37	0.31	0.09
Selenium (Se)	mg/kg	0.2	5.0[f]	-	0.87	0.93	1.05	0.95	0.09
Tin (Sn)	mg/kg	5	-	-	<10	<5.0	<5.0	3.3	1.4
Thallium (Tl)	mg/kg	1	-	-	<2.0	<1.0	<1.0	0.7	0.3
Uranium (U)	mg/kg	2	-	-	<4.0	<2.0	<2.0	1.3	0.6
Vanadium (V)	mg/kg	1	-	-	21.2	22.1	22.3	21.9	0.6
Zinc (Zn)	mg/kg	10	123	315	62	60	68	63	4
Particle Size									
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	5.0	5.0	7.0	5.7	1.2
% Silt (0.05 mm - 2 um)	%	1	-	-	69.0	66.0	60.0	65.0	4.6
% Clay (< 2 um)	%	1	-	-	26.0	29.0	33.0	29.3	3.5
Texture	-	-	-	-	Silt loam	Silty clay loam	Silty clay loam	-	-
Radionuclides					**Composite**				
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.3			-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.01			-	-
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03			-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.05			-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02			-	-
Rare Earth Elements					**Composite**				
Cerium (Ce)	µg/g	0.05	-	-	16			-	-

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-04 23-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1[e]	Replicate 2	Replicate 3	Mean	Standard Deviation
Dysprosium (Dy)	µg/g	0.05	-	-	0.95			-	-
Erbium (Er)	µg/g	0.05	-	-	0.42			-	-
Europium (Eu)	µg/g	0.05	-	-	0.32			-	-
Gadolinium (Gd)	µg/g	0.05	-	-	1.5			-	-
Hafnium (Hf)	µg/g	0.1	-	-	0.1			-	-
Holmium (Ho)	µg/g	0.05	-	-	0.15			-	-
Lanthanum (La)	µg/g	0.05	-	-	7.8			-	-
Neodymium (Nd)	µg/g	0.05	-	-	8.2			-	-
Niobium (Nb)	µg/g	0.1	-	-	0.5			-	-
Praseodymium (Pr)	µg/g	0.05	-	-	2			-	-
Samarium (Sm)	µg/g	0.05	-	-	1.6			-	-
Tantalum (Ta)	µg/g	0.1	-	-	<0.1			-	-
Terbium (Tb)	µg/g	0.05	-	-	0.19			-	-
Thulium '(Tm)	µg/g	0.05	-	-	0.05			-	-
Ytterbium (Yb)	µg/g	0.05	-	-	0.34			-	-
Yttrium (Y)	µg/g	0.05	-	-	4.1			-	-
Zirconium (Zr)	µg/g	0.1	-	-	5.4			-	-

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-15

Pistol Lake (UN-05) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		UN-05
			ISQG[d]	PEL[e]	18-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	0.13
Total Organic Carbon	mg/kg	0.1	-	-	4.34
CaCO3 Equivalent	mg/kg	0.7	-	-	1.50
Total Carbon (by combustion)	mg/kg	0.1	-	-	4.5
Total Kjeldahl Nitrogen	%	0.02	-	-	0.286
Total Phosphorus	mg/kg	90	-	-	306
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050
Silver (Ag)	mg/kg	2	0.5[f]	-	<2.0
Arsenic (As)	mg/kg	0.4	5.9	17.0	2.92
Barium (Ba)	mg/kg	10	-	-	266
Beryllium (Be)	mg/kg	2	-	-	<2.0
Cadmium (Cd)	mg/kg	1	0.6	3.5	<1.0
Cobalt (Co)	mg/kg	2	-	-	<2.0
Chromium (Cr)	mg/kg	1	37.3	90.0	2.5
Copper (Cu)	mg/kg	4	35.7	197.0	8.4
Molybdenum (Mo)	mg/kg	2	-	-	2.4
Nickel (Ni)	mg/kg	4	16.0[g]	75.0[h]	4.3
Lead (Pb)	mg/kg	10	35.0	91.3	<10
Antimony (Sb)	mg/kg	0.4	-	-	<0.40
Selenium (Se)	mg/kg	0.4	5.0[f]	-	<0.40
Tin (Sn)	mg/kg	10	-	-	<10
Thallium (Tl)	mg/kg	2	-	-	<2.0
Uranium (U)	mg/kg	4	-	-	<4.0
Vanadium (V)	mg/kg	2	-	-	4.6
Zinc (Zn)	mg/kg	20	123	315	23
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	5.0
% Silt (0.05 mm - 2 um)	%	1	-	-	4.0
% Clay (< 2 um)	%	1	-	-	91.0
Texture	-	-	-	-	Clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.51
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.02
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	8.9
Dysprosium (Dy)	µg/g	0.05	-	-	0.56
Erbium (Er)	µg/g	0.05	-	-	0.19
Europium (Eu)	µg/g	0.05	-	-	0.28
Gadolinium (Gd)	µg/g	0.05	-	-	1.2
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.07
Lanthanum (La)	µg/g	0.05	-	-	5.5
Neodymium (Nd)	µg/g	0.05	-	-	6.7

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		UN-05
			ISQG[d]	PEL[e]	18-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.1
Praseodymium (Pr)	µg/g	0.05	-	-	1.5
Samarium (Sm)	µg/g	0.05	-	-	1.4
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.13
Thulium '(Tm)	µg/g	0.05	-	-	<0.05
Ytterbium (Yb)	µg/g	0.05	-	-	0.14
Yttrium (Y)	µg/g	0.05	-	-	2.3
Zirconium (Zr)	µg/g	0.1	-	-	1.1

Notes:

[a] D.L. = Detection Limit

[b] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[c] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[d] ISQG = Interim Sediment Quality Guidelines

[e] PEL = Probable Effects Level

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-16 **Porkchop Lake (UN-07) Baseline Sediment Chemistry**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-07 24-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Organics & Nutrients									
Inorganic Carbon	mg/kg	0.1	-	-	0.11	0.11	<0.10	0.09	0.03
Total Organic Carbon	mg/kg	0.1	-	-	17.4	17.7	15.6	16.9	1.1
CaCO3 Equivalent	mg/kg	0.7	-	-	1.21	1.23	0.97	1.14	0.14
Total Carbon (by combustion)	mg/kg	0.1	-	-	17.5	17.8	15.6	17.0	1.2
Total Kjeldahl Nitrogen	%	0.02	-	-	1.50	1.63	1.40	1.51	0.12
Total Phosphorus	mg/kg	90	-	-	1610	1220	969	1266	323
Total Metals									
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.117	0.083	0.088	0.096	0.018
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0	<1.0	<1.0	0.5	0.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**18.70**	**12.80**	**10.70**	**14.07**	4.15
Barium (Ba)	mg/kg	5	-	-	253	221	160	211	47
Beryllium (Be)	mg/kg	1	-	-	1.2	1.2	<1.0	1.0	0.4
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	0.25	0.00
Cobalt (Co)	mg/kg	1	-	-	8.6	9.9	9.7	9.4	0.7
Chromium (Cr)	mg/kg	0.5	37.3	90.0	22.1	24.0	24.9	23.7	1.4
Copper (Cu)	mg/kg	2	35.7	197.0	**47.0**	**48.9**	**51.0**	**49.0**	2.0
Molybdenum (Mo)	mg/kg	1	-	-	10.6	13.6	20.4	14.9	5.0
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	**20.9**	**22.2**	**22.5**	**21.9**	0.9
Lead (Pb)	mg/kg	5	35.0	91.3	10.2	9.9	8.0	9.4	1.2
Antimony (Sb)	mg/kg	0.2	-	-	0.62	0.49	0.37	0.43	0.08
Selenium (Se)	mg/kg	0.2	5.0[e]	-	1.12	1.09	1.03	1.08	0.05
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	2.5	0.0
Thallium (Tl)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0.5	0.0
Uranium (U)	mg/kg	2	-	-	2.2	2.3	3.9	2.8	1.0
Vanadium (V)	mg/kg	1	-	-	40.1	41.8	36.7	39.5	2.6
Zinc (Zn)	mg/kg	10	123	315	72	80	72	75	5
Particle Size									
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	3.0	2.0	2.0	2.3	0.6
% Silt (0.05 mm - 2 um)	%	1	-	-	73.0	57.0	63.0	64.3	8.1
% Clay (< 2 um)	%	1	-	-	24.0	40.0	35.0	33.0	8.2
Texture	-	-	-	-	Silt loam	Silt clay loam/ Silty clay	Silty clay loam	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)					**Composite**				
% Moisture	%	0.1	-		94.4			-	-
Acenaphthene	µg/g	0.8	0.00671	0.0889	<0.80			-	-
Acenaphthylene	µg/g	0.8	0.00587	0.128	<0.80			-	-
Anthracene	µg/g	0.8	0.0469	0.245	<0.80			-	-
Benz(a)anthracene	µg/g	0.8	0.0317	0.385	<0.80			-	-
Benzo(a)pyrene	µg/g	0.8	0.0319	0.782	<0.80			-	-
Benzo(b&j)fluoranthene	µg/g	0.8	-	-	<0.80			-	-
Benzo(g,h,i)perylene	µg/g	0.8	0.17[f]	3.2[g]	<0.80			-	-
Benzo(k)fluoranthene	µg/g	0.8	0.24[f]	13.4[h]	<0.80			-	-
Chrysene	µg/g	0.8	0.0571	0.862	<0.80			-	-
Dibenz(a,h)anthracene	µg/g	0.8	0.00622	0.135	<0.80			-	-
Fluoranthene	µg/g	0.8	0.111	2.355	<0.80			-	-
Fluorene	µg/g	0.8	0.0212	0.144	<0.80			-	-
Indeno(1,2,3-c,d)pyrene	µg/g	0.8	0.2[f]	3.2[h]	<0.80			-	-
2-Methylnaphthalene	µg/g	0.8	0.0202	0.201	<0.80			-	-
Naphthalene	µg/g	0.8	0.0346	0.391	<0.80			-	-
Phenanthrene	µg/g	0.8	0.0419	0.515	<0.80			-	-
Pyrene	µg/g	0.8	0.053	0.875	<0.80			-	-
Surrogate: Nitrobenezene d5	%	1	-	-	58			-	-
Surrogate: 2-Fluorobiphenyl	%	1	-	-	61			-	-
Surrogate: p-Terphenyl d14	%	1	-	-	84			-	-
Radionuclides					**Composite**				
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.26			-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.05			-	-

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-07 24-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-		0.06		-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-		0.04		-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-		0.04		-	-
Rare Earth Elements						**Composite**			
Cerium (Ce)	µg/g	0.05	-	-		62		-	-
Dysprosium (Dy)	µg/g	0.05	-	-		3.2		-	-
Erbium (Er)	µg/g	0.05	-	-		1.5		-	-
Europium (Eu)	µg/g	0.05	-	-		0.98		-	-
Gadolinium (Gd)	µg/g	0.05	-	-		4.9		-	-
Hafnium (Hf)	µg/g	0.1	-	-		<0.1		-	-
Holmium (Ho)	µg/g	0.05	-	-		0.53		-	-
Lanthanum (La)	µg/g	0.05	-	-		29		-	-
Neodymium (Nd)	µg/g	0.05	-	-		29		-	-
Niobium (Nb)	µg/g	0.1	-	-		0.4		-	-
Praseodymium (Pr)	µg/g	0.05	-	-		7.2		-	-
Samarium (Sm)	µg/g	0.05	-	-		5.4		-	-
Tantalum (Ta)	µg/g	0.1	-	-		<0.1		-	-
Terbium (Tb)	µg/g	0.05	-	-		0.63		-	-
Thulium '(Tm)	µg/g	0.05	-	-		0.18		-	-
Ytterbium (Yb)	µg/g	0.05	-	-		1.2		-	-
Yttrium (Y)	µg/g	0.05	-	-		15		-	-
Zirconium (Zr)	µg/g	0.1	-	-		5.1		-	-

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] BCWSQ SEL when sediment contains 1% organic carbon

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-17

Kinnikinnick Lake (UN-08) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-08
			ISQG[c]	PEL[d]	16-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	23.4
CaCO3 Equivalent	mg/kg	0.7	-	-	0.89
Total Carbon (by combustion)	mg/kg	0.1	-	-	23.4
Total Kjeldahl Nitrogen	%	0.02	-	-	2.38
Total Phosphorus	mg/kg	90	-	-	1740
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.095
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	3.65
Barium (Ba)	mg/kg	5	-	-	127
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	0.58
Cobalt (Co)	mg/kg	1	-	-	5.9
Chromium (Cr)	mg/kg	0.5	37.3	90.0	15.3
Copper (Cu)	mg/kg	2	35.7	197.0	**39.3**
Molybdenum (Mo)	mg/kg	1	-	-	3.6
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	**19.4**
Lead (Pb)	mg/kg	5	35.0	91.3	9.0
Antimony (Sb)	mg/kg	0.2	-	-	0.52
Selenium (Se)	mg/kg	0.2	5.0[e]	-	1.62
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	3.7
Vanadium (V)	mg/kg	1	-	-	23.7
Zinc (Zn)	mg/kg	10	123	315	66
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	8.0
% Silt (0.05 mm - 2 um)	%	1	-	-	45.0
% Clay (< 2 um)	%	1	-	-	46.0
Texture	-	-	-	-	Silty clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.61
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	<0.01
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.04
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	65
Dysprosium (Dy)	µg/g	0.05	-	-	2.6
Erbium (Er)	µg/g	0.05	-	-	0.96
Europium (Eu)	µg/g	0.05	-	-	0.94
Gadolinium (Gd)	µg/g	0.05	-	-	5.2
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.37
Lanthanum (La)	µg/g	0.05	-	-	32
Neodymium (Nd)	µg/g	0.05	-	-	33

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-08
			ISQG[c]	PEL[d]	16-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.4
Praseodymium (Pr)	µg/g	0.05	-	-	8.2
Samarium (Sm)	µg/g	0.05	-	-	6.1
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.58
Thulium '(Tm)	µg/g	0.05	-	-	0.11
Ytterbium (Yb)	µg/g	0.05	-	-	0.69
Yttrium (Y)	µg/g	0.05	-	-	9.9
Zirconium (Zr)	µg/g	0.1	-	-	3.8

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-18

Dinosaur Lake (UN-09) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-09
			ISQG[c]	PEL[d]	19-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	<0.10
Total Organic Carbon	mg/kg	0.1	-	-	29.5
CaCO3 Equivalent	mg/kg	0.7	-	-	1.28
Total Carbon (by combustion)	mg/kg	0.1	-	-	29.5
Total Kjeldahl Nitrogen	%	0.02	-	-	2.65
Total Phosphorus	mg/kg	90	-	-	1120
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.084
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**13.2**
Barium (Ba)	mg/kg	5	-	-	83.4
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	4.4
Chromium (Cr)	mg/kg	0.5	37.3	90.0	11.7
Copper (Cu)	mg/kg	2	35.7	197.0	19.5
Molybdenum (Mo)	mg/kg	1	-	-	3.7
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	13.2
Lead (Pb)	mg/kg	5	35.0	91.3	7.7
Antimony (Sb)	mg/kg	0.2	-	-	0.72
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.94
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	<2.0
Vanadium (V)	mg/kg	1	-	-	18.7
Zinc (Zn)	mg/kg	10	123	315	81
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	1.0
% Silt (0.05 mm - 2 um)	%	1	-	-	41.0
% Clay (< 2 um)	%	1	-	-	58.0
Texture	-	-	-	-	Silty clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.53
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.03
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	28
Dysprosium (Dy)	µg/g	0.05	-	-	1.6
Erbium (Er)	µg/g	0.05	-	-	0.64
Europium (Eu)	µg/g	0.05	-	-	0.54
Gadolinium (Gd)	µg/g	0.05	-	-	2.9
Hafnium (Hf)	µg/g	0.1	-	-	0.3
Holmium (Ho)	µg/g	0.05	-	-	0.24
Lanthanum (La)	µg/g	0.05	-	-	16
Neodymium (Nd)	µg/g	0.05	-	-	17

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-09
			ISQG[c]	PEL[d]	19-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.5
Praseodymium (Pr)	µg/g	0.05	-	-	4
Samarium (Sm)	µg/g	0.05	-	-	3.3
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.34
Thulium '(Tm)	µg/g	0.05	-	-	0.08
Ytterbium (Yb)	µg/g	0.05	-	-	0.48
Yttrium (Y)	µg/g	0.05	-	-	7.1
Zirconium (Zr)	µg/g	0.1	-	-	11

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-19

Murky Lake (UN-10) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-10
			ISQG[c]	PEL[d]	17-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	0.20
Total Organic Carbon	mg/kg	0.1	-	-	35.8
CaCO3 Equivalent	mg/kg	0.7	-	-	2.43
Total Carbon (by combustion)	mg/kg	0.1	-	-	36
Total Kjeldahl Nitrogen	%	0.02	-	-	0.324
Total Phosphorus	mg/kg	90	-	-	650
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**7.85**
Barium (Ba)	mg/kg	5	-	-	246
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	2.8
Chromium (Cr)	mg/kg	0.5	37.3	90.0	8.29
Copper (Cu)	mg/kg	2	35.7	197.0	10.8
Molybdenum (Mo)	mg/kg	1	-	-	3.9
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	7.5
Lead (Pb)	mg/kg	5	35.0	91.3	<5.0
Antimony (Sb)	mg/kg	0.2	-	-	<0.20
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.51
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	<2.0
Vanadium (V)	mg/kg	1	-	-	17.9
Zinc (Zn)	mg/kg	10	123	315	43
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	79.0
% Silt (0.05 mm - 2 um)	%	1	-	-	16.0
% Clay (< 2 um)	%	1	-	-	5.0
Texture	-	-	-	-	Loamy sand
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.08
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.02
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	37
Dysprosium (Dy)	µg/g	0.05	-	-	1.4
Erbium (Er)	µg/g	0.05	-	-	0.56
Europium (Eu)	µg/g	0.05	-	-	0.48
Gadolinium (Gd)	µg/g	0.05	-	-	2.5
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.2
Lanthanum (La)	µg/g	0.05	-	-	17
Neodymium (Nd)	µg/g	0.05	-	-	17

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-10
			ISQG[c]	PEL[d]	17-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.3
Praseodymium (Pr)	µg/g	0.05	-	-	4.3
Samarium (Sm)	µg/g	0.05	-	-	3
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.29
Thulium '(Tm)	µg/g	0.05	-	-	0.07
Ytterbium (Yb)	µg/g	0.05	-	-	0.47
Yttrium (Y)	µg/g	0.05	-	-	5.4
Zirconium (Zr)	µg/g	0.1	-	-	1.7

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-20 **Egg Lake (UN-11) Baseline Sediment Chemistry**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-11 22-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1[e]	Replicate 2	Replicate 3[e]	Mean	Standard Deviation
Organics & Nutrients									
Inorganic Carbon	mg/kg	0.1	-	-	0.12	0.13	<0.10	0.10	0.04
Total Organic Carbon	mg/kg	0.1	-	-	32.9	33.5	33.8	33.4	0.5
CaCO3 Equivalent	mg/kg	0.7	-	-	1.48	1.61	1.28	1.46	0.17
Total Carbon (by combustion)	mg/kg	0.1	-	-	33.0	33.6	33.8	33.5	0.4
Total Kjeldahl Nitrogen	%	0.02	-	-	2.40	3.01	2.55	2.65	0.32
Total Phosphorus	mg/kg	90	-	-	1260	1200	1300	1253	50
Total Metals									
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.109	0.088	0.113	0.103	0.013
Silver (Ag)	mg/kg	1	0.5[f]	-	<2.0	<1.0	<2.0	0.8	0.3
Arsenic (As)	mg/kg	0.2	5.9	17.0	**11.00**	**13.10**	**11.80**	**11.97**	1.06
Barium (Ba)	mg/kg	5	-	-	106	128	105	113	13
Beryllium (Be)	mg/kg	1	-	-	<2.0	<1.0	<2.0	0.8	0.3
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<1.0	<0.50	<1.0	0.42	0.14
Cobalt (Co)	mg/kg	1	-	-	2.7	2.7	2.5	2.6	0.1
Chromium (Cr)	mg/kg	0.5	37.3	90.0	6.60	6.98	6.20	6.59	0.39
Copper (Cu)	mg/kg	2	35.7	197.0	19.3	21.2	18.6	19.7	1.3
Molybdenum (Mo)	mg/kg	1	-	-	4.3	4.5	4.0	4.3	0.3
Nickel (Ni)	mg/kg	2	16.0[g]	75.0[h]	9.0	9.2	8.8	9.0	0.2
Lead (Pb)	mg/kg	5	35.0	91.3	<10	6.1	<10	5.4	0.6
Antimony (Sb)	mg/kg	0.2	-	-	<0.40	0.38	<0.40	0.29	0.13
Selenium (Se)	mg/kg	0.2	5.0[f]	-	0.90	1.11	0.84	0.95	0.14
Tin (Sn)	mg/kg	5	-	-	<10	<5.0	<10	4.2	1.4
Thallium (Tl)	mg/kg	1	-	-	<2.0	<1.0	<2.0	0.8	0.3
Uranium (U)	mg/kg	2	-	-	<4.0	<2.0	<4.0	1.7	0.6
Vanadium (V)	mg/kg	1	-	-	14.2	14.4	13.3	14.0	0.6
Zinc (Zn)	mg/kg	10	123	315	61	59	61	60	1
Particle Size									
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	2.0	3.0	3.0	2.7	0.6
% Silt (0.05 mm - 2 um)	%	1	-	-	37.0	27.0	36.0	33.3	5.5
% Clay (< 2 um)	%	1	-	-	61.0	70.0	61.0	64.0	5.2
Texture	-	-	-	-	Clay	Clay	Clay	-	-
Radionuclides					**Composite**				
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	1.4			-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.01			-	-
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03			-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02			-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02			-	-
Rare Earth Elements					**Composite**				
Cerium (Ce)	µg/g	0.05	-	-	14			-	-
Dysprosium (Dy)	µg/g	0.05	-	-	0.88			-	-
Erbium (Er)	µg/g	0.05	-	-	0.34			-	-
Europium (Eu)	µg/g	0.05	-	-	0.31			-	-
Gadolinium (Gd)	µg/g	0.05	-	-	1.4			-	-
Hafnium (Hf)	µg/g	0.1	-	-	<0.1			-	-
Holmium (Ho)	µg/g	0.05	-	-	0.13			-	-
Lanthanum (La)	µg/g	0.05	-	-	7.6			-	-
Neodymium (Nd)	µg/g	0.05	-	-	8			-	-
Niobium (Nb)	µg/g	0.1	-	-	0.1			-	-
Praseodymium (Pr)	µg/g	0.05	-	-	1.9			-	-
Samarium (Sm)	µg/g	0.05	-	-	1.6			-	-
Tantalum (Ta)	µg/g	0.1	-	-	<0.1			-	-
Terbium (Tb)	µg/g	0.05	-	-	0.18			-	-
Thulium '(Tm)	µg/g	0.05	-	-	<0.05			-	-
Ytterbium (Yb)	µg/g	0.05	-	-	0.28			-	-
Yttrium (Y)	µg/g	0.05	-	-	3.7			-	-
Zirconium (Zr)	µg/g	0.1	-	-	2.2			-	-

Notes:

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-11 22-Sep-09				
			ISQG[c]	PEL[d]	Replicate 1[e]	Replicate 2	Replicate 3[e]	Mean	Standard Deviation

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-21

Buck Lake (UN-12) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-12
			ISQG[c]	PEL[d]	10-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	0.12
Total Organic Carbon	mg/kg	0.1	-	-	36.3
CaCO3 Equivalent	mg/kg	0.7	-	-	1.37
Total Carbon (by combustion)	mg/kg	0.1	-	-	36.4
Total Kjeldahl Nitrogen	%	0.02	-	-	2.78
Total Phosphorus	mg/kg	90	-	-	673
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	<0.050
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	4.24
Barium (Ba)	mg/kg	5	-	-	213
Beryllium (Be)	mg/kg	1	-	-	<1.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50
Cobalt (Co)	mg/kg	1	-	-	1.5
Chromium (Cr)	mg/kg	0.5	37.3	90.0	3.95
Copper (Cu)	mg/kg	2	35.7	197.0	9.6
Molybdenum (Mo)	mg/kg	1	-	-	1.8
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	5.2
Lead (Pb)	mg/kg	5	35.0	91.3	<5.0
Antimony (Sb)	mg/kg	0.2	-	-	<0.20
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.66
Tin (Sn)	mg/kg	5	-	-	<5.0
Thallium (Tl)	mg/kg	1	-	-	<1.0
Uranium (U)	mg/kg	2	-	-	<2.0
Vanadium (V)	mg/kg	1	-	-	6
Zinc (Zn)	mg/kg	10	123	315	61
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	15.0
% Silt (0.05 mm - 2 um)	%	1	-	-	51.0
% Clay (< 2 um)	%	1	-	-	35.0
Texture	-	-	-	-	Silty clay loam
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.39
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	0.02
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-	<0.03
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	<0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	20
Dysprosium (Dy)	µg/g	0.05	-	-	1.5
Erbium (Er)	µg/g	0.05	-	-	0.58
Europium (Eu)	µg/g	0.05	-	-	0.49
Gadolinium (Gd)	µg/g	0.05	-	-	2.3
Hafnium (Hf)	µg/g	0.1	-	-	0.2
Holmium (Ho)	µg/g	0.05	-	-	0.22
Lanthanum (La)	µg/g	0.05	-	-	11
Neodymium (Nd)	µg/g	0.05	-	-	13

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		UN-12
			ISQG[c]	PEL[d]	10-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.4
Praseodymium (Pr)	µg/g	0.05	-	-	3
Samarium (Sm)	µg/g	0.05	-	-	2.5
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.3
Thulium '(Tm)	µg/g	0.05	-	-	0.07
Ytterbium (Yb)	µg/g	0.05	-	-	0.41
Yttrium (Y)	µg/g	0.05	-	-	5.9
Zirconium (Zr)	µg/g	0.1	-	-	5

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] **Bolded** result implies ISQG exceedance

[i] **Bolded & shaded** result implies PEL exceedance

Table G2-22

Drizzle Lake (UN-13) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		UN-13
			ISQG[d]	PEL[e]	19-Sep-09
Organics & Nutrients					
Inorganic Carbon	mg/kg	0.1	-	-	0.18
Total Organic Carbon	mg/kg	0.1	-	-	32.5
CaCO3 Equivalent	mg/kg	0.7	-	-	2.03
Total Carbon (by combustion)	mg/kg	0.1	-	-	32.7
Total Kjeldahl Nitrogen	%	0.02	-	-	2.75
Total Phosphorus	mg/kg	90	-	-	1030
Total Metals					
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.057
Silver (Ag)	mg/kg	2	0.5[f]	-	<2.0
Arsenic (As)	mg/kg	0.4	5.9	17.0	**8.85**
Barium (Ba)	mg/kg	10	-	-	132
Beryllium (Be)	mg/kg	2	-	-	<2.0
Cadmium (Cd)	mg/kg	1	0.6	3.5	<1.0
Cobalt (Co)	mg/kg	2	-	-	3.4
Chromium (Cr)	mg/kg	1	37.3	90.0	9.3
Copper (Cu)	mg/kg	4	35.7	197.0	18.4
Molybdenum (Mo)	mg/kg	2	-	-	6.9
Nickel (Ni)	mg/kg	4	16.0[g]	75.0[h]	11.4
Lead (Pb)	mg/kg	10	35.0	91.3	<10
Antimony (Sb)	mg/kg	0.4	-	-	<0.40
Selenium (Se)	mg/kg	0.4	5.0[f]	-	0.73
Tin (Sn)	mg/kg	10	-	-	<10
Thallium (Tl)	mg/kg	2	-	-	<2.0
Uranium (U)	mg/kg	4	-	-	<4.0
Vanadium (V)	mg/kg	2	-	-	16.0
Zinc (Zn)	mg/kg	20	123	315	48
Particle Size					
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	3.0
% Silt (0.05 mm - 2 um)	%	1	-	-	43.0
% Clay (< 2 um)	%	1	-	-	54.0
Texture	-	-	-	-	Silty clay
Radionuclides					**Composite**
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-	0.53
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-	<0.01
Radium-228 (^{228}Ra)	Bq/g	0.05	-	-	<0.05
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-	<0.02
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-	0.02
Rare Earth Elements					**Composite**
Cerium (Ce)	µg/g	0.05	-	-	15
Dysprosium (Dy)	µg/g	0.05	-	-	0.69
Erbium (Er)	µg/g	0.05	-	-	0.31
Europium (Eu)	µg/g	0.05	-	-	0.26
Gadolinium (Gd)	µg/g	0.05	-	-	1.2
Hafnium (Hf)	µg/g	0.1	-	-	<0.1
Holmium (Ho)	µg/g	0.05	-	-	0.11
Lanthanum (La)	µg/g	0.05	-	-	7.2
Neodymium (Nd)	µg/g	0.05	-	-	7.1

Parameter	Units	D.L.[a,b]	CCME / BC SQG[c]		UN-13
			ISQG[d]	PEL[e]	19-Sep-09
Niobium (Nb)	µg/g	0.1	-	-	0.3
Praseodymium (Pr)	µg/g	0.05	-	-	1.8
Samarium (Sm)	µg/g	0.05	-	-	1.4
Tantalum (Ta)	µg/g	0.1	-	-	<0.1
Terbium (Tb)	µg/g	0.05	-	-	0.14
Thulium '(Tm)	µg/g	0.05	-	-	<0.05
Ytterbium (Yb)	µg/g	0.05	-	-	0.26
Yttrium (Y)	µg/g	0.05	-	-	3
Zirconium (Zr)	µg/g	0.1	-	-	4.7

Notes:

[a] D.L. = Detection Limit

[b] Detection limit for silver (Ag) to zinc (Zn) adjusted due to insufficient sample

[c] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[d] ISQG = Interim Sediment Quality Guidelines

[e] PEL = Probable Effects Level

[f] BCWSQ guidelines

[g] BCWSQ Lowest Effects Level (LEL)

[h] BCWSQ Severe Effects Level (SEL)

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

Table G2-23

Redemption Lake (UN-14) Baseline Sediment Chemistry
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431-201

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009								September 2010				
					28-Sep-09								6-Sep-10				
					UN-14					Replicate							
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Organics & Nutrients																	
Inorganic Carbon	mg/kg	0.1	-	-	<0.10	<0.10	<0.10	0.05	0.00	-	-	-	<0.10	<0.10	<0.10	0.05	0.00
Total Organic Carbon	mg/kg	0.1	-	-	13.2	11.9	13.3	12.8	0.8	-	-	-	13.3	12.6	12.5	12.8	0.4
CaCO3 Equivalent	mg/kg	0.7	-	-	1.04	0.88	1.06	0.99	0.10	-	-	-	1.21	0.99	1.02	1.07	0.12
Total Carbon (by combustion)	mg/kg	0.1	-	-	13.2	11.9	13.3	12.8	0.8	-	-	-	13.3	12.6	12.5	12.8	0.4
Total Kjeldahl Nitrogen	%	0.02	-	-	1.47	1.32	1.56	1.45	0.12	-	-	-	1.41	1.38	1.32	1.37	0.05
Total Phosphorus	mg/kg	90	-	-	918	937	1090	982	94	-	-	-	911	1310	982	1068	213
Total Metals																	
Mercury (Hg)	mg/kg	0.05	0.17	0.486	0.060	0.059	0.066	0.062	0.004	-	-	-	0.097	**0.141**	0.082	0.107	0.031
Silver (Ag)	mg/kg	1	0.5[e]	-	<1.0	<1.0	<1.0	0.5	0.0	-	-	-	<1.0	<1.0	<1.0	0.5	0.0
Arsenic (As)	mg/kg	0.2	5.9	17.0	**17.90**	**13.00**	**19.90**	**16.93**	3.55	-	-	-	**16.40**	**6.11**	**12.10**	**11.54**	5.17
Barium (Ba)	mg/kg	5	-	-	185	160	234	193	38	-	-	-	235	177	161	191	39
Beryllium (Be)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0.5	0.0	-	-	-	<1.0	<1.0	<1.0	0.5	0.0
Cadmium (Cd)	mg/kg	0.5	0.6	3.5	<0.50	<0.50	<0.50	0.25	0.00	-	-	-	<0.50	<0.50	<0.50	0.25	0.00
Cobalt (Co)	mg/kg	1	-	-	11.7	12.4	10.5	11.5	1.0	-	-	-	12.0	12.9	14.2	13.0	1.1
Chromium (Cr)	mg/kg	0.5	37.3	90.0	30.0	30.9	26.6	29.2	2.3	-	-	-	32.3	**70.4**	**60.8**	54.5	19.8
Copper (Cu)	mg/kg	2	35.7	197.0	**41.6**	**39.2**	**41.1**	**40.6**	1.3	-	-	-	**43.1**	**37.5**	**42.1**	**40.9**	3.0
Molybdenum (Mo)	mg/kg	1	-	-	2.2	2.2	1.9	2.1	0.2	-	-	-	1.9	1.4	2.2	1.8	0.4
Nickel (Ni)	mg/kg	2	16.0[f]	75.0[g]	**39.8**	**39.9**	**38.4**	**39.4**	0.8	-	-	-	**42.2**	**55.4**	**55.4**	**51.0**	7.6
Lead (Pb)	mg/kg	5	35.0	91.3	11.7	10.7	11.1	11.2	0.5	-	-	-	12.3	11.0	12.6	12.0	0.9
Antimony (Sb)	mg/kg	0.2	-	-	0.43	0.38	0.38	0.40	0.03	-	-	-	0.53	0.31	0.38	0.41	0.11
Selenium (Se)	mg/kg	0.2	5.0[e]	-	0.77	0.88	0.84	0.83	0.06	-	-	-	0.72	0.72	0.69	0.71	0.02
Tin (Sn)	mg/kg	5	-	-	<5.0	<5.0	<5.0	2.5	0.0	-	-	-	<5.0	<5.0	<5.0	2.5	0.0
Thallium (Tl)	mg/kg	1	-	-	<1.0	<1.0	<1.0	0.5	0.0	-	-	-	<0.50	<0.50	<0.50	0.3	0.0
Uranium (U)	mg/kg	2	-	-	2.3	2.4	2.1	2.3	0.2	-	-	-	2.2	2.4	2.6	2.4	0.2
Vanadium (V)	mg/kg	1	-	-	43.2	42.1	39.2	41.5	2.1	-	-	-	44.8	40.0	42.6	42.5	2.4
Zinc (Zn)	mg/kg	10	123	315	88	87	84	86	2	-	-	-	88	92	90	90	2
Particle Size																	
% Sand (2.0 mm - 0.05 mm)	%	1	-	-	<1.0	1.0	1.0	0.8	0.3	-	-	-	71.4	67.6	81.4	73.5	7.1
% Silt (0.05 mm - 2 um)	%	1	-	-	71.0	70.0	67.0	69.3	2.1	-	-	-	21.5	21.6	15.0	19.4	3.8
% Clay (< 2 um)	%	1	-	-	29.00	29.00	32.00	30.00	1.73	-	-	-	7.08	10.80	3.64	7.17	3.58
Texture	-	-	-	-	Silty clay loam	Silty clay loam	Silty clay loam	-	-	-	-	-	Sandy loam	Sandy loam	Loamy sand	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)					**Composite Sample**												
% Moisture	%	0.1	-		93.4			-	-	-	-	-		-		-	-
Acenaphthene	µg/g	0.71	0.00671	0.0889	<0.71			-	-	-	-	-		-		-	-
Acenaphthylene	µg/g	0.71	0.00587	0.128	<0.71			-	-	-	-	-		-		-	-
Anthracene	µg/g	0.71	0.0469	0.245	<0.71			-	-	-	-	-		-		-	-
Benz(a)anthracene	µg/g	0.71	0.0317	0.385	<0.71			-	-	-	-	-		-		-	-
Benzo(a)pyrene	µg/g	0.71	0.0319	0.782	<0.71			-	-	-	-	-		-		-	-
Benzo(b&j)fluoranthene	µg/g	0.71	-	-	<0.71			-	-	-	-	-		-		-	-
Benzo(g,h,i)perylene	µg/g	0.71	0.17[f]	3.2[g]	<0.71			-	-	-	-	-		-		-	-
Benzo(k)fluoranthene	µg/g	0.71	0.24[f]	13.4[h]	<0.71			-	-	-	-	-		-		-	-
Chrysene	µg/g	0.71	0.0571	0.862	<0.71			-	-	-	-	-		-		-	-
Dibenz(a,h)anthracene	µg/g	0.71	0.00622	0.135	<0.71			-	-	-	-	-		-		-	-
Fluoranthene	µg/g	0.71	0.111	2.355	<0.71			-	-	-	-	-		-		-	-
Fluorene	µg/g	0.71	0.0212	0.144	<0.71			-	-	-	-	-		-		-	-
Indeno(1,2,3-c,d)pyrene	µg/g	0.71	0.2[f]	3.2[h]	<0.71			-	-	-	-	-		-		-	-
2-Methylnaphthalene	µg/g	0.71	0.0202	0.201	<0.71			-	-	-	-	-		-		-	-
Naphthalene	µg/g	0.71	0.0346	0.391	<0.71			-	-	-	-	-		-		-	-
Phenanthrene	µg/g	0.71	0.0419	0.515	<0.71			-	-	-	-	-		-		-	-
Pyrene	µg/g	0.71	0.053	0.875	<0.71			-	-	-	-	-		-		-	-

Parameter	Units	D.L.[a]	CCME / BC SQG[b]		September 2009								September 2010				
					28-Sep-09								6-Sep-10				
					UN-14					Replicate							
			ISQG[c]	PEL[d]	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation	Replicate 1	Replicate 2	Replicate 3	Replicate 1	Replicate 2	Replicate 3	Mean	Standard Deviation
Surrogate: Nitrobenezene d5	%	1	-	-		67		-	-	-	-	-		-		-	-
Surrogate: 2-Fluorobiphenyl	%	1	-	-		78		-	-	-	-	-		-		-	-
Surrogate: p-Terphenyl d14	%	1	-	-		109		-	-	-	-	-		-		-	-
Radionuclides						**Composite**					**Composite**						
Lead-210 (^{210}Pb)	Bq/g	0.04	-	-		0.46		-	-		0.5			-		-	-
Radium-226 (^{226}Ra)	Bq/g	0.01	-	-		0.06		-	-		0.08			-		-	-
Radium-228 (^{228}Ra)	Bq/g	0.03	-	-		0.62		-	-		0.18			-		-	-
Thorium-230 (^{230}Th)	Bq/g	0.02	-	-		0.05		-	-		0.06			-		-	-
Thorium-232 (^{232}Th)	Bq/g	0.02	-	-		0.05		-	-		0.06			-		-	-
Rare Earth Elements																	
Cerium (Ce)	µg/g	0.05	-	-		72		-	-		72			-		-	-
Dysprosium (Dy)	µg/g	0.05	-	-		2.7		-	-		2.7			-		-	-
Erbium (Er)	µg/g	0.05	-	-		1.3		-	-		1.3			-		-	-
Europium (Eu)	µg/g	0.05	-	-		0.92		-	-		0.91			-		-	-
Gadolinium (Gd)	µg/g	0.05	-	-		4.5		-	-		4.5			-		-	-
Hafnium (Hf)	µg/g	0.1	-	-		0.2		-	-		0.2			-		-	-
Holmium (Ho)	µg/g	0.05	-	-		0.47		-	-		0.46			-		-	-
Lanthanum (La)	µg/g	0.05	-	-		35		-	-		35			-		-	-
Neodymium (Nd)	µg/g	0.05	-	-		30		-	-		30			-		-	-
Niobium (Nb)	µg/g	0.1	-	-		0.3		-	-		0.3			-		-	-
Praseodymium (Pr)	µg/g	0.05	-	-		7.9		-	-		7.9			-		-	-
Samarium (Sm)	µg/g	0.05	-	-		5.2		-	-		5.1			-		-	-
Tantalum (Ta)	µg/g	0.1	-	-		<0.1		-	-		<0.1			-		-	-
Terbium (Tb)	µg/g	0.05	-	-		0.53		-	-		0.54			-		-	-
Thulium '(Tm)	µg/g	0.05	-	-		0.17		-	-		0.17			-		-	-
Ytterbium (Yb)	µg/g	0.05	-	-		1.1		-	-		1.1			-		-	-
Yttrium (Y)	µg/g	0.05	-	-		12		-	-		12			-		-	-
Zirconium (Zr)	µg/g	0.1	-	-		10		-	-		11			-		-	-

Notes:

[a] D.L. = Detection Limit

[b] Guidelines are derived from CCME guidelines, except for nickel, selenium and silver, based on the British Columbia Working Sediment Quality (BCWSQ) guidelines

[c] ISQG = Interim Sediment Quality Guidelines

[d] PEL = Probable Effects Level

[e] BCWSQ guidelines

[f] BCWSQ Lowest Effects Level (LEL)

[g] BCWSQ Severe Effects Level (SEL)

[h] BCWSQ SEL when sediment contains 1% organic carbon

[i] **Bolded** result implies ISQG exceedance

[j] **Bolded & shaded** result implies PEL exceedance

APPENDIX H

Phytoplankton Data

Table H1 **Phytoplankton Taxonomy & Species Abundance in June 200**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2009																						
		Blachford	Elbow North	Elbow South	Fred	Cressy	A	Great Slave		Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		27-Jun-09 2:45 PM	28-Jun-09 9:30 AM	28-Jun-09 11:00 AM	24-Jun-09 9:00 AM	24-Jun-09 4:30 PM	27-Jun-09 4:00 PM	28-Jun-09 12:30 PM	Replicate 1:30PM	25-Jun-09 7:30 PM	25-Jun-09 5:00 PM	25-Jun-09 3:00 PM	27-Jun-09 9:30 AM	24-Jun-09 2:30 PM	24-Jun-09 12:00 PM	24-Jun-09 10:00 AM	24-Jun-09 11:00 AM	26-Jun-09 5:30 PM	26-Jun-09 4:00 PM	26-Jun-09 7:00 PM	26-Jun-09 1:30 PM	27-Jun-09 1:15 PM	27-Jun-09 12:00 PM	27-Jun-09 10:30 AM
Phylum: Bacillariophycae (Diatoms)																								
Order: Centrales																								
Cyclotella bodanica	9	<1.4		16.8		2.8			<1.4							5.6	2.8			35.0		<17.8		<2.8
Cyclotella glomerata	14		<2.8							2.8		<2.8	<1.4	142.8	<2.8	<2.8	5.6	71.2	<2.8	11.2	28.0		131.6	137.2
Cyclotella spp.	18	4.2	28.0	39.2	4.2			<1.4	<1.4	<2.8			1.4	<2.8	109.2	42.0	19.6	53.4	8.4	33.6	<2.8	284.8		2.8
Melosira sp.	7	<1.4	<2.8	<2.8				<1.4		<2.8							<2.8				5.6			
Rhizosolenia sp.	0																							
Stephanodiscus sp.	4	<1.4	<2.8	<2.8				<1.4																
Order: Pennales																								
Achnanthes flexella	6			<2.8	<1.4											<2.8	<2.8			<1.4				<2.8
Achnanthes lanceolata	1								<1.4															
Achnanthes minutissima	23	1.4	5.6	11.2	9.8	16.8	3.8	1.4	4.2	2.8	8.4	2.8	4.2	11.2	<2.8	11.2	22.4	17.8	25.2	8.4	<2.8	71.2	<2.8	8.4
Achnanthes sp.	7	1.4		<2.8						<2.8						<2.8	5.6			<1.4				<2.8
Amphileura pellucida	6					<2.8	<1.9						<1.4			<2.8	<2.8				2.8			
Amphiprora (= Entomoneis)	2					<2.8				<2.8														
Amphora ovalis	13			<2.8	<1.4	<2.8	<1.9	<1.4		<2.8	<2.8					<2.8	<2.8	<17.8		<1.4	<2.8			<2.8
Amphora sp.	5	<1.4	<2.8					<1.4		<2.8							<2.8							
Asterionella formosa	12	1.4	84.0	22.4	<1.4	61.6	1.9	<1.4	<1.4	2.8						<2.8	<2.8				<2.8			
Caloneis sp.	2		<2.8	<2.8																				
Ceratoneis arcus	3				<1.4		<1.9	<1.4																
Ceratoneis sp.	9	<1.4			<1.4				<1.4			<2.8		<2.8	<2.8		<2.8				<2.8		<2.8	
Cocconeis sp.	4	<1.4						<1.4	<1.4	<2.8														
Cocconeis placentula	5	<1.4						<1.4												<1.4	<2.8		<2.8	
Cymatopleura solea	2	<1.4																			2.8			
Cymatopleura sp.	14	<1.4	<2.8	<2.8	<1.4					<2.8		<2.8		<2.8	<2.8	<2.8	<2.8	<17.8		<1.4			<2.8	<2.8
Cymbella cf. minuta	16				<1.4			<1.4	<1.4	<2.8	<2.8			<2.8	2.8	2.8	2.8	<17.8	<2.8	<1.4	2.8	<17.8	<2.8	<2.8
Cymbella spp.	21	2.8	<2.8	2.8		<2.8	<1.9	<1.4	<1.4	<2.8		<2.8	<1.4	<2.8	2.8	5.6	2.8	35.6	<2.8	<1.4	<2.8	<17.8	<2.8	<2.8
Denticula sp.	0																							
Diatoma elongatum	14	1.4		<2.8	5.6		<1.9	<1.4	1.4	<2.8		<2.8	<1.4			2.8	<2.8			2.8			<2.8	<2.8
Diatoma spp.	15	<1.4	2.8	<2.8	1.4	<2.8			1.4	<2.8		2.8		<2.8		<2.8	<2.8	<17.8		<1.4	<2.8		<2.8	
Diploneis sp.	4	<1.4								<2.8							<2.8			<1.4				
Epithemia sorex	2	<1.4																			<2.8			
Epithemia sp.	3	<1.4														<2.8				<1.4				
Epithemia turgida	4	<1.4	<2.8		<1.4											<2.8								
Eunotia spp.	12						<1.9		<1.4	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<17.8				<17.8	<2.8	<2.8
Fragilaria crotonensis	23	4.2	22.4	16.8	11.2	25.2	32.3	4.2	9.8	5.6	5.6	75.6	4.2	2.8	123.2	100.8	114.8	<17.8	<2.8	180.6	14.0	854.4	8.4	44.8
Fragilaria sp.	23	7.0	14.0	8.4	4.2	<2.8	3.8	2.8	1.4	<2.8	<2.8	<2.8	<1.4	11.2	19.6	5.6	11.2	<17.8	<2.8	1.4	<2.8	<17.8	8.4	<2.8
Frustulia sp.	7	<1.4			<1.4							<2.8			<2.8	<2.8						<17.8	<2.8	
Frustulia sp. ?	1					<2.8																		
Gomphonema acuminatum	8	<1.4		<2.8	<1.4	<2.8		<1.4								<2.8					<2.8			<2.8
Gomphonema cf. acuminatum	1						<1.9																	
Gomphonema constrictum	3				1.4							<2.8												<2.8
Gomphonema olivaceum	9				<1.4		<1.9	<1.4	<1.4				<1.4		<2.8			<17.8				<17.8	<2.8	
Gomphonema spp.	22	<1.4	2.8	<2.8	<1.4	8.4	1.9	<1.4	<1.4	2.8	<2.8	<2.8	<1.4	5.6	<2.8	5.6	2.8	<17.8		<1.4	<2.8	<17.8	<2.8	<2.8
Licmorpha sp.?	1										<2.8													
Navicula spp.	23	9.8	22.4	5.6	8.4	2.8	5.7	<1.4	2.8	<2.8	<2.8	<2.8	<1.4	16.8	25.2	11.2	16.8	35.6	11.2	5.6	<2.8	124.6	67.2	19.6
Nitzschia spp.	22	1.4	<2.8		<1.4	5.6	3.8	<1.4	1.4	2.8	<2.8	2.8	<1.4	2.8	<2.8	2.8	5.6	17.8	<2.8	<1.4	<2.8	<17.8	2.8	<2.8
Pinnularia sp.	13	<1.4		<2.8	<1.4	<2.8	<1.9		<1.4	<2.8		<2.8	<1.4			<2.8	<2.8			<1.4	<2.8			
Pleurosigma / Gyrosigma	21	1.4	<2.8	<2.8	1.4	<2.8	<1.9			<2.8	2.8	<2.8	<1.4	5.6	8.4	<2.8	5.6	71.2	<2.8	<1.4	<2.8	<17.8	<2.8	2.8
Rhoicosphenia curvata	1								<1.4															
Rhopalodia gibba	8	<1.4	<2.8	<2.8	<1.4												<2.8			<1.4			<2.8	<2.8
Stauroneis sp.	11	<1.4		<2.8	<1.4	<2.8						<2.8		<2.8		<2.8	<2.8	<17.8		<1.4			<2.8	
Surirella spp.	4	<1.4	<2.8	<2.8											<2.8									
Synedra acus	9	4.2	92.4	75.6	<1.4					16.8						11.2	25.2			1.4	<2.8			
Synedra ulna	18	<1.4	28.0	16.8	<1.4	<2.8	<1.9	<1.4	<1.4	5.6		<2.8	<1.4		<2.8	<2.8	<2.8	<17.8		<1.4	<2.8			<2.8
Synedra spp.	16	<1.4			<1.4	<2.8	<1.9	<1.4	<1.4		<2.8	<2.8		<2.8	<2.8	<2.8	<2.8			<1.4	<2.8		<2.8	2.8
Tabellaria fenestrata	16	4.2	<2.8	<2.8	<1.4		<1.9		16.8	58.8	<2.8	<2.8				<2.8	50.4	<17.8		8.4	16.8		<2.8	<2.8
Tabellaria flocculosa	5			<2.8						<2.8	<2.8	<2.8										<17.8		
UID[a]	23	12.6	2.8	11.2	2.8	<2.8	1.9	<1.4	1.4	<2.8	<2.8	2.8	<1.4	2.8	<2.8	2.8	14.0	17.8	<2.8	2.8	<2.8	17.8	11.2	2.8
Phylum: Chlorophyta (Green Algae)																								
Order: Chlorococcales																								
Ankistrodesmus falcatus	23	<1.4	50.4	72.8	<1.4	<2.8	30.4	<1.4	1.4	11.2	5.6	<2.8	<1.4	14.0	<2.8	<2.8	<2.8	35.6	28.0	53.2	28.0	<17.8	5.6	<2.8
Ankistrodesmus spiralis	4												1.4		<2.8				<2.8				<2.8	
Ankistrodesmus spp.	16	7.0	61.6	8.4				1.4	2.8	5.6	<2.8	<2.8		<2.8	<2.8	<2.8		<17.8	<2.8	12.6	5.6			<2.8
Botryococcus braunii	21	<1.4	<2.8	<2.8	<1.4	<2.8	<1.9			<2.8	<2.8	<2.8	<1.4	<2.8	<2.8	<2.8	<2.8	<17.8	<2.8	33.6	<2.8	<17.8	44.8	<2.8
Closteriopsis sp.	4		<2.8							<2.8		<2.8			<2.8									
Closteriopsis sp. ?	1										<2.8													
Coelastrum sp.	10			<2.8		<2.8					<2.8	<2.8				<2.8	8.4	<17.8				<17.8	<2.8	<2.8
Crucigenia crucifera	1											<2.8												

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2009																					
		Blachford	Elbow North	Elbow South	Fred	Cressy	A	Great Slave		Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		27-Jun-09 2:45 PM	28-Jun-09 9:30 AM	28-Jun-09 11:00 AM	24-Jun-09 9:00 AM	24-Jun-09 4:30 PM	27-Jun-09 4:00 PM	28-Jun-09 12:30 PM	Replicate 1:30PM	25-Jun-09 7:30 PM	25-Jun-09 5:00 PM	25-Jun-09 3:00 PM	27-Jun-09 9:30 AM	24-Jun-09 2:30 PM	24-Jun-09 12:00 PM	24-Jun-09 10:00 AM	24-Jun-09 11:00 AM	26-Jun-09 5:30 PM	26-Jun-09 4:00 PM	26-Jun-09 7:00 PM	26-Jun-09 1:30 PM	27-Jun-09 1:15 PM	27-Jun-09 12:00 PM	27-Jun-09 10:30 AM
Crucigenia tetrapedia	3					<2.8										<2.8	<2.8				<2.8			
Crucigenia quadrata	17		<2.8	<2.8	5.6	<2.8	7.6	<1.4			11.2	11.2	11.2		<2.8	33.6	<2.8	<17.8		<1.4	<2.8		<2.8	<2.8
Crucigenia rectangularis	11					<2.8							<1.4	<2.8	22.4	<2.8	<2.8	<17.8	<2.8	8.4			<2.8	<2.8
Dictyosphaerium pulchellum	1																				<2.8			
Elakatothrix gelatinosa	22		5.6	<2.8	<1.4	5.6	1.9	<1.4	2.8	<2.8	<2.8	<2.8	<1.4	<2.8	5.6	<2.8	<2.8	71.2	39.2	15.4	<2.8	<17.8	33.6	11.2
Euastrum sp.	1	<1.4																						
Kirchneriella sp. ?	1											<2.8												
Nephrocytium cf. ecdysiscepanum	1					<2.8																		
Nephrocytium sp. ?	8		<2.8	11.2	<1.4						<2.8	<2.8	5.6		<2.8					<1.4				
Nephrocytium sp.	1					<2.8																		
Oocystis spp.	18		5.6	5.6		11.2				<2.8	11.2	16.8	12.6	5.6	<2.8	<2.8	<2.8	<17.8	5.6	33.6	<2.8	71.2	44.8	11.2
Pediastrum cf. Boryanum	15		<2.8	<2.8	<1.4	<2.8					<2.8	<2.8	<1.4	<2.8	<2.8	<2.8	<2.8	213.6	<2.8			<17.8	<2.8	<2.8
Pediastrum tetras	10				<1.4						<2.8	11.2		<2.8				<17.8	<2.8	<1.4		71.2	<2.8	<2.8
Pediastrum spp.	12				<1.4	<2.8					<2.8		<1.4	19.6		<2.8		<17.8	<2.8	<1.4		<17.8	<2.8	<2.8
Quadrigula closterioides	4											<2.8						<17.8	<2.8	<1.4				
Quadrigula lacustris	5				<1.4	<2.8						<2.8	<1.4			11.2								
Quadrigula sp.	2																<2.8					<17.8		
Scenedesmus arcuatus	2		<2.8			<2.8																		
Scenedesmus cf. arcuatus	9				<1.4		<1.9				<2.8		<1.4	<2.8			<2.8	<17.8	<2.8				44.8	
Scenedesmus cf. bijuga	2	<1.4					<1.9																	
Scenedesmus cf. denticulatus	16		<2.8		22.4	22.4	<1.9				<2.8	22.4		84.0	44.8		16.8	<17.8	100.8	<1.4	<2.8	142.4	44.8	16.8
Scenedesmus cf. incrassatulus	1	5.6																						
Scenedesmus quadricauda	10	<1.4	<2.8	<2.8	<1.4	<2.8					22.4	11.2				11.2	<2.8					<17.8		
Scenedesmus spp.	17	<1.4	<2.8		<1.4	<2.8				<2.8	11.2	<2.8	<1.4	8.4	<2.8	<2.8	11.2	<17.8	<2.8		<2.8	<17.8	44.8	
Scenedesmus sp. ?	1					<2.8																		
Selenastrum minutum	10		<2.8	2.8						5.6				2.8				<17.8	5.6	<1.4	<2.8	17.8	22.4	
Sphaerocystis schroeteri	10		<2.8			44.8					44.8		33.6	112.0	<2.8			<17.8	<2.8			<17.8		<2.8
Tetraedron caudatum	14	<1.4			1.4						<2.8	<2.8	<1.4	<2.8		<2.8	<2.8	<17.8	5.6	<1.4		<17.8	<2.8	<2.8
Tetraedron minimum	20	18.2	72.8	64.4	2.8	2.8	1.9			33.6	25.2	<2.8		2.8	5.6	19.6	11.2	<17.8	<2.8	9.8	61.6	35.6	2.8	<2.8
Tetraedron spp.	16		5.6	<2.8	<1.4		1.9			<2.8	<2.8		1.4	<2.8		2.8	<2.8	<17.8	2.8	4.2		17.8	2.8	<2.8
Treubaria sp.	4		11.2	2.8						<2.8											<2.8			
Order: Oedogoniales																								
Oedogonium sp.	3																	<17.8		<1.4				<2.8
Oedogonium sp. ?	8	<1.4	<2.8		<1.4	<2.8					<2.8		<1.4			<2.8							<2.8	
Order: Tetrasporales																								
Gloeocystis ampla	10	<1.4				134.4					56.0	<2.8	134.4	100.8						28.0		<17.8	<2.8	11.2
Order: Ulothricales																								
Geminella sp. ?	1																			<1.4				
Ulothrix sp. ?	8	<1.4	5.6	<2.8			5.7			8.4							<2.8			23.8	<2.8			
Order: Volvocales																								
Chlamydomonas sp.	7											2.8							<2.8	<1.4	<2.8	<17.8	<2.8	<2.8
Chlamydomonas sp. ?	1															<2.8								
Eudorina elegans	1												<1.4											
Eudorina sp.	2										<2.8													<2.8
Eudorina sp. ?	1												<1.4											
UID	13		<2.8			<2.8	<1.9			<2.8	<2.8	16.8	<1.4		<2.8			<17.8	<2.8	<1.4			<2.8	<2.8
Order: Zygnematales																								
Arthrodesmus sp.	5					<2.8							<1.4			<2.8	<2.8			<1.4				
Closterium sp.	2												<1.4											<2.8
Cosmarium spp.	17			2.8	<1.4	<2.8				<2.8	<2.8	<2.8	<1.4	<2.8		<2.8	2.8	<17.8	<2.8	1.4	<2.8	<17.8	<2.8	<2.8
Euastrum sp.	3				<1.4									<2.8									<2.8	
Mougeotia sp.	4				<1.4		<1.9									<2.8		<17.8						
Mougeotia sp. ?	2									<2.8		<2.8												
Netrium sp. ?	2																		<2.8			<17.8		
Spondylosium planum	16		<2.8		<1.4	<2.8	<1.9			<2.8				2.8	14.0	2.8	2.8	53.4	44.8	2.8	<2.8	71.2	19.6	19.6
Staurastrum sp.	4										2.8	<2.8				<2.8						<17.8		
Staurastrum cf. paradoxum	1															<2.8								
Xanthidium sp. ?	3											<2.8			<2.8					<1.4				
UID	9	<1.4			<1.4		<1.9				<2.8	<2.8	<1.4				<2.8	<17.8		<1.4				
Phylum: Chrysophyta (Yellow-Brown Algae)																								
Order: Ochromonadales																								
Dinobryon cf. bavaricum	16	57.4	<2.8		22.4		72.2		<1.4	33.6	33.6	<2.8		165.2		<2.8	44.8	35.6	8.4		<2.8		81.2	<2.8
Dinobryon cf. sertularia	2	<1.4										<2.8												
Dinobryon elegantissimum	16		<2.8	8.4	1.4		9.5			2.8		22.8		151.2	8.4	2.8	<2.8	35.6	<2.8	7.0		<17.8	<2.8	<2.8
Dinobryon divergens	7	21.0			<1.4	924.0	60.8				19.6		85.4				<2.8							
Dinobryon spp.	22	42.0	322.0	187.6	68.6	14.0	220.4	<1.4		19.6	5.6	190.4	2.8	308.0	758.8	568.4	599.2	1068.0	534.8	23.8	50.4	1317.2	254.8	574.0
Mallomonas sp.	1										<2.8													
Synura sp. ?	4										<2.8	30.8	<1.4								16.8			
Order: Rhizochrysidales																								
Diceras phaseolus	10			<2.8			1.9			<2.8	<2.8	5.6		5.6				53.4	5.6	<1.4				5.6
Order: Vaucheriales																								
Vaucheria sp.	1										28.0													
Vaucheria sp. ?	3											<2.8	<1.4										<2.8	
Phylum: Cryptophyta (Cryptophyte Algae)																								

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2009																						
		Blachford	Elbow North	Elbow South	Fred	Cressy	A	Great Slave		Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		27-Jun-09 2:45 PM	28-Jun-09 9:30 AM	28-Jun-09 11:00 AM	24-Jun-09 9:00 AM	24-Jun-09 4:30 PM	27-Jun-09 4:00 PM	28-Jun-09 12:30 PM	Replicate 1:30PM	25-Jun-09 7:30 PM	25-Jun-09 5:00 PM	25-Jun-09 3:00 PM	27-Jun-09 9:30 AM	24-Jun-09 2:30 PM	24-Jun-09 12:00 PM	24-Jun-09 10:00 AM	24-Jun-09 11:00 AM	26-Jun-09 5:30 PM	26-Jun-09 4:00 PM	26-Jun-09 7:00 PM	26-Jun-09 1:30 PM	27-Jun-09 1:15 PM	27-Jun-09 12:00 PM	27-Jun-09 10:30 AM
Order: Cryptomonadales																								
Chroomonas acuta	22	1.4	19.8	14.0	119.0	134.4	76.0	190.4	229.6	36.4	103.6	16.8	124.6		5.6	39.2	92.4	<17.8	2.8	112.0	<2.8	17.8	5.6	25.2
Cryptomonas ovata / erosa	21		2.8	5.6	5.6	11.2	<1.9	5.6	12.6	5.6	19.6	30.8	14.0		72.8	36.4	100.8	17.8	53.2	14.0	<2.8	35.6	5.6	30.8
Cryptomonas sp.	22		<2.8	14.0	1.4	2.8	11.4	16.8	4.2	5.6	8.4	5.6	1.4	2.8	<2.8	8.4	14.0	35.6	19.6	1.4	2.8	17.8	5.6	8.4
Phylum: Cyanophyta (Blue-Green Algae)																								
Order: Chroococcales																								
Agmenellum tenuissima	14		22.4	<2.8	<1.4		<1.9							604.8	<2.8	<2.8	<2.8	1922.4	963.2	<1.4		712.0	257.6	<2.8
Agmenellum sp.	7													<2.8	<2.8		<2.8	<17.8	<2.8			<17.8	<2.8	
Anacystis cf. aeruginosa	5										392.0	<2.8						<17.8	<2.8			<17.8		
Anacystis cf. elachista	17		<2.8	<2.8	<1.4						<2.8	<2.8	<1.4	672.0	403.2	196.0	<2.8	2794.6	571.2	<1.4	<2.8	1139.2	994.0	924.0
Anacystis cf. limneticus	16	<1.4	<2.8	11.2	11.2							<2.8		123.2	33.6	78.4	11.2	284.8	106.4	11.2	<2.8	213.6	89.6	<2.8
Anacystis spp.	17	<1.4	<2.8	<2.8	8.4						<2.8	<2.8	<1.4	<2.8	<2.8	<2.8	11.2	<17.8	<2.8		<2.8	427.2	<2.8	<2.8
Gomphosphaeria aponina	4				<1.4									<2.8							<2.8			<2.8
Gomphosphaeria Naegelianum	2																	<17.8					<2.8	
Gomphosphaeria sp.	6													<2.8			<2.8	<17.8				<17.8	11.2	<2.8
Gomphosphaeria sp. ?	1			<2.8																				
Order: Nostocales																								
Anabaena flosa-aquae	6										11.2	336.0		<2.8		<2.8	196.0						28.0	
Anabaena sp. ?	5	<1.4					<1.9			<2.8										<1.4				<2.8
Anabaena spp.	12					<2.8						25.2	<1.4	<2.8		16.8	<2.8	<17.8	128.8		<2.8	<17.8	<2.8	<2.8
Aphanizomenon ? *	1															<2.8								
Aphanizomenon flos-aquae *	4	42.0	1027.6	1332.8													<2.8							
Nostoc sp.?	2			<2.8		<2.8																		
Order: Oscillatoriales																								
Arthrospira sp.	1					<2.8																		
Lyngbya Birgei	1					126.0																		
Lyngbya contorta	3																					4966.2	98.0	<2.8
Lyngbya cf. limnetica	14		2394.0	1626.8	22.4	<2.8		<1.4	16.8		<2.8	<2.8	<1.4			212.8	126.0				327.6	3542.2	448.0	
Lyngbya limnetica	8	226.8								938.0				142.8	<2.8			267.0	114.8	197.4				28.0
Lyngbya sp.	9							21.0	<1.4	<2.8			<1.4	<2.8				<17.8				<17.8	84.0	<2.8
Lyngbya sp. ?	2				<1.4							<2.8												
Phormidium	1										<2.8													
Pseudanabaena ?	4									476.0				<2.8		<2.8					420.0			
Oscillatoria sp.	14	<1.4			<1.4	<2.8	<1.9	<1.4	<1.4		<2.8			16.8			<2.8	<17.8	<2.8		<2.8	<17.8		36.4
Oscillatoria tenuis	19		42.0	56.0	<1.4	<2.8		<1.4	<1.4	560.0	<2.8	<2.8		<2.8	<2.8	182.0	47.6		<2.8	<1.4	<2.8	<17.8	<2.8	<2.8
Spirulina sp.	5										<2.8	<2.8										<17.8	<2.8	<2.8
Phylum: Euglenophyta																								
Order: Euglenales																								
Euglena spp.	15	<1.4	<2.8	<2.8		<2.8	<1.9				<2.8	<2.8		<2.8			<2.8	<17.8	<2.8	<1.4	<2.8	<17.8		<2.8
Phacus sp. ?	1											<2.8												
Trachelomonas sp.	16	<1.4	<2.8	<2.8	<1.4	<2.8	<1.9			2.8	2.8		<1.4			<2.8	<2.8	<17.8		<1.4	<2.8	<17.8	<2.8	
Phylum: Pyrrhophyta (Dinoflagellates)																								
Order: Dinokontae																								
Ceratium hirundinella	16			<2.8	<1.4	<2.8	<1.9			<2.8			<1.4	<2.8	<2.8	<2.8	<2.8	<17.8		<1.4	<2.8	<17.8	<2.8	<2.8
Ceratium sp.	3																	<17.8			<2.8			<2.8
Gymnodinium sp. ?	21	<1.4	2.8	2.8	<1.4	<2.8	<1.9	<1.4	<1.4	<2.8	<2.8	<2.8		2.8	2.8	<2.8	<2.8	17.8	<2.8	1.4		<17.8	<2.8	<2.8
Peridinium cf. inconspicuum	19	1.4	8.4	19.6	<1.4		<1.9		<1.4	<2.8		2.8		<2.8	16.8	2.8	5.6	<17.8	2.8	<1.4	2.8	17.8	<2.8	8.4
Peridinium / Glenodinium	18	1.4	2.8	2.8	1.4	<2.8		<1.4		<2.8		<2.8		<2.8	5.6	5.6	2.8	<17.8	2.8	5.6	<2.8	17.8		<2.8
UID	10						<1.9	<1.4	<1.4							2.8	2.8		<2.8	2.8	<2.8	<17.8	<2.8	
Unidentified (UID)																								
UID branched filamentous algae	2															<2.8				<1.4				
UID colonial algae	4		<2.8											<2.8									<2.8	<2.8
UID filamentous algae	13			<2.8	<1.4		<1.9			<2.8		<2.8			<2.8	<2.8		<17.8		<1.4	<2.8	<17.8	<2.8	<2.8
UID unicellular algae	1					<2.8																		
UID flagellates observed, but not counted	2								<1.4				<1.4											
TOTAL (cells/mL)	-	511	4,417	3,730	379	1,620	587	265	327	2,300	890	923	467	2,796	1,739	1,712	1,680	7,672	2,838	925	1,060	14,578	2,968	2,010

NOTES:

[a] UID = unidentified due to lack of size and / or missing morphological characters.

* No gonidia observed therefor id. tentative.

Table H2 **Phytoplankton Taxonomy & Species Abundance in September 200**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	September 2009																						
		Blachford	Elbow North	Elbow South	Fred	Cressy		A	Great Slave	Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		21-Sep-09 4:00 PM	30-Sep-09 10:30 AM	29-Sep-09 4:45 PM	5-Sep-09 11:00 AM	8-Sep-09 2:00 PM	Replicate 2:30 PM	20-Sep-09 5:00 PM	30-Sep-09 3:30 PM	11-Sep-09 5:00 PM	13-Sep-09 11:30 AM	13-Sep-09 4:00 PM	23-Sep-09 2:15 PM	9-Sep-09 1:00 PM	14-Sep-09 3:30 PM	6-Sep-09 5:00 PM	6-Sep-09 11:30 AM	23-Sep-09 10:00 AM	18-Sep-09 3:00 PM	24-Sep-09 11:15 AM	16-Sep-09 4:00 PM	19-Sep-09 5:30 PM	17-Sep-09 4:00 PM	22-Sep-09 2:00 PM
Phylum: Bacillariophycae (Diatoms)																								
Order: Centrales																								
Cyclotella bodanica	11				<1.4	<1.4	1.4						2.8		17.8	<2.8	1.9			2.8	2.8	<17.8		35.6
Cyclotella glomerata	11				1.4	<1.4	<1.4	<1.4	<1.4					<17.8					134.4	<2.8		53.4	195.8	<17.8
Cyclotella spp.	18	5.6	5.6	<2.8	<1.4	19.6	<1.4	<1.4	4.2	53.4			<2.8	53.4	17.8	2.8	3.8			<2.8	11.2	<17.8		<17.8
Melosira italica	1								<1.4															
Melosira sp.	5	<1.4	<2.8	28.0					4.2												<2.8			
Stephanodiscus Niagarae	1	<1.4																						
Stephanodiscus sp.	2	1.4							<1.4															
Stephanodiscus sp?	1																<1.9							
Order: Pennales																								
Achnanthes flexella	1																						<17.8	
Achnanthes minutissima	19	2.8			2.8	5.6	2.8	<1.4		<17.8	2.8	11.2	5.6	<17.8	<17.8		<1.9	14.0	8.4	2.8	2.8	17.8	17.8	53.4
Achnanthes sp.	6	1.4		2.8			<1.4										1.9			<2.8			<17.8	
Amphileura pellucida	2	<1.4																			<2.8			
Amphiprora (= Entomoneis)	7	<1.4	<2.8	<2.8	<1.4	<1.4						<1.4									<2.8			
Amphora ovalis	9	<1.4	<2.8	<2.8		<1.4				<17.8						<2.8	<1.9			<2.8	<2.8			
Amphora sp.	2																<1.9							<17.8
Asterionella formosa	11	<1.4			<1.4	<1.4	8.4	<1.4	<1.4	<17.8			<2.8			25.2	1.9				<2.8			
Ceratoneis sp.	7			<2.8								<1.4				<2.8	1.9			<2.8			<17.8	<17.8
Cocconeis sp.	2	<1.4	2.8																					
Cocconeis placentula	6				<1.4	<1.4	1.4	<1.4					<2.8										<17.8	
Cymatopleura solea	8		2.8	<2.8	<1.4					<17.8		<1.4				<2.8	<1.9				<2.8			
Cymatopleura sp.	4							<1.4		<17.8					<17.8								<17.8	
Cymbella cf. minuta	10	<1.4				<1.4		<1.4					<2.8		<17.8		<1.9	2.8	<2.8		<2.8		<17.8	
Cymbella spp.	18	1.4		2.8	2.8	<1.4	<1.4			<17.8		1.4		17.8	<17.8	<2.8	<1.9	8.4	<2.8	<2.8	<2.8	<17.8	<17.8	<17.8
Denticula sp.	2									<17.8										<2.8				
Diatoma elongatum	3							<1.4	<1.4													<17.8		
Diatoma spp.	15	1.4		<2.8	2.8	2.8		<1.4			<1.4	<1.4	<2.8	<17.8	<17.8	<2.8				<2.8	<2.8	35.6	<17.8	
Diploneis sp.	1	<1.4																						
Epithemia sorex	3		<2.8	<2.8																	<2.8			
Epithemia sp.	1	<1.4																						
Epithemia turgida	5			<2.8						<17.8						<2.8				<2.8	<2.8			
Eunotia spp.	10	<1.4		<2.8			<1.4	<1.4			<1.4	<1.4			<17.8	<2.8				<2.8			<17.8	
Fragilaria crotonensis	22	4.2		5.6	12.6	8.4	5.6	22.4	4.2	<17.8	1.4	14.0	<2.8	<17.8	53.4	8.4	11.4	5.6	<2.8	2.8	2.8	320.4	53.4	71.2
Fragilaria spp.	18	2.8		2.8	1.4	<1.4	7.0	<1.4	<1.4		2.8	1.4	2.8			<2.8	<1.9	2.8	<2.8		8.4	35.6	<17.8	<17.8
Frustulia sp.	4			<2.8		<1.4												<2.8					<17.8	
Frustulia sp. ?	4								<1.4						<17.8							<17.8		<17.8
Gomphonema acuminatum	4				<1.4								<2.8			<2.8					<2.8			
Gomphonema constrictum	2				<1.4																		<17.8	
Gomphonema olivaceum	6							<1.4	<1.4			<1.4			<17.8						<2.8	<17.8		
Gomphonema spp.	18	5.6		<2.8	<1.4	<1.4	<1.4	<1.4				<1.4	2.8	<17.8	<17.8	<2.8	<1.9	<2.8	<2.8	<2.8	<2.8		<17.8	<17.8
Navicula spp.	22	9.8	2.8	2.8	5.6	2.8	4.2	5.6		17.8	<1.4	2.8	<2.8	106.8	<17.8	<2.8	3.8	25.2	14.0	2.8	2.8	71.2	53.4	17.8
Neidium sp.	3													<17.8		<2.8	<1.9							
Nitzschia spp.	19	2.8	<2.8		<1.4	1.4	2.8	<1.4	<1.4	<17.8		<1.4	<2.8		<17.8	2.8	<1.9	<2.8	<2.8		2.8	<17.8	<17.8	<17.8
Pinnularia sp.	14	1.4		<2.8	<1.4	<1.4	<1.4			<17.8	<1.4	<1.4		<17.8		<2.8	1.9			<2.8	<2.8		<17.8	
Pleurosigma / Gyrosigma	16	2.8			<1.4	1.4	<1.4	<1.4			<1.4		<2.8	<17.8	<17.8	<2.8		<2.8	<2.8		<2.8	<17.8	<17.8	<17.8
Rhopalodia gibba	6	<1.4	<2.8							<17.8							<1.9			<2.8		<17.8		
Stauroneis sp.	14	<1.4		<2.8	<1.4	<1.4	<1.4					<1.4	<2.8	<17.8			<1.9		<2.8	<2.8	<2.8	<17.8	<17.8	
Surirella spp.	6	<1.4												<17.8		<2.8	<1.9					<17.8	<17.8	
Synedra acus	12	<1.4	2.8	11.2	<1.4	2.8	<1.4	<1.4		17.8						16.8	9.5			2.8	<2.8			
Synedra ulna	16	2.8	<2.8	<2.8			<1.4	<1.4	<1.4		<1.4	<1.4	<2.8		<17.8	<2.8	1.9			<2.8	<2.8		<17.8	<17.8
Synedra spp.	16	<1.4			1.4	<1.4	<1.4	<1.4	1.4	<17.8	<1.4	<1.4	<2.8		<17.8	<2.8		<2.8		<2.8	<2.8	<17.8		
Tabellaria fenestrata	13	<1.4	<2.8	<2.8	2.8			<1.4		<17.8	<1.4		<2.8			<2.8	7.6	<2.8	<2.8		16.8			
Tabellaria flocculosa	7		<2.8	<2.8					<1.4	<17.8	<1.4	<1.4										<17.8		
UID	22	5.6	2.8	5.6	2.8	4.2	<1.4	<1.4		<17.8	<1.4	<1.4	<2.8	89.0	<17.8	<2.8	5.7	8.4	5.6	2.8	<2.8	<17.8	17.8	17.8
Phylum: Chlorophyta (Green Algae)																								
Order: Chlorococcales																								
Ankistrodesmus falcatus	21	1.4	5.6	8.4	<1.4	<1.4		2.8		17.8	<1.4	<1.4	5.6	71.2	<17.8	<2.8	<1.9	19.6	14.0	11.2	28.0	53.4	35.6	17.8
Ankistrodesmus spiralis	8				<1.4	<1.4								<17.8	<17.8	<2.8		<2.8	<2.8					<17.8
Ankistrodesmus spp.	21	11.2	16.8	14.0	<1.4	7.0	<1.4		<1.4	<17.8	<1.4	<1.4	<2.8	<17.8	<17.8	<2.8		5.6	2.8	14.0	22.4	<17.8	<17.8	17.8
Botryococcus braunii	22	<1.4	<2.8	<2.8	<1.4	<1.4	<1.4	<1.4		<17.8	179.2	240.8	78.4	<17.8	<17.8	89.6	<1.9	89.6	67.2	<2.8	<2.8	<17.8	<17.8	284.8
Closteriopsis sp.	2																		<2.8	<2.8				
Closteriopsis sp. ?	3		<2.8												<17.8			<2.8						
Coelastrum sp.	11	<1.4			<1.4		<1.4	<1.4				<1.4	<2.8			<2.8	<1.9					142.4	<17.8	<17.8
Crucigenia crucifera	2											<1.4	<2.8											
Crucigenia tetrapedia	6	<1.4			11.2							<1.4				22.4	7.6				<2.8			
Crucigenia quadrata	15	11.2		<2.8	56.0	<1.4	5.6		<1.4			33.6	11.2			22.4	11.4	33.6		<2.8	<2.8		<17.8	<17.8
Crucigenia rectangularis	15	<1.4	<2.8		16.8	<1.4						<1.4	<2.8	<17.8	<17.8	<2.8	<1.9	22.4	44.8			<17.8	<17.8	<17.8

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	September 2009																						
		Blachford	Elbow North	Elbow South	Fred	Cressy		A	Great Slave	Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		21-Sep-09 4:00 PM	30-Sep-09 10:30 AM	29-Sep-09 4:45 PM	5-Sep-09 11:00 AM	8-Sep-09 2:00 PM	Replicate 2:30 PM	20-Sep-09 5:00 PM	30-Sep-09 3:30 PM	11-Sep-09 5:00 PM	13-Sep-09 11:30 AM	13-Sep-09 4:00 PM	23-Sep-09 2:15 PM	9-Sep-09 1:00 PM	14-Sep-09 3:30 PM	6-Sep-09 5:00 PM	6-Sep-09 11:30 AM	23-Sep-09 10:00 AM	18-Sep-09 3:00 PM	24-Sep-09 11:15 AM	16-Sep-09 4:00 PM	19-Sep-09 5:30 PM	17-Sep-09 4:00 PM	22-Sep-09 2:00 PM
Dictyosphaerium pulchellum	2	<1.4			<1.4																			
Dictyosphaerium sp.	1	<1.4																						
Elakatothrix gelatinosa	23	8.4	<2.8	<2.8	2.8	11.2	4.2	5.6	1.4	35.6	<1.4	<1.4	16.8	<17.8	17.8	5.6	7.6	19.6	11.2	16.8	<2.8	106.8	35.6	17.8
Kirchneriella sp. ?	1									<17.8														
Nephrocytium cf. ecdysiscepanum	0																							
Nephrocytium sp. ?	13	<1.4			<1.4		<1.4	<1.4		<17.8		<1.4	<2.8		<17.8	<2.8		<2.8			<2.8	<17.8	<17.8	
Nephrocytium sp.	1	<1.4																						
Oocystis spp.	19	<1.4	<2.8	5.6	5.6	<1.4	<1.4			<17.8		5.6	5.6	<17.8	<17.8	11.2	3.8	72.8	11.2		22.4	106.8	356.0	71.2
Pediastrum cf. Boryanum	14		<2.8	<2.8	<1.4	<1.4	<1.4						<2.8	<17.8	<17.8		<1.9	<2.8	22.4			<17.8	<17.8	<17.8
Pediastrum tetras	10				<1.4		<1.4	<1.4						<17.8			<1.9	<2.8	11.2			<17.8	<17.8	<17.8
Pediastrum spp.	14	<1.4		<2.8		<1.4	<1.4					<1.4	<2.8		<17.8	<2.8	<1.9	<2.8	<2.8			<17.8	<17.8	<17.8
Quadrigula closterioides	13				11.2	<1.4	<1.4						<2.8	<17.8		<2.8		<2.8	11.2	<2.8	<2.8	<17.8	<17.8	71.2
Quadrigula lacustris	4										<1.4	<1.4	<2.8		<17.8									
Quadrigula sp.	3																				<2.8		<17.8	<17.8
Scenedesmus cf. arcuatus	8					<1.4		<1.4			11.2					<2.8	<1.9	<2.8	<2.8				<17.8	
Scenedesmus cf. bijuga	1				5.6																			
Scenedesmus cf. denticulatus	18			<2.8	25.2	11.2	11.2	<1.4			<1.4	25.2	<2.8	142.4	35.6	44.8	3.8	22.4	100.8		<2.8	213.6	249.2	106.8
Scenedesmus quadricauda	12	<1.4	<2.8	<2.8	<1.4	11.2	11.2	<1.4			5.6	8.4	<2.8			<2.8	<1.9							
Scenedesmus spp.	16	5.6			5.6	<1.4	<1.4	<1.4				11.2	<2.8	<17.8	<17.8	<2.8	<1.9	16.8	5.6			<17.8	<17.8	<17.8
Selenastrum sp.	1		<2.8																					
Selenastrum minutum	17	2.8			<1.4	1.4	<1.4	<1.4		<17.8			2.8	17.8		2.8	1.9	22.4	8.4	5.6	2.8	53.4	124.6	35.6
Sphaerocystis schroeteri	11				<1.4	44.8	<1.4	<1.4	<1.4		44.8	<1.4	<2.8	<17.8					<2.8			<17.8		
Tetraedron caudatum	12	<1.4			<1.4					<17.8		1.4	<2.8	<17.8			<1.9	<2.8	2.8			<17.8	<17.8	<17.8
Tetraedron minimum	21	25.2	28.0	36.4	7.0	2.8	<1.4	5.6		35.6	<1.4	11.2	<2.8	<17.8	35.6	5.6	24.7	<2.8	2.8	30.8	53.2	142.4	<17.8	
Tetraedron spp.	18		2.8	2.8	1.4	<1.4	<1.4	<1.4		<17.8			5.6	<17.8	17.8	<2.8	<1.9	5.6	8.4	2.8	2.8		<17.8	17.8
Treubaria sp.	3			<2.8										<17.8									<17.8	
Order: Oedogoniales																								
Oedogonium sp. ?	15	<1.4		<2.8	<1.4						<1.4	4.2	<2.8	<17.8	<17.8	<2.8	<1.9			<2.8	<2.8	<17.8	<17.8	<17.8
Order: Tetrasporales																								
Gloeocystis ampla	16			<2.8	16.8	<1.4	<1.4	22.4		35.6		<1.4	<2.8	<17.8		22.4	7.6	168.0			<2.8	178.0	213.6	213.6
Order: Ulothricales																								
Geminella sp. ?	3														<17.8					<2.8			<17.8	
Ulothrix sp. ?	11	1.4		5.6	<1.4			1.4					<2.8			11.2	1.9			<2.8	<2.8	53.4		17.8
Order: Volvocales																								
Chlamydomonas sp.	8				1.4			<1.4			<1.4								<2.8	<2.8	<2.8	<17.8	<17.8	
Chlamydomonas sp. ?	3					<1.4								<17.8										<17.8
Eudorina elegans	7				<1.4	<1.4					<1.4	<1.4		<17.8	<17.8						<2.8			
Eudorina sp.	1																				<2.8			
UID	14			<2.8	<1.4			<1.4	<1.4	<17.8			<2.8		<17.8			<2.8	<2.8	<2.8	<2.8	71.2	<17.8	<17.8
Order: Zygnematales																								
Arthrodesmus sp.	7				<1.4								<2.8			2.8	1.9		<2.8	<2.8			<17.8	
Closterium sp.	10	<1.4			<1.4	<1.4	<1.4				<1.4	<1.4	<2.8			<2.8	<1.9							<17.8
Cosmarium spp.	16	<1.4		<2.8	<1.4	<1.4	<1.4	<1.4				<1.4	<2.8	<17.8		<2.8	<1.9	<2.8	<2.8			<17.8	<17.8	17.8
Cylindrocystis sp.	1																		<2.8					
Euastrum sp.	4				<1.4									<17.8								<17.8	<17.8	
Gonatozygon sp.	1											<1.4												
Mougeotia sp.	7									<17.8			<2.8			<2.8	<1.9			<2.8			<17.8	
Mougeotia sp. ?	4				<1.4					<17.8	<1.4				<17.8									
Netrium sp. ?	2																		<2.8					<17.8
Spirogyra sp.	1											<1.4												
Spondylosium planum	16	<1.4	<2.8	<2.8	<1.4					17.8				53.4	35.6	2.8	3.8	8.4	2.8	5.6	<2.8	106.8	35.6	35.6
Staurastrum sp.	5	<1.4				<1.4						<1.4	<2.8									<17.8		
Staurastrum cf. paradoxum	5	<1.4			<1.4								<2.8			<2.8	<1.9							
Xanthidium sp. ?	3													<17.8					<2.8				<17.8	
Zygnema sp?	1				<1.4																			
UID	12				<1.4	<1.4					<1.4	<1.4	<2.8		<17.8		<1.9	<2.8	<2.8	<2.8			<17.8	<17.8
Phylum: Chrysophyta (Yellow-Brown Algae)																								
Order: Ochromonadales																								
Dinobryon cf. bavaricum	12				<1.4	<1.4	22.4					<1.4	2.8	35.6		8.4	13.3		2.8		8.4		<17.8	<17.8
Dinobryon divergens	5	1.4				<1.4	12.6						8.4				<1.9							
Dinobryon elegantissimum	9				4.2			2.8		17.8			5.6	17.8	<17.8	14.0	9.5	<2.8						
Dinobryon cf. sertularia	1				5.6																			
Dinobryon spp.	23	9.8	2.8	19.6	28.0	120.4	58.8	19.6	12.6	17.8	<1.4	67.2	11.2	53.4	89.0	11.2	7.6	19.6	53.2	44.8	5.6	71.2	124.6	195.8
Mallomonas cf. akrokomas	1										8.4													
Mallomonas sp.	1											2.8												
Synura sp. ?	8					37.8	43.4	25.2	<1.4		<1.4	1.4						5.6		<2.8				
Order: Rhizochrysidales																								
Diceras phaseolus	11				1.4	<1.4	<1.4						8.4		<17.8		<1.9	<2.8	5.6	<2.8	<2.8		<17.8	
Order: Vaucheriales																								
Vaucheria sp. ?	6					<1.4	<1.4						<2.8	<17.8		<2.8		<2.8						
Phylum: Cryptophyta (Cryptophyte Algae)																								
Order: Cryptomonadales																								
Chroomonas acuta	22	21.0	16.8	92.4	4.2	64.4	84.0	222.6	88.2	53.4	67.2	179.2	324.8	71.2	53.4	53.2	19.0	67.2	39.2	103.6	22.4		249.2	35.6
Cryptomonas ovata / erosa	23	5.6	8.4	22.4	2.8	9.8	37.8	54.6	11.2	17.8	42.0	93.8	28.0	17.8	35.6	33.6	7.6	117.6	42.0	19.6	19.6	<17.8	124.6	53.4

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	September 2009																					
		Blachford	Elbow North	Elbow South	Fred	Cressy		A	Great Slave	Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		21-Sep-09 4:00 PM	30-Sep-09 10:30 AM	29-Sep-09 4:45 PM	5-Sep-09 11:00 AM	8-Sep-09 2:00 PM	Replicate 2:30 PM	20-Sep-09 5:00 PM	30-Sep-09 3:30 PM	11-Sep-09 5:00 PM	13-Sep-09 11:30 AM	13-Sep-09 4:00 PM	23-Sep-09 2:15 PM	9-Sep-09 1:00 PM	14-Sep-09 3:30 PM	6-Sep-09 5:00 PM	6-Sep-09 11:30 AM	23-Sep-09 10:00 AM	18-Sep-09 3:00 PM	24-Sep-09 11:15 AM	16-Sep-09 4:00 PM	19-Sep-09 5:30 PM	17-Sep-09 4:00 PM	22-Sep-09 2:00 PM
Cryptomonas sp.	19		11.2	8.4		7.0	<1.4	7.0	2.8	<17.8	5.6		5.6		35.6	2.8	7.6	<2.8	8.4	2.8	<2.8	53.4	<17.8	<17.8
Cryptomonas sp?	1	<1.4																						
Phylum: Cyanophyta (Blue-Green Algae)																								
Order: Chroococcales																								
Agmenellum tenuissima	17			2.4	33.6	<1.4	<1.4			<17.8			44.8	996.8	142.4	11.2	7.6	884.8	268.8	<2.8	11.2	854.4	1708.8	427.2
Agmenellum sp.	11			<2.8	<1.4	<1.4						<1.4		<17.8		<2.8		<2.8	89.6			<17.8	<17.8	<17.8
Anacystis cf. aeruginosa	9										84.0	<1.4		<17.8	<17.8			<2.8	<2.8			<17.8	<17.8	<17.8
Anacystis cf. elachista	19	<1.4	<2.8	<2.8	168.0		56.0			<17.8	<1.4		28.0	2349.6	2314.0	322.0	237.5	868.0	308.0	<2.8	56.0	4094.4	2937.0	1034.2
Anacystis cf. limneticus	16		<2.8		16.8	<1.4				<17.8			44.8	356.0	356.0	5.6	68.4	162.4	<2.8	5.6	5.6	462.8	213.6	640.8
Anacystis cf. Prescottii	1																							<17.8
Anacystis spp.	16	<1.4	<2.8	<2.8	<1.4	<1.4	<1.4	<1.4		<17.8				<17.8	<17.8	<2.8		<2.8	<2.8			<17.8	<17.8	<17.8
Dactylococcopsis Smithii	2																	<2.8	<2.8					
Gomphosphaeria aponina	4				<1.4									<17.8		<2.8						<17.8		
Gomphosphaeria Naegelianum	5																	56.0	<2.8			<17.8	<17.8	<17.8
Gomphosphaeria sp.	6					<1.4							<2.8	<17.8								<17.8	<17.8	<17.8
Gomphosphaeria sp. ?	7							<1.4				<1.4	<2.8	<17.8					<2.8				356.0	<17.8
Order: Nostocales																								
Anabaena sp. ?	10			<2.8	16.8	21.0	<1.4	<1.4			<1.4					<2.8			<2.8		<2.8			<17.8
Anabaena spp.	14	<1.4	28.0				<1.4	<1.4		<17.8		<1.4	<2.8		<17.8		<1.9	<2.8	<2.8		128.8	<17.8	<17.8	
Aphanizomenon ?	4		280.0	308.0						801.0											70.0			
Nostoc sp.?	4									<17.8		<1.4				<2.8								<17.8
UID	1																					<17.8		
Order: Oscillatoriales																								
Lyngbya cf. contorta	8						<1.4		<1.4	<17.8				3221.8				<2.8				4752.6	1780.0	836.6
Lyngbya limnetica	21	35.0	3455.2	3614.8	56.0		<1.4		77.0	5500.2	<1.4	7.0	44.8	3043.8	<17.8	148.4	176.7	408.8	151.2	868.0	2024.4	5055.2	1637.6	2189.4
Lyngbya sp.	9		98.0	380.8		<1.4			<1.4	<17.8			<2.8			81.2	<1.9				109.2			
Lyngbya sp. ?	4	<1.4												<17.8				<2.8						<17.8
Pseudanabaena ?	8						<1.4							<17.8	<17.8			<2.8	22.4			587.4	<17.8	<17.8
Oscillatoria sp.	6					<1.4	<1.4						<2.8	<17.8					<2.8			<17.8		
Oscillatoria tenuis	14		112.0	<2.8	<1.4	<1.4	<1.4			2848.0		<1.4		<17.8	<17.8	<2.8				<2.8	<2.8	<17.8		<17.8
Spirulina sp.	6					<1.4	<1.4					<1.4		<17.8								<17.8		<17.8
Spirulina sp. ?	1				<1.4																			
Phylum: Euglenophyta																								
Order: Euglenales																								
Euglena spp.	15	<1.4	2.8	2.8		<1.4	<1.4	<1.4		<17.8	<1.4	<1.4		<17.8						<2.8	<2.8	<17.8	<17.8	<17.8
Phacus sp.	5		2.8			<1.4				<17.8	<1.4	<1.4												
Phacus sp?	2						<1.4			<17.8														
Trachelomonas sp.	15	<1.4	<2.8	5.6	1.4	5.6	2.8	<1.4		17.8			<2.8			<2.8	1.9			<2.8	<2.8	<17.8	<17.8	
Phylum: Pyrrhophyta (Dinoflagellates)																								
Order: Dinokontae																								
Ceratium hirundinella	10		<2.8	<2.8	<1.4	<1.4		<1.4		<17.8					<17.8		<1.9			<2.8	<2.8			
Ceratium sp.	1																					<17.8		
Gymnodinium sp. ?	14				1.4	<1.4	1.4	<1.4				<1.4			<17.8	5.6	<1.9	8.4	<2.8	<2.8	<2.8	<17.8		<17.8
Peridinium cf. inconspicuum	16	4.2			7.0		<1.4	<1.4		<17.8		2.8		<17.8	<17.8	5.6	9.5	<2.8	2.8	2.8	<2.8	<17.8		<17.8
Peridinium / Glenodinium	16	<1.4			<1.4	<1.4	1.4	<1.4		<17.8		4.2		<17.8	<17.8	<2.8	<1.9	<2.8	<2.8	<2.8		<17.8		<17.8
UID	12	<1.4		<2.8	<1.4			<1.4			<1.4	<1.4			<17.8			<2.8	<2.8	2.8		<17.8		<17.8
Unidentified (UID)																								
UID unicellular algae	1		<2.8																					
UID colonial algae	6		<2.8								<1.4	<1.4		<17.8								<17.8		<17.8
UID filamentous algae	7		<2.8		<1.4					<17.8		<1.4							<2.8	<2.8				<17.8
UID flagellates observed, but not counted.	0																							
TOTAL (cells/mL)	-	227	4,127	4,642	585	440	419	429	220	9,888	477	764	764	11,143	3,667	1,067	732	3,220	1,533	1,208	2,708	18,139	11,036	6,971

NOTES:

[a] UID = unidentified due to lack of size and / or missing morphological characters.

Table H3

Phytoplankton Taxonomy & Species Abundance in June 2010
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2010								
		Long	Ring	Thor West	Thor East	Murky	Buck		Drizzle	Redemption
		9-Jun-10 11:00 AM	14-Jun-10 10:30 AM	9-Jun-10 5:30 PM	9-Jun-10 3:45 PM	13-Jun-10 1:30 PM	13-Jun-10 3:00 PM	Replicate[a] 3:30 PM	13-Jun-10 5:00 PM	13-Jun-10 11:00 AM
Phylum: Bacillariophycae (Diatoms)										
Order: Centrales										
Cyclotella bodanica	4			<2.8	<1.4				<2.8	<2.8
Cyclotella glomerata	6		95.2			106.4	605.2	512.1	282.8	<2.8
Cyclotella spp.	4			<2.8	5.6	<2.8				<2.8
Melosira italica	0									
Melosira sp.	1									25.2
Stephanodiscus Niagarae	0									
Stephanodiscus sp.	1			<2.8						
Stephanodiscus sp?	2								<2.8	2.8
Order: Pennales										
Achnanthes flexella	2			<2.8					<2.8	
Achnanthes minutissima	8	<2.8	11.2	<2.8	<1.4	11.2	<17.8	284.5	19.6	
Achnanthes sp.	2	<2.8			<1.4					
Amphileura pellucida	0									
Amphiprora (= Entomoneis)	0									
Amphora ovalis	7	2.8			1.4	<2.8	<17.8	<56.9	<2.8	<2.8
Amphora sp.	3			2.8	1.4				<2.8	
Asterionella formosa	5	<2.8		<2.8	<1.4	<2.8				22.4
Asterionella formosa/Fragilaria crotonensis[b]	2			2.8	44.8					
Ceratoneis sp.	3			<2.8	<1.4					<2.8
Cocconeis sp.	1									<2.8
Cocconeis placentula	3			<2.8			<17.8			<2.8
Cymatopleura solea	2			<2.8				<56.9		
Cymatopleura sp.	3				<1.4		<17.8		<2.8	
Cymbella cf minuta	7		<2.8	<2.8	<1.4	<2.8	17.8	56.9	<2.8	
Cymbella spp.	9	<2.8	2.8	<2.8	2.8	11.2	<17.8	341.4	8.4	<2.8
Denticula sp.	0									
Diatoma elongatum	3					<2.8			2.8	2.8
Diatoma spp.	5	<2.8		<2.8	<1.4	<2.8				<2.8
Diploneis sp.	1				<1.4					
Epithemia sorex	2			<2.8	<1.4					
Epithemia sp.	5	<2.8		<2.8	<1.4				<2.8	2.8
Epithemia turgida	2				<1.4					<2.8
Eunotia spp.	8	<2.8	<2.8		<1.4	<2.8	<17.8	<56.9	<2.8	<2.8
Fragilaria crotonensis	9	<2.8	2.8	<2.8	<1.4	14.0	195.8	284.5	75.6	36.4
Fragilaria spp.	9	2.8	<2.8	<2.8	<1.4	<2.8	17.8	56.9	2.8	2.8
Frustulia spp.	3		<2.8		1.4		<17.8			
Frustulia sp. ?	2			<2.8				<56.9		
Gomphonema acuminatum	2	<2.8			<1.4					
Gomphonema cf auger	1			<2.8						
Gomphonema constrictum	2				<1.4				<2.8	
Gomphonema olivaceum	3					<2.8	<17.8		<2.8	
Gomphonema spp.	9	<2.8	<2.8	2.8	<1.4	<2.8	17.8	<56.9	2.8	<2.8
Navicula spp.	9	<2.8	30.8	8.4	9.8	19.6	89.0	170.7	44.8	2.8
Neidium sp.	0									
Nitzschia spp.	4	<2.8				<2.8	<17.8	<56.9		
Pinnularia sp.	4	<2.8		<2.8	<1.4	<2.8				
Pleurosigma / Gyrosigma	6		<2.8		<1.4	<2.8	<17.8		<2.8	<2.8
Rhopalodia gibba	2								<2.8	<2.8
Stauroneis sp.	7	<2.8	<2.8	<2.8	<1.4	<2.8		<56.9	<2.8	
Surirella spp.	5			<2.8		<2.8	<17.8	<56.9	<2.8	
Synedra acus	2	11.2								11.2
Synedra ulna	8	11.2		<2.8	<1.4	<2.8	<17.8	<56.9	<2.8	<2.8
Synedra spp.	5			<2.8	<1.4		17.8		<2.8	5.6
Tabellaria fenestrata	8	<2.8	<2.8	<2.8	<1.4	50.4	<17.8		22.4	<2.8
Tabellaria flocculosa	4					<2.8	<17.8	<56.9	<2.8	
UID[c]	9	5.6	<2.8	<2.8	15.4	<2.8	35.6	113.8	11.2	5.6
Phylum: Chlorophyta (Green Algae)										
Order: Chlorococcales										
Ankistrodesmus falcatus	8	19.6	<2.8	<2.8		8.4	17.8	56.9	16.8	16.8
Ankistrodesmus spiralis	2		<2.8			<2.8				
Ankistrodesmus spp.	7	2.8	<2.8	2.8	<1.4	8.4			<2.8	30.8

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2010								
		Long	Ring	Thor West	Thor East	Murky	Buck		Drizzle	Redemption
		9-Jun-10 11:00 AM	14-Jun-10 10:30 AM	9-Jun-10 5:30 PM	9-Jun-10 3:45 PM	13-Jun-10 1:30 PM	13-Jun-10 3:00 PM	Replicate[a] 3:30 PM	13-Jun-10 5:00 PM	13-Jun-10 11:00 AM
Botryococcus braunii	9	<2.8	<2.8	<2.8	<1.4	<2.8	<17.8	<56.9	22.4	<2.8
Closteriopsis sp.	3	<2.8			<1.4					2.8
Closteriopsis sp. ?	2			<2.8			<17.8			
Coelastrum microporum	6			<2.8	<1.4	67.2	<17.8	<56.9	<2.8	
Coelastrum sp.	1			<2.8						
Crucigenia crucifera	1				<1.4					
Crucigenia tetrapedia	2			11.2	11.2					
Crucigenia quadrata	8		<2.8	11.2	22.4	<2.8	<17.8	<56.9	<2.8	<2.8
Crucigenia rectangularis	5		<2.8			22.4	<17.8		<2.8	<2.8
Dictyosphaerium pulchellum	0									
Dictyosphaerium sp.	0									
Elakatothrix gelatinosa	8	<2.8	11.2		<1.4	22.4	106.8	227.6	36.4	8.4
Kirchneriella sp. ?	0									
Lagerheimia sp.	4	<2.8	<2.8					<56.9		<2.8
Nephrocytium cf ecdysiscepanum	0									
Nephrocytium sp. ?	3					<2.8			<2.8	<2.8
Nephrocytium sp.	1									<2.8
Oocystis cf lacustris	4		16.8			11.2	<17.8		56.0	
Oocystis spp.	7		<2.8	<2.8	11.2	44.8	<17.8	<56.9	22.4	
Pediastrum cf Boryanum	7		72.8	<2.8		<2.8	<17.8	<56.9	28.0	<2.8
Pediastrum cf obtusum	1			<2.8						
Pediastrum tetras	7		11.2	<2.8		11.2	<17.8	<56.9	11.2	<2.8
Pediastrum spp.	8		<2.8	<2.8	<1.4	<2.8	<17.8	<56.9	<2.8	<2.8
Quadrigula closterioides	3					<2.8		<56.9	<2.8	
Quadrigula lacustris	0									
Quadrigula sp.	3		<2.8			<2.8	<17.8			
Scenedesmus cf arcuatus	4			<2.8	<1.4	<2.8			<2.8	
Scenedesmus cf bijuga	2				<1.4	<2.8				
Scenedesmus cf denticulatus	8		11.2	16.8	22.4	39.2	213.6	113.8	67.2	<2.8
Scenedesmus dimorphus	1			<2.8						
Scenedesmus quadricauda/abundans	3			11.2	16.8			<56.9		
Scenedesmus spp.	6			<2.8	30.8	11.2		<56.9	11.2	<2.8
Selenastrum sp.	0									
Selenastrum minutum	7	5.6	16.8		1.4	8.4	<17.8		8.4	<2.8
Sphaerocystis schroeteri	4		<2.8		<1.4		<17.8	56.9		
Tetraedron caudatum	5		<2.8	<2.8	<1.4		<17.8	<56.9		
Tetraedron minimum	9	19.6	<2.8	14.0	22.4	2.8	17.8	<56.9	<2.8	2.8
Tetraedron spp.	6	<2.8	2.8	<2.8	<1.4				<2.8	<2.8
Treubaria sp.	2				<1.4					<2.8
Order: Oedogoniales										
Bulbochaete sp.?	1			<2.8						
Oedogonium sp. ?	4		<2.8	<2.8	<1.4	<2.8				
Order: Tetrasporales										
Gloeocystis ampla	5		5.6			39.2	71.2	<56.9	<2.8	
Order: Ulothricales										
Geminella sp. ?	0									
Ulothrix sp. ?	2	<2.8						<56.9		
Order: Volvocales										
Chlamydomonas sp.	3					2.8			<2.8	2.8
Chlamydomonas sp. ?	2		<2.8		<1.4					
Eudorina elegans	0									
Eudorina sp.	0									
Volvox sp.?	1			<2.8						
UID[c]	4				<1.4	<2.8	<17.8		11.2	
Order: Zygnematales										
Arthrodesmus sp.	2			<2.8	<1.4					
Closterium sp.	0									
Cosmarium spp.	6		<2.8		<1.4	<2.8		<56.9	<2.8	<2.8
Cylindrocystis sp.	0									
Euastrum sp.	1								<2.8	
Gonatozygon sp.	0									
Mougeotia sp.	0									
Mougeotia sp. ?	1	<2.8								
Netrium sp. ?	1		<2.8							
Spirogyra sp.	0									
Spondylosium planum	6		2.8	2.8		8.4	160.2	455.2	22.4	
Staurastrum sp.	3	<2.8		<2.8	<1.4					
Staurastrum cf. paradoxum	3			<2.8	<1.4					<2.8

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2010								
		Long	Ring	Thor West	Thor East	Murky	Buck		Drizzle	Redemption
		9-Jun-10 11:00 AM	14-Jun-10 10:30 AM	9-Jun-10 5:30 PM	9-Jun-10 3:45 PM	13-Jun-10 1:30 PM	13-Jun-10 3:00 PM	Replicate[a] 3:30 PM	13-Jun-10 5:00 PM	13-Jun-10 11:00 AM
Xanthidium sp. ?	0									
Zygnema sp?	0									
UID[c]	2					<2.8			<2.8	
Phylum: Chrysophyta (Yellow-Brown Algae)										
Order: Ochromonadales										
Dinobryon cf bavaricum	9	86.8	22.4	22.4	140.0	215.6	<17.8	170.7	224.0	<2.8
Dinobryon divergens	4	8.4		11.2	16.8					<2.8
Dinobryon elegantissimum	5	2.8	5.6	<2.8	11.2	5.6				
Dinobryon cf sertularia	1						<17.8			
Dinobryon spp.	9	28	39.2	98.0	19.6	44.8	249.2	455.2	162.4	70.0
Mallomonas cf akrokomas	0									
Mallomonas sp.	0									
Kephyrion / Pseudokephyrion[d]	9	187.6	<2.8	165.2	184.8	8.4	35.6	56.9	8.4	64.4
Synura sp. ?	1	<2.8								
Order: Rhizochrysidales										
Diceras phaseolus	1		11.2							
Order: Vaucheriales										
Vaucheria sp. ?	4		<2.8				<17.8	<56.9	<2.8	
Phylum: Cryptophyta (Cryptophyte Algae)										
Order: Cryptomonadales										
Chroomonas acuta	8	22.4	5.6	95.2	57.4	8.4	35.6		22.4	95.2
Cryptomonas ovata / erosa	9	25.2	14.0	173.6	176.4	8.4	35.6	<56.9	28.0	2.8
Cryptomonas sp.	9	11.2	14.0	<2.8	22.4	5.6	<17.8	<56.9	42.0	<2.8
Cryptomonas sp?	0									
Phylum: Cyanophyta (Blue-Green Algae)										
Order: Chroococcales										
Agmenellum tenuissima	7		470.4	<2.8	<1.4	548.8	925.6	<56.9	649.6	
Agmenellum sp.	2		<2.8				<17.8			
Anacystis cf aeruginosa	3					<2.8	<17.8		<2.8	
Anacystis cf elachista	9	<2.8	352.8	<2.8	56.0	420.0	3560.0	6259.0	1050.0	56.0
Anacystis cf limneticus	7		67.2	<2.8	8.4	212.8	142.4	455.2	44.8	
Anacystis cf Prescottii	1		<2.8							
Anacystis spp.	7		<2.8	72.8	<1.4	44.8	712.0	113.8	39.2	
Dactylococcopsis Smithii	0									
Gomphosphaeria aponina	0									
Gomphosphaeria Naegelianum	0									
Gomphosphaeria pallidum	1								<2.8	
Gomphosphaeria sp.	4		<2.8			<2.8	<17.8		<2.8	
Gomphosphaeria sp. ?	0									
Order: Nostocales										
Anabaena cf flos-aquae	3		<2.8				<17.8		<2.8	
Anabaena sp. ?	1				<1.4					
Anabaena spp.	7		<2.8	<2.8		47.6	<17.8	<56.9	112.0	56.0
Aphanizomenon ?	4	<2.8		56.0	<1.4					<2.8
Nostoc sp.?	0									
UID[c]	1							<56.9		
Order: Oscillatoriales										
Lyngbya cf. contorta	8	<2.8	140.0	462.0	<1.4	462.0	1993.6	7966.0	84.0	
Lyngbya limnetica	9	490	669.2	<2.8	84.0	201.6	1869.0	6941.8	28.0	224.0
Lyngbya sp.	1								<2.8	
Lyngbya sp. ?	0									
Pseudanabaena catenata?	1									576.8
Pseudanabaena ?	3		<2.8			<2.8	<17.8			
Oscillatoria sp.	7	<2.8	<2.8	<2.8	<1.4			<56.9	<2.8	<2.8
Oscillatoria tenuis	7	196		182.0	105.0		<17.8	<56.9	<2.8	<2.8
Spirulina sp.	1								<2.8	
Spirulina sp. ?	1					<2.8				
Phylum: Euglenophyta										
Order: Euglenales										
Euglena spp.	5	<2.8		<2.8			<17.8	<56.9	<2.8	
Phacus sp.	2	<2.8		2.8						
Phacus sp?	1							<56.9		
Trachelomonas sp.	6	2.8	<2.8	<2.8	4.2				<2.8	<2.8
Phylum: Pyrrhophyta (Dinoflagellates)										
Order: Dinokontae										
Ceratium hirundinella	7	<2.8		<2.8	<1.4	<2.8	17.8		<2.8	<2.8
Ceratium sp.	1						<17.8			
Gymnodinium sp. ?	7	<2.8	<2.8	<2.8	1.4		<17.8	<56.9		<2.8

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	June 2010								
		Long	Ring	Thor West	Thor East	Murky	Buck		Drizzle	Redemption
		9-Jun-10 11:00 AM	14-Jun-10 10:30 AM	9-Jun-10 5:30 PM	9-Jun-10 3:45 PM	13-Jun-10 1:30 PM	13-Jun-10 3:00 PM	Replicate[a] 3:30 PM	13-Jun-10 5:00 PM	13-Jun-10 11:00 AM
Peridinium cf inconspicuum	6		<2.8	8.4	9.8		<17.8	<56.9	2.8	
Peridinium / Glenodinium	6	<2.8	<2.8	5.6	9.8		<17.8			<2.8
UID[c]	3			2.8	1.4				<2.8	
Unidentified (UID)										
UID unicellular algae	3	<2.8		<2.8			<17.8			
UID colonial algae	1			<2.8						
UID filamentous algae	3		<2.8		<1.4			<56.9		
UID flagellates observed, but not counted.	0									
TOTAL (cells/mL)	-	1,190	2,163	1,529	1,166	2,807	11,570	26,259	3,349	1,389

NOTES:

[a] Fungal growth prevented further concentrating of this sample (Buck Replicate)

[b] Frustules bent and in poor condition therefore identification is tentative.

[c] UID = unidentified due to lack of size and / or missing morphological characters.

[d] Was previously included under UID flagellates observed but not counted

Table H4 **Phytoplankton Taxonomy & Species Abundance in September 2010**
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 123510431-201

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	September 2010								
		Long		Ring	Thor West	Thor East	Murky	Buck	Drizzle	Redemption
		2-Sep-10 10:30 AM	Replicate 11:00 AM	4-Sep-10 10:00 AM	1-Sep-10 1:30 PM	1-Sep-10 9:30 AM	5-Sep-10 2:00 PM	4-Sep-10 3:00 PM	5-Sep-10 11:00 AM	6-Sep-10 10:00 AM
Phylum: Bacillariophycae (Diatoms)										
Order: Centrales										
Cyclotella bodanica	4	<17.8	<17.8		17.8				<17.8	
Cyclotella glomerata	8	35.6	17.8	391.2	<17.8		284.8	106.8	178.0	53.4
Cyclotella spp.	5		<17.8		71.2	<17.8	<17.8			<17.8
Melosira cf ambigua	2	<17.8								<17.8
Melosira sp.	1					<17.8				
Rhizosolenia eriensis/longiseta	2	<17.8								17.8
Stephanodiscus sp.	1				<17.8					
Order: Pennales										
Achnanthes flexella	4				<17.8		<17.8	<17.8	<17.8	
Achnanthes minutissima	8	<17.8	<17.8	35.6	<17.8	<17.8		17.8	<17.8	<17.8
Achnanthes sp.	3				<17.8	<17.8	<17.8			
Amphileura pellucida	3	<17.8			<17.8	<17.8				
Amphiprora (= Entomoneis)	1									<17.8
Amphora ovalis	6	<17.8			<17.8	<17.8	<17.8		<17.8	<17.8
Amphora sp.	1				<17.8					
Asterionella formosa	2	<17.8				<17.8				
Caloneis sp.	2	<17.8				<17.8				
Ceratoneis sp.	6			<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	
Cocconeis sp.	3			<17.8			<17.8	<17.8		
Cocconeis placentula	5	<17.8					<17.8	<17.8	<17.8	<17.8
Cymatopleura solea	6	<17.8		<17.8	<17.8	<17.8	<17.8		<17.8	
Cymbella cf minuta	8	<17.8	<17.8	17.8	<17.8	<17.8	<17.8	<17.8	<17.8	
Cymbella spp.	9	<17.8	<17.8	35.6	17.8	17.8	<17.8	<17.8	35.6	<17.8
Diatoma spp.	5	<17.8			<17.8	<17.8		<17.8		17.8
Diploneis sp.	3				<17.8	<17.8				<17.8
Epithemia sorex	4	<17.8	<17.8		<17.8					<17.8
Epithemia sp.	4	<17.8	<17.8		<17.8					<17.8
Epithemia turgida	4	<17.8	<17.8		<17.8	<17.8				
Eunotia spp.	5			<17.8	<17.8		<17.8	<17.8	<17.8	
Fragilaria crotonensis	9	<17.8	<17.8	17.8	35.6	<17.8	17.8	89.0	89.0	17.8
Fragilaria spp.	9	<17.8	<17.8	17.8	<17.8	<17.8	<17.8	<17.8	<17.8	17.8
Frustulia spp.	4	<17.8			<17.8	<17.8	<17.8			
Frustulia sp. ?	1								<17.8	
Gomphonema acuminatum	3				<17.8	17.8		<17.8		
Gomphonema constrictum	1		<17.8							
Gomphonema olivaceum	5		<17.8	<17.8	<17.8			<17.8	<17.8	
Gomphonema spp.	8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	
Mastogloia sp.	1		<17.8							
Navicula spp.	9	<17.8	<17.8	35.6	<17.8	<17.8	53.4	35.6	35.6	<17.8
Neidium sp.	6	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8			
Nitzschia spp.	7	<17.8	<17.8		<17.8	<17.8		<17.8	<17.8	<17.8
Pinnularia sp.	6	<17.8	<17.8		<17.8	<17.8	<17.8		<17.8	
Pleurosigma / Gyrosigma	8	<17.8	<17.8	<17.8	<17.8		<17.8	<17.8	<17.8	<17.8
Rhopalodia gibba	5	<17.8	<17.8		<17.8				<17.8	<17.8
Stauroneis sp.	5			<17.8	<17.8		<17.8	<17.8	<17.8	
Surirella spp.	1							<17.8		
Synedra acus	7	<17.8	<17.8	<17.8	17.8	<17.8		<17.8	<17.8	
Synedra ulna	7	<17.8			17.8	<17.8	<17.8	<17.8	<17.8	<17.8
Synedra spp.	5	<17.8			<17.8	<17.8		<17.8	17.8	
Tabellaria fenestrata	3				<17.8	<17.8		<17.8		
Tabellaria flocculosa	3	<17.8						<17.8		<17.8
UID[a]	8	17.8	<17.8	<17.8	17.8	<17.8	17.8	<17.8	<17.8	<17.8
Phylum: Chlorophyta (Green Algae)										
Order: Chlorococcales										
Ankistrodesmus falcatus	9	<17.8	<17.8	<17.8	17.8	<17.8	<17.8	<17.8	<17.8	<17.8
Ankistrodesmus spiralis	4			<17.8	<17.8		<17.8		<17.8	
Ankistrodesmus spp.	8	<17.8	17.8	<17.8	<17.8	<17.8	<17.8		<17.8	35.6
Botryococcus braunii	9	<17.8	<17.8	<17.8	<17.8	<17.8	427.2	142.4	<17.8	284.8
Closteriopsis sp.	2					<17.8				<17.8
Coelastrum microporum	5				<17.8	<17.8	142.4	<17.8	<17.8	
Coelastrum sp.	3				<17.8		<17.8		<17.8	
Crucigenia tetrapedia	3				<17.8	<17.8				<17.8
Crucigenia quadrata	6		<17.8		<17.8	<17.8	<17.8	71.2	<17.8	

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	September 2010								
		Long		Ring	Thor West	Thor East	Murky	Buck	Drizzle	Redemption
		2-Sep-10 10:30 AM	Replicate 11:00 AM	4-Sep-10 10:00 AM	1-Sep-10 1:30 PM	1-Sep-10 9:30 AM	5-Sep-10 2:00 PM	4-Sep-10 3:00 PM	5-Sep-10 11:00 AM	6-Sep-10 10:00 AM
Crucigenia rectangularis	8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	71.2	
Dictyosphaerium pulchellum	1				<17.8					
Dictyosphaerium sp.	2					<17.8				<17.8
Elakatothrix gelatinosa	8	<17.8	35.6	142.4	<17.8	17.8	35.6	35.6	53.4	
Kirchneriella sp. ?	1					<17.8				
Lagerheimia sp.	2					<17.8		<17.8		
Nephrocytium sp. ?	5	<17.8	<17.8	<17.8	<17.8			<17.8		
Oocystis cf lacustris	1		<17.8							
Oocystis spp.	9	<17.8	<17.8	<17.8	71.2	<17.8	249.2	<17.8	<17.8	<17.8
Pediastrum cf Boryanum	7	<17.8		<17.8	<17.8	<17.8	<17.8	<17.8		<17.8
Pediastrum cf obtusum	4				<17.8	<17.8	<17.8	<17.8		
Pediastrum tetras	6			<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	
Pediastrum spp.	5			<17.8	<17.8	<17.8		<17.8	<17.8	
Quadrigula closterioides	7	<17.8	<17.8		<17.8	<17.8	<17.8		<17.8	<17.8
Quadrigula lacustris	3				<17.8	<17.8	<17.8			
Quadrigula sp.	4		<17.8		<17.8		<17.8	<17.8		
Scenedesmus cf arcuatus	3				<17.8	<17.8	<17.8			
Scenedesmus cf denticulatus	9	<17.8	<17.8	249.2	<17.8	<17.8	71.2	249.2	<17.8	<17.8
Scenedesmus dimorphus	1							<17.8		
Scenedesmus quadricauda /	4				<17.8	<17.8	<17.8			<17.8
abundans	0									
Scenedesmus spp.	8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	
Selenastrum sp.	5	<17.8		17.8	<17.8			<17.8	<17.8	
Selenastrum minutum	4		17.8		<17.8	17.8				<17.8
Sphaerocystis schroeteri	5		<17.8		<17.8	<17.8		<17.8	<17.8	
Tetraedron caudatum	4			<17.8	<17.8		<17.8	<17.8		
Tetraedron minimum	8	17.8	<17.8	<17.8	<17.8	17.8	17.8	<17.8		<17.8
Tetraedron spp.	8	<17.8	<17.8	<17.8	<17.8		<17.8	<17.8	17.8	<17.8
Order: Oedogoniales										
Bulbochaete sp.?	2				<17.8		<17.8			
Oedogonium sp. ?	6	<17.8	<17.8	<17.8		<17.8	<17.8	<17.8		
Order: Tetrasporales										
Gloeocystis ampla	7	<17.8	17.8	35.6	<17.8	17.8	284.8	<17.8		
Order: Ulothricales										
Ulothrix sp. ?	3		<17.8		<17.8	17.8				
Order: Volvocales										
Chlamydomonas sp.	6	<17.8	<17.8		<17.8			<17.8	<17.8	<17.8
Chlamydomonas sp. ?	1						<17.8			
Eudorina sp.	1									<17.8
Eudorina sp.?	1							<17.8		
UID	5	<17.8				<17.8	<17.8		71.2	<17.8
Order: Zygnematales										
Arthrodesmus sp.	3		<17.8		<17.8	<17.8				
Closterium sp.	4			<17.8	<17.8	<17.8	<17.8			
Cosmarium spp.	7	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8		
Euastrum sp.	2			<17.8			<17.8			
Mougeotia sp.	4	<17.8		<17.8	<17.8			<17.8		
Mougeotia sp. ?	2					<17.8		<17.8		
Netrium sp. ?	1					<17.8				
Spirogyra sp.	1							<17.8		
Spondylosium planum	8	17.8	<17.8	17.8	17.8	17.8	35.6	35.6	71.2	
Staurastrum sp.	2				<17.8	<17.8				
Staurastrum cf. paradoxum	2	<17.8				<17.8				
Xanthidium sp. ?	1						<17.8			
Zygnema sp?	3	<17.8			<17.8			<17.8		
UID	4			<17.8	<17.8	<17.8		<17.8		
Phylum: Chrysophyta (Yellow-Brown Algae)										
Order: Ochromonadales										
Dinobryon cf bavaricum	8	<17.8	<17.8	587.4	<17.8	<17.8	124.6	17.8		284.8
Dinobryon divergens	4		<17.8		<17.8		<17.8	<17.8		
Dinobryon elegantissimum	6		35.6	89.0	17.8	35.6	124.6	35.6		
Dinobryon spp.	8		<17.8	356.0	71.2	17.8	302.6	1014.6	<17.8	17.8
Kephyrion / Pseudokephyrion[b]	8		17.8	213.6	53.4	89.0	178.0	71.2	17.8	17.8
Synura sp. ?	6	<17.8	<17.8			<17.8		<17.8	<17.8	<17.8
Order: Rhizochrysidales										
Diceras phaseolus	6	<17.8		17.8	<17.8	<17.8	17.8		<17.8	
Order: Vaucheriales										
Vaucheria sp. ? [c]	1			<17.8						
Phylum: Cryptophyta (Cryptophyte Algae)										
Order: Cryptomonadales										

Phytoplankton (cells/mL)	No. of Stations Taxa Identified	September 2010								
		Long		Ring	Thor West	Thor East	Murky	Buck	Drizzle	Redemption
		2-Sep-10 10:30 AM	Replicate 11:00 AM	4-Sep-10 10:00 AM	1-Sep-10 1:30 PM	1-Sep-10 9:30 AM	5-Sep-10 2:00 PM	4-Sep-10 3:00 PM	5-Sep-10 11:00 AM	6-Sep-10 10:00 AM
Chroomonas acuta	9	160.2	142.4	53.4	53.4	71.2	178.0	89.0	71.2	178.0
Cryptomonas ovata / erosa	9	<17.8	<17.8	89.0	35.6	17.8	231.4	178.0	124.6	53.4
Cryptomonas sp.	9	<17.8	35.6	89.0	<17.8	17.8	<17.8	17.8	35.6	<17.8
UID	1				<17.8					
Phylum: Cyanophyta										
Order: Chroococcales										
Agmenellum tenuissima	9	<17.8	<17.8	783.2	<17.8	<17.8	1210.4	1139.2	284.8	<17.8
Agmenellum cf glauca	5			<17.8		<17.8	<17.8	<17.8	<17.8	
Agmenellum sp.?	1	<17.8								
Anacystis cf aeruginosa	7		<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	<17.8	
Anacystis cf elachista	9	1246.0	534.0	2670.0	2848.0	712.0	2492.0	2848.0	4485.6	<17.8
Anacystis cf limneticus	8	<17.8	<17.8	356.0	462.8	<17.8	854.4	640.8	391.6	
Anacystis cf Prescottii	5			<17.8	<17.8	<17.8		<17.8	<17.8	
Anacystis spp.	9	<17.8	<17.8	<17.8	<17.8	<17.8	747.6	<17.8	<17.8	<17.8
Gomphosphaeria aponina	2			<17.8		<17.8				
Gomphosphaeria pallidum	5			<17.8	<17.8		<17.8	<17.8	<17.8	
Gomphosphaeria sp.	2			<17.8			<17.8			
Gomphosphaeria sp. ?	1		<17.8							
Order: Nostocales										
Anabaena cf flos-aquae	2							<17.8	<17.8	
Anabaena sp. ?	3	<17.8		<17.8	<17.8					
Anabaena spp.	4	<17.8	<17.8					<17.8		<17.8
Aphanizomenon ?	4	124.6	356.0			<17.8				106.8
Nostoc sp.?	1			<17.8						
Scytonoma sp.?	2						<17.8		<17.8	
UID	1							<17.8		
Order: Oscillatoriales										
Lyngbya cf. contorta	9	<17.8	<17.8	<17.8	<17.8	<17.8	712.0	2545.4	<17.8	<17.8
Lyngbya limnetica	9	2598.8	2670.0	178.0	3720.2	4254.2	1281.6	587.4	356.0	11267.4
Lyngbya sp.	3					<17.8	<17.8	<17.8		
Lyngbya sp. ?	2								<17.8	<17.8
Pseudanabaena ?	3					<17.8	<17.8			<17.8
Oscillatoria sp.	6			<17.8	<17.8		<17.8	<17.8	<17.8	<17.8
Oscillatoria tenuis	8	2296.2	2278.4	<17.8	<17.8	<17.8	<17.8		<17.8	<17.8
Spirulina sp.	1								<17.8	
UID	1							<17.8		
Order: Euglenales										
Euglena spp.	5	<17.8		<17.8	<17.8	<17.8		<17.8		
Phacus sp.	2		<17.8			<17.8				
Phacus sp?	1						<17.8			
Trachelomonas spp.	8	<17.8	<17.8		<17.8	<17.8	<17.8	<17.8	<17.8	17.8
Phylum: Pyrrhophyta (Dinoflagellates)										
Order: Dinokontae										
Ceratium hirundinella	5	<17.8	<17.8		<17.8	<17.8				<17.8
cyst of Ceratium hirundinella	1			<17.8						
Gymnodinium sp. ?	7	<17.8		<17.8		<17.8	<17.8	<17.8	<17.8	<17.8
Peridinium cf inconspicuum	8	17.8	<17.8	<17.8	<17.8	17.8		17.8	<17.8	<17.8
Peridinium / Glenodinium	6		<17.8		<17.8	<17.8		<17.8	<17.8	<17.8
UID	4			<17.8	<17.8	<17.8	17.8			
Unidentified (UID)										
UID unicellular algae	3		<17.8		<17.8	<17.8				
UID colonial algae	1						<17.8			
UID filamentous algae	3	<17.8					<17.8	<17.8		
UID flagellates observed, but not counted	0									
TOTAL (cells/mL)		7,138	6,711	6,933	8,375	6,114	10,529	10,591	6,906	12,798

NOTES:

[a] UID = unidentified due to lack of size and / or missing morphological characters.

[b] Was previously included under UID flagellates observed but not counted

[c] Appears a lot like *Phylliobium* (Order: Chlorococcales)

APPENDIX I

Zooplankton Data

Table I1

Zooplankton Taxonomy & Species Abundance in June 2009
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431.201

Zooplankton	Stage[a]	June 2009																	
		Blachford	Elbow North	Elbow South	A	Great Slave		North Tardiff	South Tardiff	Thorn	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		27-Jun-09 2:45 PM	28-Jun-09 9:30 AM	28-Jun-09 11:00 AM	27-Jun-09 4:00 PM	28-Jun-09 12:30 PM	Replicate 1:30 PM	25-Jun-09 5:00 PM	25-Jun-09 3:00 PM	27-Jun-09 9:30 AM	26-Jun-09 6:00 PM	26-Jun-09 6:30 PM	26-Jun-09 5:30 PM	26-Jun-09 4:00 PM	26-Jun-09 7:00 PM	26-Jun-09 1:30 PM	27-Jun-09 1:15 PM	27-Jun-09 12:00 PM	27-Jun-09 10:30 AM
Phylum: Rotifera																			
Kellicottia longispina		2,400	7,000	5,800	2,000	180	90	2,300	14,100	5,400	9,800	6,200	1,600	600	5,900	700	4,500	9,500	8,300
Keratella cochlearis		6,000	8,500	8,100	7,600	180	200	110	2,300		13,000	20,800	900	900	4,800	5,500	6,900	500	9,200
Keratella quadrata		400	2,600	350	40	7	3	5	10					20					
Filinia		40			30						100	3,200			10				
Conochilus	colony			10					10	10	10		130	50			210		
Lecane											100			10					
Asplanchna		320	120	80	200				20		2,600	10			150				
Polyarthra	colony	1,400	1,900	1,400	120				600	1,100	2,100	4,100	300		4,400	1,400			300
Testudinella		10		5						100	70				10	10			
Trichocera														10				10	
UID[b] Rotifer		2,300			100				400	100	900	1,700			5,100				
Order: Cladocera																			
Diaphanosoma birgei																			
Ceriodaphnia acanthina				1				2											
Ceriodaphnia sp.																	2		
Daphnia ambigua					1										1				
Daphnia longiremis	F																		1
Daphnia middendorffiana								5	5										
Daphnia sp.	juv	4	11	3	5	5		62	90	195	3	3	41	40	76	1	56	43	112
Daphnia pulicaria (schodleri)	F									32			8	18	14		8	10	14
Bosmina longirostris		70	80	240	11	4	2	20		40	1,400	210	1		90	24			6
Family: Chydoridae (benthic)												30						1	
Chydorus sphaericus								6	10		80			1		1	1		1
Leptodora kindtii		2							1										
Holopedium gibberum					4						16	11			2	1			
Simocephalus vetulus								1	12										
Subclass: Copepoda																			
UID Calanoida/Cyclopoida	nauplius	1,900	4,400	2,700	290	1,200	1,200	250	1,100	3,900	4,700	4,000	8,800	4,800	5,400	2,300	1,600	5,100	1,200
Order: Calanoida																			
Aglaodiaptomus leptopus	M									1	1			2				1	
Aglaodiaptomus leptopus	F				1					4			1					3	
Family: Diaptomidae		11	7	59	1,012	23	27	13	70	1,260	540	180	420	448	176	230	391	1,416	360
Epischura nevadensis		6	41	187	5	3	3	2			881	271	1	2	22	78		6	1
Heterocope septentrionalis					1			33	19	1			4	20			9	7	7
Leptodiaptomus ashlandi						50	42												
Leptodiaptomus pribilofensis		2	1					29	113	3		1	96	104	4		139	5	117
Leptodiaptomus sicilis					7	6	19	1			2								
Limnocalanus macrurus					13	299	242	20											
Order: Cyclopoida																			
Cyclops bicuspidatus thomasi		82	119	22	22	7	4	1	5		370	380		3		3			6
Cyclops scutifer		1			1		1	3	2	73	9	17	1	4	310	1	6	13	12
Eucyclops (benthic)													1			2			
Macrocyclops (benthic)								1									2	1	
UID Cyclopoida	cop	310	1,200	1,000	120	700	380	70	1,100	140	5,700	3,500	200	8	3,200	130	420	120	430
Order: Harpacticoida																			
UID Harpacticoida	nauplius																10		
Order: Amphipoda																			
Family: Gammaridae																			
Gammarus lacustris										8				1				1	
Family: Talitridae																			
Hyalella azteca									3										
Order: Diptera																			
Family: Chaoboridae																			
Chaoborus sp.	L							2	2				9	3			6	5	3
TOTAL (organisms/L)	-	30,516	51,958	39,914	23,166	5,328	4,426	5,872	39,944	24,534	84,764	89,226	28,520	33,484	40,140	25,026	14,088	59,330	20,762

NOTES:

a. Stage Abbreviations:
cop = copepodite (juvenile copepod)
F = female
juv = juvenile
L= larva (first juvenuile of homometabolous insect)
M = male

b. UID = unidentified

Table I2

Zooplankton Taxonomy & Species Abundance in September 2009
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431.201

Zooplankton	Stage[a]	September 2009																						
		Blachford	Elbow North	Elbow South	Fred	Cressy		A	Great Slave	Long	North Tardiff	South Tardiff	Thorn	Ring	Megan	Thor West	Thor East	Wasp	Pistol	Porkchop	Kinnikinnick	Dinosaur	Murky	Egg
		21-Sep-09 4:00 PM	30-Sep-09 10:30 AM	29-Sep-09 4:45 PM	5-Sep-09 11:00 AM	8-Sep-09 2:00 PM	Replicate 2:30 PM	20-Sep-09 5:00 PM	30-Sep-09 3:30 PM	11-Sep-09 5:00 PM	13-Sep-09 11:30 AM	13-Sep-09 4:00 PM	23-Sep-09 2:15 PM	9-Sep-09 1:00 PM	14-Sep-09 3:30 PM	6-Sep-09 5:00 PM	6-Sep-09 11:30 AM	23-Sep-09 10:00 AM	18-Sep-09 3:00 PM	24-Sep-09 11:15 AM	16-Sep-09 4:00 PM	19-Sep-09 5:30 PM	17-Sep-09 4:00 PM	22-Sep-09 2:00 PM
Phylum: Rotifera																								
Kellicottia longispina		200	160	130	500	4,600	3,200	1,900	1,270	3,200	880	610	2,500	1,300	9,500	3,500	2,300	1,900	3,100	550	310	550	2,100	960
Keratella cochlearis		2,100	3,900	6,600	2,900	500	130	15,700	690	5,300	90	110	10	40	100	5,300	4,500	700	30	1,830	1,520	130	200	250
Keratella quadrata			110	2	200	100		20	2	30				20	700	100	200				10	10	50	
Filinia																				190				
Conochilus	colony						1						20		60		700			10		4		2
Lecane												10												
Asplanchna		110	90	90	30			90	90	100						40	5			17	50			
Polyarthra	colony	1,900	420	900	13,000	300	170	20	210	800		150	110	20	3,400	2,000				90	90			
Testudinella																100					80			
Trichocera		10					10													10				
UID[b]		390	20		1,500				240	30		10				400	900			80	1,130			30
Order: Cladocera																								
Ceriodaphnia acanthina																			2					
Ceriodaphnia sp.		1																						
Daphnia middendorffiana											44	9							3					
Daphnia rosea														2	5									
Daphnia sp.	juv	1			50		5			2		4	9	6	9	1	2	1					8	1
Daphnia pulicaria (schodleri)	F																						23	1
Bosmina longirostris		50	10	3	220	5		27		70	3	1				1,100	1,200	20		7	150	1		
Family: Chydoridae (benthic)																								
Chydorus sphaericus					210	1										11		9						
Leptodora kindtii																2								
Subclass: Copepoda																								
UID Calanoida/Cyclopoida	nauplius	1,050	730	520	600	7,100	5,600	150	90	3,300	180	220	110	170	3,600	2,800	2,300	50		1,540	110	260	10	450
Order: Calanoida																								
Aglaodiaptomus leptopus	M														3				1		1			
Aglaodiaptomus leptopus	F												4		10									
Skistodiaptomus oregonensis		1	1	2	1					12						48	28				1			
Family: Diaptomidae		1		2		400	380	2	87	147	12	28	175	140	5	100	93	12	42	3	13	10	1	14
Epischura nevadensis					4																		10	10
Heterocope septentrionalis						4	2				2	4	1	7				2	1			2	1	6
Leptodiaptomus ashlandi									4															
Leptodiaptomus pribilofensis						174	162	2		10	25	70	344	460	1			55	104	2	1	122	255	117
Leptodiaptomus sicilis									8															
Limnocalanus macrurus			2																					
Order: Cyclopoida							40																	240
Cyclops bicuspidatus thomasi			2		6				2							52	60		1		1	2	2	2
Cyclops scutifer																3				1				
Ergasilus (parasitic)		2															2							
Eucyclops (benthic)					32					2		1					2				2	2	2	
Macrocyclops (benthic)					3																			
UID Cyclopoida	cop	200	340	300	920	14		23	23	1,900	130	80	2,300	3,400	100	910	1,300	1,300	740	31	100	35	590	
Order: Amphipoda																								
Family: Gammaridae																								
Gammarus lacustris													1											2
Family: Talitridae																								
Hyalella azteca												1										2		
Order: Diptera																								
Family: Chaoboridae																								
Chaoborus sp.	L					9	6				2	2	4		4			4				4	1	
TOTAL (organisms/L)	-	24,064	23,140	34,196	80,704	52,828	38,824	71,736	10,864	59,612	5,472	5,240	22,352	22,260	69,988	65,868	54,404	16,176	16,096	17,444	14,276	4,536	13,012	8,340

NOTES:

a. Stage Abbreviations:
cop = copepodite (juvenile copepod)
F = female
juv = juvenile
L= larva (first juvenuile of homometabolous insect)
M = male

b. UID = unidentified

Table I3

Zooplankton Taxonomy & Species Abundance in June 2010
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431.201

Zooplankton	Stage[a]	June 2010								
		Long	Ring	Thor West	Thor East	Murky	Buck	Drizzle		Redemption
		9-Jun-10	14-Jun-10	9-Jun-10	9-Jun-10	13-Jun-10	13-Jun-10	13-Jun-10		13-Jun-10
		11:00 AM	10:30 AM	5:30 PM	3:45 PM	1:30 PM	3:00 PM	Sample	Replicate	11:00 AM
Phylum: Rotifera										
Kellicottia longispina		28,000	65,000	28,000	19,000	42,000	33,000	80,000	43,000	36,000
Keratella cochlearis		74,000	112,000	34,000	46,000	2,000	7,000	46,000	24,000	12,000
Keratella quadrata		1,600				100		100	400	700
Conochilus	colony	20	2,600			200	2,100	1,600	4,100	4,000
Asplanchna		800		1,800	1,800					20
Polyarthra		13,000	200	6,000	8,000			4,000		700
Filinia										
Lecane							300			
Testudinella				30	20				100	
Trichocera									100	
UID[b]			19,000	200			2,000	15,000	100	
Order: Conchostraca										
Lyncaeus brachyurus	F		5				10		22	
Order: Cladocera										
Family: Holopediidae										
Holopedium gibberum		30		110	36					310
Family: Daphnidae										
Ceriodaphnia dubia		11		1						1
Daphnia sp.	juv	10	2,400	3	6	150	130	330	190	30
Daphnia ambigua	F	5			3					
Daphnia pulicaria	F		1,200			39	4	170	13	
Family: Bosminidae										
Bosmina longirostris	F / juv	240		2,900	1,500					1,200
Family: Chydoridae (benthic)										
Chydorus sphaericus	F	20		1,300	500		3			
Subclass: Copepoda										
Order: Calanoida										
Leptodiaptomus pribilofensis			500			1	330	110	390	
Leptodiaptomus pribilofensis			520			1	390	70	380	
Family: Diaptomidae										
Diaptomidae	V		140			300	500	80	190	10
Diaptomidae	IV		1,300	20		2,800	3,400	800	2,400	50
Diaptomidae	III	10	4,800	40	60	4,100	11,400	5,200	9,200	110
Diaptomidae	II	900	2,200	500	700	700	2,800	1,600	1,200	60
Diaptomidae	I	2,200	400	1,200	1,600	100	500	300	300	
Family: Temoridae										
Heterocope septentrionalis	M		15			7	14	9	25	
Heterocope septentrionalis	F		11			6	20	2	31	

Zooplankton	Stage[a]	June 2010								
		Long	Ring	Thor West	Thor East	Murky	Buck	Drizzle		Redemption
		9-Jun-10 11:00 AM	14-Jun-10 10:30 AM	9-Jun-10 5:30 PM	9-Jun-10 3:45 PM	13-Jun-10 1:30 PM	13-Jun-10 3:00 PM	13-Jun-10 Sample	Replicate	13-Jun-10 11:00 AM
Heterocope septentrionalis	V						1			4
Heterocope septentrionalis	IV									3
Epischura nevadensis	M				1					90
Epischura nevadensis	F									30
Epischura nevadensis	V	7		24	24	1				330
Epischura nevadensis	IV	40		110	150	10				1,200
Epischura nevadensis	III	90		500	180	30		10		1,600
Epischura nevadensis	II	100		600	250	10				1,200
Epischura nevadensis	I	50		600	700	10				600
Limnocalanus macrurus	F				1					
Limnocalanus macrurus	V				1					
Limnocalanus macrurus	IV	2		1						
Order: Cyclopoida										
Cyclops bicuspidatus thomasi	M	800		800	1,000					
Cyclops bicuspidatus thomasi	F	40		230	60					30
Cyclops scutifer	M									460
Cyclops scutifer	F		5			3	51	7	90	710
Cyclops vernalis	F				1					
Macrocyclops (benthic)	F					2				
UID Cyclopoida	cop	4,500	700	20,000	14,000	300	2,300	1,500	1,200	2,000
UID Calanoida/Cyclopoida	nauplius	6,000	92,000	11,000	11,000	19,000	96,000	29,000	104,000	25,000
Order: Harpacticoida										
UID Harpacticoida	nauplius						100			
Order: Amphipoda										
Family: Gammaridae										
Gammarus lacustris	A		3			2	2		2	
Order: Diptera										
Family: Chaoboridae										
Chaoborus	L		62			12	56	62	28	1
Chaoborus	P						4	1	1	
TOTAL (organisms/L)	-	529,900	642,234	488,751	355,310	239,613	382,153	495,869	425,471	221,123

NOTES:

a. Stage Abbreviations:

A = adult
cop = copepodite (juvenile copepod)
F = female
juv = juvenile
L = larva (first juvenile of homometabolous insect)
M = male
P = pupa (second juvenile of homometabolous insect)
I to V = first through fifth copepodite stages

b. UID = unidentified

Table I4

Zooplankton Taxonomy & Species Abundance in September 2010
Avalon Rare Metals Thor Lake Property
Thor Lake, NT
Project # 1235-10431.201

Zooplankton	Stage[a]	September 2010								
		Long		Ring	Thor West	Thor East	Murky	Buck	Drizzle	Redemption
		2-Sep-10 10:30 AM	Replicate 11:00 AM	4-Sep-10 10:00 AM	1-Sep-10 1:30 PM	1-Sep-10 9:30 AM	5-Sep-10 2:00 PM	4-Sep-10 3:00 PM	5-Sep-10 11:00 AM	6-Sep-10 10:00 AM
Phylum: Rotifera										
Kellicottia longispina		4,000	2,600	32,400	8,600	2,900	4,100	17,100	18,300	1,800
Keratella cochlearis		19,600	19,800	2,100	15,800	10,200		500	800	104,000
Keratella quadrata										100
Conochilus	colony	100	40					40	50	300
Asplanchna		130	90		100					6
Polyarthra		3,800	4,400		2,700	1,800		700	300	11,000
Filinia										700
Lecane				100	100	200		100	100	
Testudinella										30
Trichocera		800	200		100					1,100
UID[b]		14,200	14,600	200	200				1,700	9,000
Order: Cladocera										
Family: Sididae										
Sida crystallina	juv									2
Family: Daphnidae										
Ceriodaphnia dubia		1			7	11				6
Daphnia sp.	juv		2	30	1	3	15	20	6	
Daphnia ambigua	F				1					
Daphnia middendorffiana	F						3	5	8	
Family: Bosminidae										
Bosmina longirostris	F/juv	1,500	2,000	100	3,400	2,200			10	7,300
Family: Chydoridae										
Chydorus sphaericus	F									4
SubClass: Copepoda										
Order: Calanoida										
Leptodiaptomus pribilofensis	M			540			2,200	60	240	4
Leptodiaptomus pribilofensis	F			420			550	160	350	1
Skistodiaptomus oregonensis	M	1			7	19				
Skistodiaptomus oregonensis	F	4	8		15	25				
Family: Diaptomidae										
Diaptomidae	V	70	70	510	120	64	180	100	610	18
Diaptomidae	IV	70	70	200	100	70	210	100	210	110
Diaptomidae	III	90	70	300	230	150	260	70	150	8
Diaptomidae	II	50	60	100	290	170	290	40	140	40
Diaptomidae	I	140	180	300	320	190	500	40	80	30
Family: Temoridae										
Heterocope septentrionalis	M						1	3	1	
Heterocope septentrionalis	F			4			13	3	2	

Zooplankton	Stage[a]	September 2010								
		Long		Ring	Thor West	Thor East	Murky	Buck	Drizzle	Redemption
		2-Sep-10 10:30 AM	Replicate 11:00 AM	4-Sep-10 10:00 AM	1-Sep-10 1:30 PM	1-Sep-10 9:30 AM	5-Sep-10 2:00 PM	4-Sep-10 3:00 PM	5-Sep-10 11:00 AM	6-Sep-10 10:00 AM
Epischura nevadensis	M						400			1
Epischura nevadensis	F						420			1
Epischura nevadensis	V						150			
Epischura nevadensis	IV						50			
Epischura nevadensis	III						50			
Epischura nevadensis	II						70			
Epischura nevadensis	I						200			
Order: Cyclopoida										
Cyclops bicuspidatus thomasi	M			10	180	160				
Cyclops bicuspidatus thomasi	F				110	50		1		
UID Cyclopoida	cop	2,100	2,100	12,600	7,800	6,200	2,800	260	4,400	500
UID Calanoida/Cyclopoida	nauplius	16,900	11,000	3,700	7,800	7,200	800	8,500	4,600	4,600
Family: Ergasilidae (parasitic)										
Ergasilus sp.	M									4
Ergasilus sp.	F					1				3
Ergasilus sp.	juv									2
Order: Amphipoda										
Family: Talitridae										
Hyalella azteca	A						1	1		
Order: Diptera										
Family: Chaoboridae										
Chaoborus	L						4	54	17	
TOTAL (organisms/L)	-	231,113	208,327	214,456	137,089	79,033	35,379	139,285	91,640	401,914

NOTES:

a. Stage Abbreviations:
A = adult
cop = copepodite (juvenile copepod)
F = female
juv = juvenile
L = larva (first juvenile of homometabolous insect)
M = male
P = pupa (second juvenile of homometabolous insect)
I to V = first through fifth copepodite stages

b. UID = unidentified

APPENDIX J

Benthic Invertebrate Data

Table J1	Benthic Invertebrate Taxonomy & Species Abundance in September 2009																							
	Avalon Rare Metals Thor Lake Property																							
	Thor Lake, NT																							
	Project # 123510431-201																							
Benthic Invertebrate	Stage	Blachford	Elbow North				Elbow South				Fred	Cressy	A	Great Slave	Long	North Tardiff	South Tardiff	Thorn				Ring	Megan
		21-Sep-09	30-Sep-09				29-Sep-09				5-Sep-09	8-Sep-09	23-Sep-09	30-Sep-09	13-Sep-09	13-Sep-09	13-Sep-09	23-Sep-09				9-Sep-09	14-Sep-09
		Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite
Order: Ephemeroptera																							
Family: Baetidae																							
Acentrella sp.	nymph		1			1																	
Family: Ephemerellidae	nymph (juv./dam.)	4																					
Family: Ephemeridae																							
Ephemera simulans	nymph	36																					
Hexagenia limbata	nymph	32																					
Order: Plecoptera																							
Family: Nemouridae																							
Zapada sp.	nymph	4																					
Order: Trichoptera																							
Family: Leptoceridae	larvae (juv./dam.)																2						
Oecetis sp.	larvae	16									1											9	
Family: Molannidae																							
Molanna sp.	larvae	4																					
Family: Phryganiidae																							
Agrypnia sp.	larvae																						
Family: Polycentropodidae																							
Polycentropus sp.	larvae																						
Order: Coleoptera																							
Family: Dytiscidae UID	adult															1							
Order: Diptera																							
Family: Ceratopogonidae	larvae (juv./dam.)																					3	
Bezzia/Palpomyia sp.	larvae							1		1													
Culicoides sp.	larvae	80																					
Dasyhelea sp.	larvae																						
Mallochohelea sp.	larvae										9						20					7	
Monohelea sp.	larvae																14						
Probezzia sp.	larvae										10						2					13	
Sphaeromias so.	larvae	148																					
Family: Chaoboridae	larvae (juv./dam.)																						
Chaoborus sp.	larvae											15					2	4	3	2	9		32
Family: Chironomidae	larvae																						
Subfamily : Chironominae	larvae																						
Chironomus sp.	larvae		54	23	15	92	23	24	25	72		332		1	1	20	30	18	115	9	142	37	3
Cladotanytarsus sp.	larvae																						
Cryptochironomus sp.	larvae	8					3	4	2	9												2	
Cryptotendipes sp.	larvae																					7	
Dicrotendipes sp.	larvae																128					14	
Gylptotendipes sp.	larvae																20						
Microtendipes sp.	larvae																18						
Micropsectra sp.	larvae	20									4			3									
Pagastiella sp.	larvae	96									17		1	1									
Paracladopelma sp.	larvae	140																					
Polypedilum sp.	larvae										40	26		2			222					13	
Rheotanytarsus sp.	larvae																					3	
Stictochironomus sp.	larvae		2			2																	
Tribelos sp.	larvae													11									
Subfamily : Orthocladiinae	larvae																						
Epoicocladius sp.	larvae	8																					
Subfamily : Tanypodinae	larvae																						
Procladius sp.	larvae	72					8	9	7	24	17	10	2	4		1	46			2	2	20	13
Tanypus sp.																							
Thienemannimyia Group	larvae	12									9												
Larsia sp.	larvae																						
Subfamily : Diamesinae	larvae																						
Potthastia longimana Group	larvae	8																					
Subfamily : Prodiamesinae	larvae																						
Monodiamesa sp.	larvae													1									
Family: Simuliidae	adult																					1	
Order: Odonata																							
Sub-Order: Anisoptera																							
Family: Corduliidae																							
Cordulia shurtleffii	larvae																4						

Benthic Invertebrate	Stage	Blachford	Elbow North				Elbow South				Fred	Cressy	A	Great Slave	Long	North Tardiff	South Tardiff	Thorn				Ring	Megan
		21-Sep-09	30-Sep-09				29-Sep-09				5-Sep-09	8-Sep-09	23-Sep-09	30-Sep-09	13-Sep-09	13-Sep-09	13-Sep-09	23-Sep-09				9-Sep-09	14-Sep-09
		Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite
Sub-Order: Zygoptera																							
Family: Coenagrionidae																							
Coenagrion/Enallagma sp.	larvae																18						
Order: Collembola																							
Family: Poduridae	larvae																						
Family: Smithuridae	larvae																						
Class: Crustacea																							
Sub-Class: Copepoda																							
Order: Calanoida															5	1		8	8	5	21	3	13
Order: Cyclopoida		4									3	7	4	1			4					1	
Order: Harpacticoida																							
Order: Amphipoda	juv./dam.	432	1			1	11	31	32	74	35	2		36		1	54	3	4		7	70	18
Gammarus sp.							8		8	16	16	9		14			2	3		1	4	1	5
Hyalella sp.											200	2					14	3			3	42	3
Order: Cladocera																1		1			1		
Order: Conchostraca																						7	
Order: Mysidacea																							
Mysis sp.																							
Order: Ostracoda		128							1	1	16			6		2	2					25	
Super-Order: Acariformes	deutonymph	12																					
Family: Arrenuridae																							
Arrenurus sp.	adult	8									10											1	
Family: Lebertiidae																							
Lebertia sp.	adult	20																					
Family: Limnesiidae																							
Limnesia sp.	adult								1	1													
Family: Mideopsidae																							
Mideopsis sp.	adult																						
Family: Pionidae																							
Piona sp.	adult																	1			1		
Family: Unionicolidae																							
Neumania sp.	adult			1		1		1		1	3									1	1		2
Phylum: Mollusca																							
Order: Bivalvia	no shell																	6			6		
Family: Sphaeriidae		212	10		1	11	53	39	56	148	100	17		50	1	12	60	42	16	45	103	53	81
Pisidium sp.							5	15	23	43	21			6				20	13	9	42	19	38
Sphaerium sp.														1									
Order: Gastropoda	no shell		3		1	4										4	2						
Family: Lymnaeidae		4																					
Family: Planorbiidae																	18						
Family: Valvatidae					1	1											10						
Valvata sincera helicoidea		12	3					3	2	5				5		3						1	
Phylum: Annelida																							
Class: Hirudinea																	4						
Family: Erpobdellidae																	4	1			1		
Nephelopsis obscura																							
Family: Glossiphoniidae		12									8						4					6	5
Batracobdella sp.																						1	
Glossiphonia complanata																							
Placobdella sp.																						1	2
Family: Piscicolidae																							
Piscicola milneri																							
Class: Oligochaeta																							
Family: Lumbriculidae											10			1			2					6	
Rhynchelmis sp.												2											
Sub-Family: Naidianae																							
Family: Tubificinae			5	2		7	20	10	12	42								13	3	5	21	2	3
Phylum: Nemata		168												1			2						
TOTAL SUBSAMPLE	-	1,700	79	26	18	123	131	137	169	437	529	420	7	144	7	46	708	123	162	79	364	369	218
TOTAL organisms per square meter	-	73,580	-	-	-	5,324	-	-	-	18,914	22,901	18,174	303	6,233	303	1,991	30,471	-	-	-	15,495	15,950	9,436
NOTES:																							
[a] juv. = juvenile																							
[b] dam. = damaged																							

Table J1	**Benthic Inverteb**																								
	Avalon Rare Met																								
	Thor Lake, NT																								
	Project # 123510																								
Benthic Invertebrate	Stage	Thor West	Thor East	Wasp				Pistol	Porkchop				Kinnikinnick	Dinosaur	Murky	Egg				Buck	Drizzle	Redemption			
		6-Sep-09	6-Sep-09	23-Sep-09				18-Sep-09	24-Sep-09				16-Sep-09	19-Sep-09	17-Sep-09	23-Sep-09				4-Sep-09	5-Sep-09	6-Sep-09			
		Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite
Order: Ephemeroptera																									
Family: Baetidae																									
Acentrella sp.	nymph																								
Family: Ephemerellidae	nymph (juv./dam.)																								
Family: Ephemeridae																									
Ephemera simulans	nymph																								
Hexagenia limbata	nymph																								
Order: Plecoptera																									
Family: Nemouridae																									
Zapada sp.	nymph																								
Order: Trichoptera																									
Family: Leptoceridae	larvae (juv./dam.)																								
Oecetis sp.	larvae					4	4	3							1					3	21				
Family: Molannidae																									
Molanna sp.	larvae																								
Family: Phryganiidae																									
Agrypnia sp.	larvae														1										
Family: Polycentropodidae																									
Polycentropus sp.	larvae																			1					
Order: Coleoptera																									
Family: Dytiscidae UID	adult																								
Order: Diptera																									
Family: Ceratopogonidae	larvae (juv./dam.)							51	1			1			5	1			1	2	14				
Bezzia/Palpomyia sp.	larvae			1			1	84		1		1			31					18	51				
Culicoides sp.	larvae							8							27					1					
Dasyhelea sp.	larvae							3																	
Mallochohelea sp.	larvae					2	2													16	46				
Monohelea sp.	larvae																								
Probezzia sp.	larvae			1	7	5	13	49	6			6		1	35					33	30				
Sphaeromias so.	larvae																								
Family: Chaoboridae	larvae (juv./dam.)															1			1			1			1
Chaoborus sp.	larvae				2		2							17			1	3	4			1	5		6
Family: Chironomidae	larvae																1		1						
Subfamily : Chironominae	larvae																								
Chironomus sp.	larvae	226	318								1	1	120	78						71	27	2	10	9	21
Cladotanytarsus sp.	larvae			1	3		4	14													64				
Cryptochironomus sp.	larvae																			3					
Cryptotendipes sp.	larvae																								
Dicrotendipes sp.	larvae								1			1			16						216				
Gylptotendipes sp.	larvae																								
Microtendipes sp.	larvae																								
Micropsectra sp.	larvae														95					102	1046		1		1
Pagastiella sp.	larvae			68	79	69	216	470	5	1		6			6					320	112		5		5
Paracladopelma sp.	larvae																								
Polypedilum sp.	larvae			30	21	10	61	124																	
Rheotanytarsus sp.	larvae																								
Stictochironomus sp.	larvae																								
Tribelos sp.	larvae																				3				
Subfamily : Orthocladiinae	larvae																								
Epoicocladius sp.	larvae																								
Subfamily : Tanypodinae	larvae					4	4								4										
Procladius sp.	larvae		10	10	3		13	57							17	1			1	15	49				
Tanypus sp.						5	5																		
Thienemannimyia Group	larvae																								
Larsia sp.	larvae								1			1													
Subfamily : Diamesinae	larvae																								
Potthastia longimana Group	larvae																								
Subfamily : Prodiamesinae	larvae																								
Monodiamesa sp.	larvae																								
Family: Simuliidae	adult																								
Order: Odonata																									
Sub-Order: Anisoptera																									
Family: Corduliidae																									
Cordulia shurtleffii	larvae																								

Benthic Invertebrate	Stage	Thor West	Thor East	Wasp				Pistol	Porkchop				Kinnikinnick	Dinosaur	Murky	Egg				Buck	Drizzle	Redemption			
		6-Sep-09	6-Sep-09	23-Sep-09				18-Sep-09	24-Sep-09				16-Sep-09	19-Sep-09	17-Sep-09	23-Sep-09				4-Sep-09	5-Sep-09	6-Sep-09			
		Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite	Composite	Composite	Replicate 1	Replicate 2	Replicate 3	Composite
Sub-Order: Zygoptera																									
Family: Coenagrionidae																									
Coenagrion/Enallagma sp.	larvae																								
Order: Collembola																									
Family: Poduridae	larvae													1											
Family: Smithuridae	larvae		2																						
Class: Crustacea																									
Sub-Class: Copepoda																				1					
Order: Calanoida					1	2	3	3						7			3		3	1	11				
Order: Cyclopoida			2					8							2										
Order: Harpacticoida													3												
Order: Amphipoda	juv./dam.			33	15	18	66	108						2	42	4	7	5	16	74	14				
Gammarus sp.				1	4	3	8	5						1	2		22	3	25	8	16				
Hyalella sp.				40	41	30	111	140						1	26		1		1	67	16				
Order: Cladocera			4																						
Order: Conchostraca																				5					
Order: Mysidacea																									
Mysis sp.			2																						
Order: Ostracoda				1	1	2	4	16		1		1	2	9	8						3		1		1
Super-Order: Acariformes	deutonymph		28	1			1	3																	
Family: Arrenuridae																									
Arrenurus sp.	adult				1		1	5						1											
Family: Lebertiidae																									
Lebertia sp.	adult							8												1					
Family: Limnesiidae																									
Limnesia sp.	adult																								
Family: Mideopsidae																									
Mideopsis sp.	adult														2										
Family: Pionidae																									
Piona sp.	adult		2												2										
Family: Unionicolidae																									
Neumania sp.	adult	1	6			2	2								2										
Phylum: Mollusca																									
Order: Bivalvia	no shell	2																							
Family: Sphaeriidae		5	224	24	32	16	72	132					15	12	98		1		1	113	38			1	1
Pisidium sp.		5	32	17	12	17	46	46					6	8	26					37	19				
Sphaerium sp.			2					3																	
Order: Gastropoda	no shell		4																						
Family: Lymnaeidae																									
Family: Planorbiidae																									
Family: Valvatidae				3		2	5	3							7										
Valvata sincera helicoidea			12	1	4		5								6						3				
Phylum: Annelida																									
Class: Hirudinea																									
Family: Erpobdellidae															4					2	3				
Nephelopsis obscura																				1					
Family: Glossiphoniidae				1	1		2	5												3					
Batracobdella sp.																									
Glossiphonia complanata																				1					
Placobdella sp.																									
Family: Piscicolidae																									
Piscicola milneri		1																							
Class: Oligochaeta																									
Family: Lumbriculidae				4	2	8	14	22						1	3						30				
Rhynchelmis sp.																									
Sub-Family: Naidianae			8																						
Family: Tubificinae		7	30					8					41	1	2		4		4		3				
Phylum: Nemata		1		1			1	11	1			1		2	2						19				
TOTAL SUBSAMPLE	-	248	686	238	229	199	666	1,388	15	3	1	19	187	142	472	7	40	11	58	899	1,849	4	22	10	36
TOTAL organisms per square meter	-	10,648	29,692	-	-	-	28,826	60,068	-	-	-	822	8,094	6,146	20,429	-	-	-	2,510	38,868	80,029	-	-	-	1,558
NOTES:																									
[a] juv. = juvenile																									
[b] dam. = damaged																									

Table J2	Benthic Invertebrate Taxonomy & Species Abundance in September 2010								
	Avalon Rare Metals Thor Lake Property								
	Thor Lake, NT								
	Project # 123510431-201								
Benthic Invertebrate	Stage	Long				Thor West			
		2-Sep-10				1-Sep-10			
		Replicate 1	Replicate 2	Replicate 3	Composite	Replicate 1	Replicate 2	Replicate 3	Composite
Order : Coleoptera	juv./dam.								
Order : Diptera									
Family : Ceratopogonidae									
Probezzia sp.	larvae								
Family : Chaoboridae									
Chaoborus sp.	larvae								
Family : Chironomidae									
Subfamily : Chironominae									
Chironomus sp.			5	2	7	71	64	87	222
Cladopelma sp.			2		2	3	2	4	9
Cladotanytarsus sp.									
Subfamily : Tanypodinae									
Procladius sp.							4	2	6
Class : Crustacea									
Order : Copepoda									
Family : Calanoida		4	19	55	78				
Order : Cladocera									
Daphnia sp.				2	2				
Order : Ostracoda									
Order : Trombidiformes	juv./dam.					1		2	3
Family : Unionicolidae									
Neumania sp.	adult								
Unionicola sp.	adult								
Phylum : Annelida									
SubClass : Oligochaeta									
Family : Naididae							5	5	10
Phylum : Mollusca									
Class : Bivalvia									
Family : Sphaeriidae						19	20	14	53
Pisidium sp.							4	5	9
Sphaerium sp.									
Class : Gastropoda							2		2
Valvata sincera									
Phylum : Nemata									
TOTAL SUBSAMPLE	-	4	26	59	89	94	101	119	314
TOTAL organisms per square me	-	173	1125	2554	3,852	4,069	4,372	5,151	13,951
NOTES:									
[a] juv. = juvenile									
[b] dam. = damaged									

Table J2	**Benthic In**								
	Avalon Ra								
	Thor Lake,								
	Project # 1								
Benthic Invertebrate	Stage	Thor East				Redemption			
		1-Sep-10				6-Sep-10			
		Replicate 1	Replicate 2	Replicate 3	Composite	Replicate 1	Replicate 2	Replicate 3	Composite
Order : Coleoptera	juv./dam.			1	1				
Order : Diptera									
Family : Ceratopogonidae									
Probezzia sp.	larvae					1		1	2
Family : Chaoboridae									
Chaoborus sp.	larvae					1	1		2
Family : Chironomidae									
Subfamily : Chironominae		5			5				
Chironomus sp.		40	31	53	124	41	72	22	135
Cladopelma sp.		10		3	13		1		1
Cladotanytarsus sp.		7			7				
Subfamily : Tanypodinae									
Procladius sp.		3	2	4	9				
Class : Crustacea									
Order : Copepoda									
Family : Calanoida									
Order : Cladocera									
Daphnia sp.		2			2				
Order : Ostracoda		1		1	2				
Order : Trombidiformes	juv./dam.			10	10				
Family : Unionicolidae									
Neumania sp.	adult	7	1	1	9				
Unionicola sp.	adult	1			1				
Phylum : Annelida									
SubClass : Oligochaeta				2	2				
Family : Naididae		4	4	1	9				
Phylum : Mollusca									
Class : Bivalvia									
Family : Sphaeriidae		56	20	68	144				
Pisidium sp.		2		8	10				
Sphaerium sp.		1		4	5				
Class : Gastropoda			2		2				
Valvata sincera		5		14	19				
Phylum : Nemata		2			2				
TOTAL SUBSAMPLE	-	146	60	170	376	43	74	23	140
TOTAL organisms per square me	-	6,319	2,597	7,358	16,274	1,861	3,203	995	6,060
NOTES:									
[a] juv. = juvenile									
[b] dam. = damaged									

APPENDIX K

Fish Length, Weight and Age Data

Table K1 Fish Species, Weight, Length, Age and Sex by Study Lake
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
A	2008	LC	243	190	-					
A	2008	LC	275	320	-					
A	2008	LC	297	410	-					
A	2008	LC	305	460	-					
A	2008	LC	310	420	-					
A	2008	LC	312	435	-					
A	2008	LWF	525	2100	-	2008_ALLWF01	C/A	36.7	F	n
A	2008	LWF	486	1900	-	2008_ALLWF02	9	37.9	F	n
A	2008	LWF	522	2210	-	2008_ALLWF03	9	32.3	F	n
A	2008	LWF	402	1350	-	2008_ALLWF04	6	13.8	F	n
A	2008	LWF	461	1390	-	2008_ALLWF05	7	19.1	M	n
A	2008	LWF	519	1900	-	2008_ALLWF06	10	26.5	F	n
A	2008	LWF	487	1480	-	2008_ALLWF07	9	14.6	M	y
A	2008	LWF	448	1320	-	2008_ALLWF08	7	15.7	M	n
A	2008	LWF	446	1220	-	2008_ALLWF09	7	13.9	M	n
A	2008	LWF	485	1630	-	2008_ALLWF10	8	15.8	U	n
A	2008	LWF	486	1700	-	2008_ALLWF11	6	22.1	U	n
A	2008	LWF	495	1320	-	2008_ALLWF12	6	12.8	U	n
A	2008	LWF	-	-	-					
A	2008	LWF	-	-	-					
A	2008	LWF	263	245	-					
A	2008	LWF	467	1370	-					
A	2008	LWF	474	1590	-					
A	2008	LWF	474	1520	-					
A	2008	LWF	474	1610	-					
A	2008	LWF	475	1685	-					
A	2008	LWF	480	1410	-					
A	2008	LWF	484	1590	-					
A	2008	LWF	484	1580	-					
A	2008	LWF	487	1620	-					
A	2008	LWF	490	1730	-					
A	2008	LWF	496	1590	-					
A	2008	LWF	500	980	-					
A	2008	LWF	512	1870	-					
A	2008	NP	437	630	-	2008_ALNP01	3	8.6	F	n
A	2008	NP	437	560	-	2008_ALNP02	5	9.5	F	n
A	2008	NP	320	200	-	2008_ALNP03	4	2.6	M	n
A	2008	NP	421	480	-	2008_ALNP04	4	8.4	F	n
A	2008	NP	342	290	-	2008_ALNP05	4	5.7	F	n
A	2008	NP	283	130	-	2008_ALNP06	2	2.7	M	n
A	2008	NP	337	250	-	2008_ALNP07	3	3.8	F	n
A	2008	NP	438	560	-	2008_ALNP08	5	12.7	F	n
A	2009	LC	296	410.4	n	2009_ALLC01	11	7.67	F	n
A	2009	LC	303	468.5	y	2009_ALLC02	10	3.96	M	y
A	2009	LC	283	342.0	n	2009_ALLC03	8	5.76	F	n
A	2009	LC	252	213.3	n	2009_ALLC04	10	2.45	M	n
A	2009	LC	281	354.8	n	2009_ALLC05	10	3.94	M	n
A	2009	LC	237	144.2	n	2009_ALLC06	7	0.84	M	n
A	2009	LC	230	161.8	n	2009_ALLC07	8	1.7	M	n
A	2009	LC	224	134.6	n	2009_ALLC08	6	1.59	M	n
A	2009	LC	221	138.7	n	2009_ALLC09	6	0.78	M	y
A	2009	LC	149	35.5	n	2009_ALLC10	2	0.25	F	n
A	2009	LC	116	17.1	n	2009_ALLC11	1	0.25	M	n
A	2009	LC	147	33.6	n	2009_ALLC11	2	0.13	F	n
A	2009	LC	125	21.6	n	2009_ALLC13	2	0.18	U	n
A	2009	LC	117	17.5	n	2009_ALLC14	1	0.12	U	n
A	2009	LC	112	15.2	n	2009_ALLC15	2	0.12	U	n
A	2009	LC	120	18.2	n	2009_ALLC16	2	0.13	U	n
A	2009	LC	121	19.0	n	2009_ALLC17	2	0.13	U	n
A	2009	LC	116	18.5	n	2009_ALLC18	1	0.14	U	n
A	2009	LC	120	19.3	n	2009_ALLC19	2	0.14	U	n
A	2009	LC	114	16.7	n	2009_ALLC20	2	0.08	U	n
A	2009	LC	119	18.6	n	2009_ALLC21	2	0.16	U	n
A	2009	LC	116	15.9	n	2009_ALLC22	2	0.11	U	n
A	2009	LC	140	32.6	n					
A	2009	LC	268	293.8	n					
A	2009	LC	290	328.0	n					
A	2009	LC	-	-	n					
A	2009	LWF	499	1771.6	n	2009_ALLWF01	25	21.21	M	y
A	2009	LWF	480	1527.1	n	2009_ALLWF02	28	18.1	F	y

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
A	2009	LWF	413	1298.4	n	2009_ALLWF03	6	21.07	F	n
A	2009	LWF	413	1192.1	n	2009_ALLWF04	7	16.37	F	n
A	2009	LWF	409	1067.7	n	2009_ALLWF05	7	5.41	F	n
A	2009	NP	25	-	n					
A	2009	NP	200	-	n					
A	2009	NP	358	305.1	n					
A	2009	NP	509	998.0	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	SSC	-	-	n					
A	2009	STB	25	-	n					
A	2009	STB	-	-	n					
Carrot	2009	LC	176	60.1	n	2009_CLLC01		0.76	M	n
Carrot	2009	LC	180	66.5	n	2009_CLLC02		1.56	F	n
Carrot	2009	LC	196	67.5	n	2009_CLLC03		1.26	F	n
Carrot	2009	LC	184	76.1	n	2009_CLLC04		1.34	F	n
Carrot	2009	LC	168	62.5	n	2009_CLLC05		1.14	F	n
Carrot	2009	LC	166	52.8	n	2009_CLLC06		0.89	F	n
Carrot	2009	LC	158	55.4	n	2009_CLLC07		0.48	M	n
Carrot	2009	LC	151	39.5	n	2009_CLLC08		0.47	F	n
Carrot	2009	LC	145	34.7	n	2009_CLLC09		0.24	M	n
Carrot	2009	LC	137	29.4	n	2009_CLLC10		0.2	M	n
Carrot	2009	LC	130	29.6	n	2009_CLLC11		0.36	F	n
Carrot	2009	LC	152	43.6	n					
Carrot	2009	LC	178	62.5	n					
Carrot	2009	LC	179	70.9	n					
Carrot	2009	LT	505	1327.2	n					
Carrot	2009	LT	526	1719.5	n					
Carrot	2009	LT	545	1801.8	n					
Carrot	2009	LT	558	2061.3	n					
Carrot	2009	LT	558	2329.6	n					
Carrot	2009	LT	561	2242.0	n					
Carrot	2009	LT	582	2253.8	y					
Carrot	2009	LWF	476	1432.6	n	2009_CLLWF01		12.11	M	n
Carrot	2009	LWF	307	330.5	n	2009_CLLWF02		2.31	M	n
Carrot	2009	LWF	278	225.1	n	2009_CLLWF03		1.76	F	y
Carrot	2009	LWF	217	118.5	n	2009_CLLWF04		0.93	U	n
Carrot	2009	LWF	211	103.1	n	2009_CLLWF05		1.02	U	n
Carrot	2009	LWF	152	42.4	n	2009_CLLWF06		0.39	U	n
Carrot	2009	LWF	148	37.5	n	2009_CLLWF07		0.37	U	n
Carrot	2009	LWF	489	1586.4	n					
Carrot	2009	LWF	520	1976.0	n					
Carrot	2009	SSC	15	-	n					
Carrot	2009	SSC	45	-	n					
Carrot	2009	STB	15	-	n					
Carrot	2009	STB	20	-	n					
Carrot	2009	STB	20	-	n					
Carrot	2009	STB	20	-	n					
Carrot	2009	STB	30	-	y					
Carrot	2009	STB	35	-	y					
Carrot	2009	STB	35	-	y					
Carrot	2009	STB	50	-	n					
Carrot	2009	STB	55	-	n					
Elbow	2008	LC	117	16	-					
Elbow	2008	LC	120	17.7	-					
Elbow	2008	LC	120	16.8	-					
Elbow	2008	LC	120	15.2	-					
Elbow	2008	LC	121	20.7	-					
Elbow	2008	LC	123	19	-					
Elbow	2008	LC	124	19.3	-					
Elbow	2008	LC	125	20.2	-					
Elbow	2008	LC	127	18.7	-					
Elbow	2008	LC	128	21	-					
Elbow	2008	LC	129	20.1	-					
Elbow	2008	LC	131	20.8	-					
Elbow	2008	LC	131	22.7	-					
Elbow	2008	LC	131	20.7	-					
Elbow	2008	LC	131	22.4	-					
Elbow	2008	LC	132	19	-					
Elbow	2008	LC	134	26	-					
Elbow	2008	LC	137	24.5	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Elbow	2008	LC	140	22.7	-					
Elbow	2008	LC	144	22	-					
Elbow	2008	LC	174	53	-					
Elbow	2008	LWF	409	860	-	2008_ELLWF01	C/A	12.3	F	y
Elbow	2008	LWF	444	1000	-	2008_ELLWF02	8	10.9	M	y
Elbow	2008	LWF	423	900	-	2008_ELLWF03	6	15.2	M	y
Elbow	2008	LWF	430	1040	-	2008_ELLWF04	7	18.1	F	y
Elbow	2008	LWF	422	1260	-	2008_ELLWF05	9	32.6	F	y
Elbow	2008	LWF	434	1340	-	2008_ELLWF06	8	26.6	F	y
Elbow	2008	LWF	352	570	-	2008_ELLWF07	4	7.9	F	y
Elbow	2008	LWF	416	1240	-	2008_ELLWF08	C/A	27.4	F	y
Elbow	2008	LWF	366	690	-	2008_ELLWF09	5	11.6	F	y
Elbow	2008	LWF	395	900	-	2008_ELLWF10	8	10.1	F	y
Elbow	2008	LWF	272	240	-	2008_ELLWF11	C/A	2.8	F	y
Elbow	2008	LWF	408	905	-	2008_ELLWF12	6	11.6	F	y
Elbow	2008	LWF	-	-	-					
Elbow	2008	LWF	-	-	-					
Elbow	2008	LWF	-	-	-					
Elbow	2008	LWF	-	-	-					
Elbow	2008	LWF	-	-	-					
Elbow	2008	LWF	360	640	-					
Elbow	2008	LWF	370	560	-					
Elbow	2008	LWF	385	1010	-					
Elbow	2008	LWF	392	820	-					
Elbow	2008	LWF	393	880	-					
Elbow	2008	LWF	394	920	-					
Elbow	2008	LWF	395	960	-					
Elbow	2008	LWF	398	850	-					
Elbow	2008	LWF	398	910	-					
Elbow	2008	LWF	400	810	-					
Elbow	2008	LWF	402	820	-					
Elbow	2008	LWF	402	740	-					
Elbow	2008	LWF	405	860	-					
Elbow	2008	LWF	405	900	-					
Elbow	2008	LWF	407	1280	-					
Elbow	2008	LWF	407	1140	-					
Elbow	2008	LWF	408	870	-					
Elbow	2008	LWF	408	940	-					
Elbow	2008	LWF	409	1050	-					
Elbow	2008	LWF	410	880	-					
Elbow	2008	LWF	412	950	-					
Elbow	2008	LWF	414	965	-					
Elbow	2008	LWF	414	850	-					
Elbow	2008	LWF	415	1080	-					
Elbow	2008	LWF	416	1080	-					
Elbow	2008	LWF	416	990	-					
Elbow	2008	LWF	418	1020	-					
Elbow	2008	LWF	418	950	-					
Elbow	2008	LWF	420	1020	-					
Elbow	2008	LWF	420	925	-					
Elbow	2008	LWF	420	1070	-					
Elbow	2008	LWF	424	1060	-					
Elbow	2008	LWF	424	1070	-					
Elbow	2008	LWF	425	1060	-					
Elbow	2008	LWF	425	1120	-					
Elbow	2008	LWF	427	970	-					
Elbow	2008	LWF	427	960	-					
Elbow	2008	LWF	432	1100	-					
Elbow	2008	LWF	433	1060	-					
Elbow	2008	LWF	434	950	-					
Elbow	2008	LWF	434	1300	-					
Elbow	2008	LWF	435	1080	-					
Elbow	2008	LWF	438	1180	-					
Elbow	2008	LWF	439	1110	-					
Elbow	2008	LWF	440	1330	-					
Elbow	2008	LWF	440	1250	-					
Elbow	2008	LWF	440	1100	-					
Elbow	2008	LWF	444	1080	-					
Elbow	2008	LWF	445	1060	-					
Elbow	2008	LWF	445	1090	-					
Elbow	2008	LWF	447	1140	-					
Elbow	2008	LWF	460	1310	-					
Elbow	2008	LWF	465	1100	-					
Elbow	2008	LWF	465	1190	-					
Elbow	2008	NP	773	4410	-	2008_ELNP01	7	152.4	F	n
Elbow	2008	NP	574	1200	-	2008_ELNP02	7	22.6	F	n

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Elbow	2008	NP	548	760	-	2008_ELNP03	C/A	14.6	F	n
Elbow	2008	NP	568	1030	-	2008_ELNP04	C/A	16.3	F	n
Elbow	2008	NP	480	760	-	2008_ELNP05	5	16	M	n
Elbow	2008	NP	634	1680	-	2008_ELNP06	7	29.1	F	n
Elbow	2008	NP	543	980	-	2008_ELNP07	5	16.4	F	n
Elbow	2008	NP	538	1010	-	2008_ELNP08	7	14.5	M	n
Elbow	2008	NP	565	1090	-	2008_ELNP09	7	15.6	F	n
Elbow	2008	NP	410	440	-	2008_ELNP10	5	9	F	n
Elbow	2008	NP	523	1050	-	2008_ELNP11	6	16.2	M	n
Elbow	2008	NP	384	400	-					
Elbow	2008	NP	408	460	-					
Elbow	2008	NP	443	550	-					
Elbow	2008	NP	515	920	-					
Elbow	2008	NP	556	1120	-					
Elbow	2009	LC	122	18.7	n					
Elbow	2009	LC	127	19.9	n					
Elbow	2009	LC	128	18.6	n					
Elbow	2009	LC	132	25.4	y					
Elbow	2009	LC	203	103.5	n					
Elbow	2009	LC	-	-	n					
Elbow	2009	LWF	397	944.8	y	2009_ELLWF01	23	7.91	M	y
Elbow	2009	LWF	441	1166.0	n	2009_ELLWF02	24	14.26	M	y
Elbow	2009	LWF	434	1351.1	n	2009_ELLWF03	21	20.58	F	y
Elbow	2009	LWF	460	1379.2	n	2009_ELLWF04	13	15.27	M	y
Elbow	2009	LWF	429	1239.4	n	2009_ELLWF05	11	14.94	M	y
Elbow	2009	LWF	454	1348.7	y	2009_ELLWF06	10	17.18	M	y
Elbow	2009	LWF	433	1074.8	n	2009_ELLWF07	28	13.17	M	y
Elbow	2009	LWF	470	1640.5	n	2009_ELLWF08	17	21.19	F	y
Elbow	2009	LWF	427	1055.3	n	2009_ELLWF09	11	7.47	M	y
Elbow	2009	LWF	420	1134.3	n	2009_ELLWF10	15	13.38	M	y
Elbow	2009	LWF	400	796.5	n	2009_ELLWF11	18	7.34	M	y
Elbow	2009	LWF	410	988.7	y	2009_ELLWF12	10	8.83	M	y
Elbow	2009	LWF	219	113.0	y					
Elbow	2009	LWF	385	879.1	n					
Elbow	2009	LWF	388	808.9	y					
Elbow	2009	LWF	389	842.5	y					
Elbow	2009	LWF	390	733.6	n					
Elbow	2009	LWF	398	913.8	y					
Elbow	2009	LWF	404	1144.8	y					
Elbow	2009	LWF	407	979.2	y					
Elbow	2009	LWF	409	979.0	y					
Elbow	2009	LWF	409	1040.3	n					
Elbow	2009	LWF	410	960.5	n					
Elbow	2009	LWF	411	1204.1	n					
Elbow	2009	LWF	412	910.8	y					
Elbow	2009	LWF	413	1160.2	n					
Elbow	2009	LWF	414	1010.5	n					
Elbow	2009	LWF	415	1001.7	n					
Elbow	2009	LWF	415	1044.8	n					
Elbow	2009	LWF	416	1087.7	n					
Elbow	2009	LWF	416	958.0	y					
Elbow	2009	LWF	416	1019.5	y					
Elbow	2009	LWF	418	968.8	y					
Elbow	2009	LWF	420	1086.7	y					
Elbow	2009	LWF	420	1129.1	n					
Elbow	2009	LWF	421	1229.8	y					
Elbow	2009	LWF	421	1024.6	n					
Elbow	2009	LWF	422	1152.6	y					
Elbow	2009	LWF	422	926.9	n					
Elbow	2009	LWF	422	1233.1	n					
Elbow	2009	LWF	424	1118.6	n					
Elbow	2009	LWF	426	1175.6	n					
Elbow	2009	LWF	426	1139.8	n					
Elbow	2009	LWF	427	1142.3	y					
Elbow	2009	LWF	427	1010.4	n					
Elbow	2009	LWF	428	1115.7	n					
Elbow	2009	LWF	430	1133.7	n					
Elbow	2009	LWF	430	1084.5	y					
Elbow	2009	LWF	432	1155.9	y					
Elbow	2009	LWF	434	1139.4	y					
Elbow	2009	LWF	434	1203.2	y					
Elbow	2009	LWF	435	1092.0	n					
Elbow	2009	LWF	435	1371.6	y					
Elbow	2009	LWF	438	1155.1	n					
Elbow	2009	LWF	439	1224.3	n					
Elbow	2009	LWF	440	1322.5	y					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Elbow	2009	LWF	441	1171.9	n					
Elbow	2009	LWF	441	1019.2	y					
Elbow	2009	LWF	441	1282.6	y					
Elbow	2009	LWF	442	1222.5	y					
Elbow	2009	LWF	445	1250.0	n					
Elbow	2009	LWF	446	1304.9	n					
Elbow	2009	LWF	447	1011.7	n					
Elbow	2009	LWF	455	1312.3	n					
Elbow	2009	LWF	474	1201.6	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	LWF	-	-	n					
Elbow	2009	NP	565	897.4	n	2009_ELNP01	10	12.56	F	n
Elbow	2009	NP	397	439.1	y	2009_ELNP02	4	5.67	M	n
Elbow	2009	NP	531	835.5	n	2009_ELNP03	7	15.53	F	n
Elbow	2009	NP	510	876.9	y	2009_ELNP04	5	14.73	F	n
Elbow	2009	NP	494	759.3	n	2009_ELNP05	6	13.17	F	n
Elbow	2009	NP	542	911.0	y	2009_ELNP06	8	13.26	F	n
Elbow	2009	NP	558	991.4	n	2009_ELNP07	10	7.17	M	n
Elbow	2009	NP	469	652.1	n	2009_ELNP08	4	6.44	M	n
Elbow	2009	NP	450	573.8	n	2009_ELNP09	6	9.78	F	n
Elbow	2009	NP	550	1010.6	n	2009_ELNP10	8	8.95	M	n
Elbow	2009	NP	462	678.6	n	2009_ELNP11	5	9	M	n
Elbow	2009	NP	570	913.9	n	2009_ELNP12	9	14.25	F	n
Elbow	2009	NP	475	695.7	n					
Elbow	2009	NP	512	896.6	n					
Elbow	2009	NP	566	1143.8	n					
Elbow	2009	NP	571	954.9	n					
Elbow	2009	SSC	-	-	n					
Elbow	2009	SSC	-	-	n					
Elbow	2009	SSC	-	-	n					
Elbow	2009	SSC	-	-	n					
Elbow	2009	STB	-	-	n					
Elbow	2009	STB	-	-	n					
Fred	2008	LC	205	120	-					
Fred	2008	LWF	407	1300	-	2008_FLLWF01	5	24	F	-
Fred	2008	LWF	429	1320	-	2008_FLLWF02	4	26.4	F	-
Fred	2008	LWF	330	620	-	2008_FLLWF03	3	14.7	M	-
Fred	2008	LWF	270	300	-	2008_FLLWF04	2	3.5	M	-
Fred	2008	LWF	259	260	-	2008_FLLWF05	2	4.3	M	-
Fred	2008	LWF	405	1390	-	2008_FLLWF06	3	35.5	F	-
Fred	2008	LWF	146	40	-	2008_FLLWF07	1	0.7	U	-
Fred	2008	LWF	374	820	-	2008_FLLWF08	3	7.6	M	-
Fred	2008	LWF	251	250	-	2008_FLLWF09	2	2.6	M	-
Fred	2008	LWF	381	1020	-	2008_FLLWF10	4	19.6	F	-
Fred	2008	LWF	353	1060	-	2008_FLLWF11	4	19.7	F	-
Fred	2008	LWF	207	130	-	2008_FLLWF12	2	1.8	F	-
Fred	2008	LWF	135	20	-					
Fred	2008	LWF	148	40	-					
Fred	2008	LWF	238	190	-					
Fred	2008	LWF	251	240	-					
Fred	2008	LWF	253	210	-					
Fred	2008	LWF	253	255	-					
Fred	2008	LWF	255	210	-					
Fred	2008	LWF	255	230	-					
Fred	2008	LWF	263	260	-					
Fred	2008	LWF	304	700	-					
Fred	2008	LWF	350	700	-					
Fred	2008	LWF	355	755	-					
Fred	2008	LWF	361	780	-					
Fred	2008	LWF	362	680	-					
Fred	2008	LWF	371	760	-					
Fred	2008	LWF	404	1040	-					
Fred	2008	LWF	405	930	-					
Fred	2008	LWF	410	1020	-					
Fred	2008	LWF	420	1120	-					
Fred	2008	NP	305	205	-	2008_FLNP01	3	5.2	F	-
Fred	2008	NP	348	300	-	2008_FLNP02	3	6.2	U	-
Fred	2008	NP	367	350	-	2008_FLNP03	3	7	M	-
Fred	2008	NP	313	220	-	2008_FLNP04	3	4.7	M	-
Fred	2008	NP	220	80	-	2008_FLNP05	1	1.3	F	-
Fred	2008	NP	355	300	-	2008_FLNP06	3	5.7	M	-

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Fred	2008	NP	320	240	-	2008_FLNP07	2	3.9	F	-
Fred	2009	LC	114	15.7	n					
Fred	2009	LC	190	107.1	n					
Fred	2009	LWF	316	429.2	n	2009_FLLWF01	4	1.69	M	n
Fred	2009	LWF	231	184.6	n	2009_FLLWF02	2	2.28	M	n
Fred	2009	LWF	446	1541.0	n	2009_FLLWF03	7	27.55	F	n
Fred	2009	LWF	405	1176.7	n	2009_FLLWF04	4	9.23	M	n
Fred	2009	LWF	387	886.4	n	2009_FLLWF05	4	18.48	F	n
Fred	2009	LWF	335	550.1	n	2009_FLLWF06	3	6.5	M	n
Fred	2009	LWF	331	644.1	n	2009_FLLWF07	3	6.93	M	n
Fred	2009	LWF	230	153.5	n	2009_FLLWF08	2	2.17	U	n
Fred	2009	LWF	246	205.2	n	2009_FLLWF09	2	1.76	U	n
Fred	2009	LWF	229	159.5	n	2009_FLLWF10	2	1.37	U	n
Fred	2009	LWF	244	192.4	n	2009_FLLWF11	2	2.03	U	n
Fred	2009	LWF	244	196.2	n	2009_FLLWF12	2	3.06	U	n
Fred	2009	LWF	233	165.0	n					
Fred	2009	LWF	233	186.1	n					
Fred	2009	LWF	238	182.5	n					
Fred	2009	LWF	387	927.6	n					
Fred	2009	LWF	391	955.8	n					
Fred	2009	LWF	395	1040.8	n					
Fred	2009	NP	442	511.4	n	2009_FLNP01	4	10.3	M	n
Fred	2009	NP	434	615.1	n	2009_FLNP02	4	9.85	F	n
Fred	2009	NP	354	355.2	n	2009_FLNP03	3	6.38	M	n
Fred	2009	NP	324	220.7	n	2009_FLNP04	3	5.06	F	n
Fred	2009	NP	290	180.4	n	2009_FLNP05	3	4.44	M	n
Fred	2009	NP	256	127.3	n	2009_FLNP06	3	3.69	M	n
Fred	2009	NP	272	146.9	n	2009_FLNP07	2	3.03	M	n
Fred	2009	NP	255	118.3	n	2009_FLNP08	2	2.76	M	n
Great Slave	2008	AC	341	410	-					
Great Slave	2008	AC	371	610	-					
Great Slave	2008	AC	385	670	-					
Great Slave	2008	AC	395	730	-					
Great Slave	2008	AC	397	720	-					
Great Slave	2008	AC	399	660	-					
Great Slave	2008	AC	401	670	-					
Great Slave	2008	AC	406	800	-					
Great Slave	2008	AG	394	790	-	2008_GLAG01	5	6.3	M	n
Great Slave	2008	AG	458	1020	-	2008_GLAG02	6	8.2	M	y
Great Slave	2008	AG	413	1070	-	2008_GLAG03	5	19.6	F	n
Great Slave	2008	AG	421	1010	-	2008_GLAG04	6	14.7	F	n
Great Slave	2008	AG	400	870	-	2008_GLAG05	6	14.2	F	n
Great Slave	2008	AG	464	1160	-	2008_GLAG06	7	8.9	M	n
Great Slave	2008	BB	161	22.1	-					
Great Slave	2008	BB	281	138.6	-					
Great Slave	2008	LC	214	88	-					
Great Slave	2008	LC	108	15.1	-					
Great Slave	2008	LC	123	-	-					
Great Slave	2008	LC	124	16.9	-					
Great Slave	2008	LC	125	17	-					
Great Slave	2008	LC	126	16.9	-					
Great Slave	2008	LC	126	17.5	-					
Great Slave	2008	LC	129	19	-					
Great Slave	2008	LC	130	20.1	-					
Great Slave	2008	LC	130	20.1	-					
Great Slave	2008	LC	130	20	-					
Great Slave	2008	LC	131	18.1	-					
Great Slave	2008	LC	132	22	-					
Great Slave	2008	LC	133	19.5	-					
Great Slave	2008	LC	133	21.9	-					
Great Slave	2008	LC	134	20.3	-					
Great Slave	2008	LC	134	20.6	-					
Great Slave	2008	LC	135	21.5	-					
Great Slave	2008	LC	135	22.4	-					
Great Slave	2008	LC	135	22	-					
Great Slave	2008	LC	135	21.6	-					
Great Slave	2008	LC	136	29.9	-					
Great Slave	2008	LC	136	21.6	-					
Great Slave	2008	LC	136	20.9	-					
Great Slave	2008	LC	138	23.2	-					
Great Slave	2008	LC	138	22.7	-					
Great Slave	2008	LC	138	22.1	-					
Great Slave	2008	LC	139	23.8	-					
Great Slave	2008	LC	140	21.6	-					
Great Slave	2008	LC	140	25.2	-					
Great Slave	2008	LC	141	24.1	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2008	LC	142	30.3	-					
Great Slave	2008	LC	143		-					
Great Slave	2008	LC	143	24.4	-					
Great Slave	2008	LC	143	24.4	-					
Great Slave	2008	LC	144	27.3	-					
Great Slave	2008	LC	144	26.5	-					
Great Slave	2008	LC	145	29.3	-					
Great Slave	2008	LC	145	23.7	-					
Great Slave	2008	LC	146	27.8	-					
Great Slave	2008	LC	146	26.8	-					
Great Slave	2008	LC	147	29.5	-					
Great Slave	2008	LC	147	27.2	-					
Great Slave	2008	LC	147	29.5	-					
Great Slave	2008	LC	149	25.5	-					
Great Slave	2008	LC	150	31.8	-					
Great Slave	2008	LC	150	29	-					
Great Slave	2008	LC	152	30.8	-					
Great Slave	2008	LC	154	30	-					
Great Slave	2008	LC	155	38	-					
Great Slave	2008	LC	167	44.9	-					
Great Slave	2008	LC	167	47.7	-					
Great Slave	2008	LC	170	49.7	-					
Great Slave	2008	LC	171	53.9	-					
Great Slave	2008	LC	173	50.3	-					
Great Slave	2008	LC	176	49.9	-					
Great Slave	2008	LC	177	60.4	-					
Great Slave	2008	LC	180	53	-					
Great Slave	2008	LC	180	49.1	-					
Great Slave	2008	LC	181	57.4	-					
Great Slave	2008	LC	183	61.1	-					
Great Slave	2008	LC	183	58.7	-					
Great Slave	2008	LC	184	57.5	-					
Great Slave	2008	LC	185		-					
Great Slave	2008	LC	185	57.6	-					
Great Slave	2008	LC	185	58	-					
Great Slave	2008	LC	188	63.4	-					
Great Slave	2008	LC	190	64.6	-					
Great Slave	2008	LC	191	63.2	-					
Great Slave	2008	LC	191	59.6	-					
Great Slave	2008	LC	194	73.5	-					
Great Slave	2008	LC	200	72.4	-					
Great Slave	2008	LC	200	90.2	-					
Great Slave	2008	LC	202	67.5	-					
Great Slave	2008	LC	204	66.4	-					
Great Slave	2008	LC	209	89	-					
Great Slave	2008	LC	210	93.7	-					
Great Slave	2008	LC	212	89.4	-					
Great Slave	2008	LC	212	91.7	-					
Great Slave	2008	LC	215	94.5	-					
Great Slave	2008	LC	215	95	-					
Great Slave	2008	LC	216	100.8	-					
Great Slave	2008	LC	218	100.9	-					
Great Slave	2008	LC	247	139.7	-					
Great Slave	2008	LC	247	154.9	-					
Great Slave	2008	LC	248	165.6	-					
Great Slave	2008	LC	253	122	-					
Great Slave	2008	LC	255	162.5	-					
Great Slave	2008	LC	255	177.1	-					
Great Slave	2008	LC	301	290	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					
Great Slave	2008	LC	-	-	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2008	RWF	343	530	-					
Great Slave	2008	RWF	361	575	-					
Great Slave	2008	RWF	396	765	-					
Great Slave	2008	RWF	412	910	-					
Great Slave	2008	RWF	435	1055	-					
Great Slave	2008	RWF	440	945	-					
Great Slave	2009	BB	370	309.2	n					
Great Slave	2009	LC	374	630.6	n	2009_GLLC01	13	9.56	F	n
Great Slave	2009	LC	224	121.2	n	2009_GLLC02	8	1.61	F	n
Great Slave	2009	LC	212	104.9	n	2009_GLLC03	5	1.94	F	n
Great Slave	2009	LC	221	101.7	n	2009_GLLC04	6	0.75	F	n
Great Slave	2009	LC	235	126.0	n	2009_GLLC05	10	1.62	F	n
Great Slave	2009	LC	192	63.5	n	2009_GLLC06	4	0.5	F	n
Great Slave	2009	LC	200	82.2	n	2009_GLLC07	4	0.76	M	n
Great Slave	2009	LC	175	47.6	n	2009_GLLC08	5	0.56	F	n
Great Slave	2009	LC	180	50.9	n	2009_GLLC09	4	0.49	F	n
Great Slave	2009	LC	175	46.4	n	2009_GLLC10	5	0.39	F	n
Great Slave	2009	LC	159	36.1	n	2009_GLLC11	4	0.27	F	n
Great Slave	2009	LC	160	38.2	n	2009_GLLC12	4	0.3	F	n
Great Slave	2009	LC	151	27.6	n	2009_GLLC13	4	0.21	F	n
Great Slave	2009	LC	145	29.3	n	2009_GLLC14	4	0.19	F	n
Great Slave	2009	LC	142	23.6	n	2009_GLLC15	4	0.16	M	n
Great Slave	2009	LC	145	23.4	n	2009_GLLC16	4	0.17	F	n
Great Slave	2009	LC	140	22.2	n	2009_GLLC17	4	0.15	U	y
Great Slave	2009	LC	128	18.7	n	2009_GLLC18	2	0.09	U	n
Great Slave	2009	LC	131	16.4	n	2009_GLLC19	3	-	U	n
Great Slave	2009	LC	124	15.4	n	2009_GLLC20	1	0.1	U	n
Great Slave	2009	LC	123	14.6	n					
Great Slave	2009	LC	124	17.5	n					
Great Slave	2009	LC	127	18.1	n					
Great Slave	2009	LC	128	24.9	n					
Great Slave	2009	LC	128	18.6	n					
Great Slave	2009	LC	129	25.3	n					
Great Slave	2009	LC	129	17.7	n					
Great Slave	2009	LC	130	21.8	n					
Great Slave	2009	LC	130	20.9	n					
Great Slave	2009	LC	130	17.7	n					
Great Slave	2009	LC	131	-	n					
Great Slave	2009	LC	131	19.3	n					
Great Slave	2009	LC	131	23.8	n					
Great Slave	2009	LC	132	20.9	n					
Great Slave	2009	LC	132	26.0	n					
Great Slave	2009	LC	132	29.5	n					
Great Slave	2009	LC	132	18.2	n					
Great Slave	2009	LC	132	21.0	n					
Great Slave	2009	LC	132	19.3	n					
Great Slave	2009	LC	133	25.8	n					
Great Slave	2009	LC	133	34.0	n					
Great Slave	2009	LC	133	21.3	n					
Great Slave	2009	LC	134	23.9	n					
Great Slave	2009	LC	134	23.4	n					
Great Slave	2009	LC	134	31.3	n					
Great Slave	2009	LC	134	23.0	n					
Great Slave	2009	LC	135	-	n					
Great Slave	2009	LC	135	25.5	n					
Great Slave	2009	LC	135	28.2	n					
Great Slave	2009	LC	135	28.8	n					
Great Slave	2009	LC	135	21.5	n					
Great Slave	2009	LC	135	20.2	n					
Great Slave	2009	LC	135	20.9	n					
Great Slave	2009	LC	136	24.5	n					
Great Slave	2009	LC	136	29.5	n					
Great Slave	2009	LC	136	27.8	n					
Great Slave	2009	LC	136	20.4	n					
Great Slave	2009	LC	136	20.0	n					
Great Slave	2009	LC	137	25.4	n					
Great Slave	2009	LC	137	20.2	n					
Great Slave	2009	LC	137	20.4	n					
Great Slave	2009	LC	138	-	n					
Great Slave	2009	LC	138	23.7	n					
Great Slave	2009	LC	138	28.1	n					
Great Slave	2009	LC	138	22.2	n					
Great Slave	2009	LC	139	32.1	n					
Great Slave	2009	LC	139	30.9	n					
Great Slave	2009	LC	139	20.4	n					
Great Slave	2009	LC	139	23.8	n					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2009	LC	139	22.2	n					
Great Slave	2009	LC	140	28.3	n					
Great Slave	2009	LC	140	32.8	n					
Great Slave	2009	LC	140	23.0	n					
Great Slave	2009	LC	140	23.3	n					
Great Slave	2009	LC	140	22.0	n					
Great Slave	2009	LC	140	27.3	n					
Great Slave	2009	LC	140	26.0	n					
Great Slave	2009	LC	140	21.3	n					
Great Slave	2009	LC	140	31.3	n					
Great Slave	2009	LC	140	21.4	n					
Great Slave	2009	LC	140	25.3	n					
Great Slave	2009	LC	140	18.1	n					
Great Slave	2009	LC	141	30.1	n					
Great Slave	2009	LC	141	25.1	n					
Great Slave	2009	LC	141	28.1	n					
Great Slave	2009	LC	141	23.3	n					
Great Slave	2009	LC	142	25.2	n					
Great Slave	2009	LC	142	25.9	n					
Great Slave	2009	LC	142	29.5	n					
Great Slave	2009	LC	142	23.7	n					
Great Slave	2009	LC	142	28.7	n					
Great Slave	2009	LC	143	30.4	n					
Great Slave	2009	LC	143	25.3	n					
Great Slave	2009	LC	144	32.9	n					
Great Slave	2009	LC	144	30.0	n					
Great Slave	2009	LC	144	26.8	n					
Great Slave	2009	LC	144	19.2	n					
Great Slave	2009	LC	145	29.3	n					
Great Slave	2009	LC	145	24.8	n					
Great Slave	2009	LC	145	28.5	n					
Great Slave	2009	LC	145	30.5	n					
Great Slave	2009	LC	145	23.9	n					
Great Slave	2009	LC	145	24.5	n					
Great Slave	2009	LC	145	22.4	n					
Great Slave	2009	LC	145	23.0	n					
Great Slave	2009	LC	146	36.3	n					
Great Slave	2009	LC	147	-	n					
Great Slave	2009	LC	147	-	n					
Great Slave	2009	LC	147	31.7	n					
Great Slave	2009	LC	147	37.8	n					
Great Slave	2009	LC	147	35.7	n					
Great Slave	2009	LC	147	38.1	n					
Great Slave	2009	LC	147	35.5	n					
Great Slave	2009	LC	147	40.5	n					
Great Slave	2009	LC	147	34.4	n					
Great Slave	2009	LC	147	24.1	n					
Great Slave	2009	LC	148	29.9	n					
Great Slave	2009	LC	148	38.2	n					
Great Slave	2009	LC	148	30.8	n					
Great Slave	2009	LC	148	33.6	n					
Great Slave	2009	LC	148	31.6	n					
Great Slave	2009	LC	148	33.4	n					
Great Slave	2009	LC	148	29.6	n					
Great Slave	2009	LC	148	29.6	n					
Great Slave	2009	LC	148	27.0	n					
Great Slave	2009	LC	148	22.4	n					
Great Slave	2009	LC	148	22.6	n					
Great Slave	2009	LC	149	30.6	n					
Great Slave	2009	LC	149	38.6	n					
Great Slave	2009	LC	149	36.2	n					
Great Slave	2009	LC	149	36.9	n					
Great Slave	2009	LC	149	35.5	n					
Great Slave	2009	LC	149	28.4	n					
Great Slave	2009	LC	149	52.4	n					
Great Slave	2009	LC	150	25.8	n					
Great Slave	2009	LC	150	34.7	n					
Great Slave	2009	LC	150	36.8	n					
Great Slave	2009	LC	150	38.4	n					
Great Slave	2009	LC	150	39.3	n					
Great Slave	2009	LC	150	43.1	n					
Great Slave	2009	LC	150	29.7	n					
Great Slave	2009	LC	150	31.6	n					
Great Slave	2009	LC	150	22.8	n					
Great Slave	2009	LC	151	-	n					
Great Slave	2009	LC	151	31.0	n					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2009	LC	152	39.1	n					
Great Slave	2009	LC	152	42.8	n					
Great Slave	2009	LC	152	40.9	n					
Great Slave	2009	LC	152	-	n					
Great Slave	2009	LC	152	32.0	n					
Great Slave	2009	LC	152	34.0	n					
Great Slave	2009	LC	153	-	n					
Great Slave	2009	LC	153	30.6	n					
Great Slave	2009	LC	153	32.9	n					
Great Slave	2009	LC	153	34.5	n					
Great Slave	2009	LC	154	31.3	n					
Great Slave	2009	LC	154	42.9	n					
Great Slave	2009	LC	154	40.7	n					
Great Slave	2009	LC	154	33.2	n					
Great Slave	2009	LC	154	29.5	n					
Great Slave	2009	LC	154	30.3	n					
Great Slave	2009	LC	155	42.7	n					
Great Slave	2009	LC	155	37.8	n					
Great Slave	2009	LC	155	41.7	n					
Great Slave	2009	LC	155	45.2	n					
Great Slave	2009	LC	155	41.3	n					
Great Slave	2009	LC	155	32.5	n					
Great Slave	2009	LC	155	32.5	n					
Great Slave	2009	LC	156	33.5	n					
Great Slave	2009	LC	156	40.7	n					
Great Slave	2009	LC	156	40.5	n					
Great Slave	2009	LC	156	38.5	n					
Great Slave	2009	LC	157	33.5	n					
Great Slave	2009	LC	157	35.3	n					
Great Slave	2009	LC	157	33.0	n					
Great Slave	2009	LC	157	32.2	n					
Great Slave	2009	LC	158	44.8	n					
Great Slave	2009	LC	159	43.4	n					
Great Slave	2009	LC	159	36.7	n					
Great Slave	2009	LC	159	30.8	n					
Great Slave	2009	LC	160	36.0	n					
Great Slave	2009	LC	160	32.5	n					
Great Slave	2009	LC	160	38.3	n					
Great Slave	2009	LC	160	33.6	n					
Great Slave	2009	LC	160	31.1	n					
Great Slave	2009	LC	161	37.6	n					
Great Slave	2009	LC	162	43.4	n					
Great Slave	2009	LC	162	41.2	n					
Great Slave	2009	LC	162	36.0	n					
Great Slave	2009	LC	164	-	n					
Great Slave	2009	LC	164	42.7	n					
Great Slave	2009	LC	164	45.0	n					
Great Slave	2009	LC	165	46.9	n					
Great Slave	2009	LC	167	42.3	n					
Great Slave	2009	LC	168	40.8	n					
Great Slave	2009	LC	169	42.1	n					
Great Slave	2009	LC	169	39.2	n					
Great Slave	2009	LC	170	47.0	n					
Great Slave	2009	LC	170	54.4	n					
Great Slave	2009	LC	170	35.6	n					
Great Slave	2009	LC	171	51.2	n					
Great Slave	2009	LC	172	45.2	n					
Great Slave	2009	LC	174	58.2	n					
Great Slave	2009	LC	174	47.6	n					
Great Slave	2009	LC	175	55.2	n					
Great Slave	2009	LC	175	66.3	n					
Great Slave	2009	LC	178	59.9	n					
Great Slave	2009	LC	179	64.3	n					
Great Slave	2009	LC	179	53.7	n					
Great Slave	2009	LC	180	66.2	n					
Great Slave	2009	LC	181	56.5	n					
Great Slave	2009	LC	181	49.6	n					
Great Slave	2009	LC	182	63.9	n					
Great Slave	2009	LC	183	65.9	n					
Great Slave	2009	LC	183	59.3	n					
Great Slave	2009	LC	184	56.0	n					
Great Slave	2009	LC	184	60.4	n					
Great Slave	2009	LC	185	57.2	n					
Great Slave	2009	LC	185	63.1	n					
Great Slave	2009	LC	186	63.4	n					
Great Slave	2009	LC	187	65.3	n					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2009	LC	187	56.1	n					
Great Slave	2009	LC	188	62.6	n					
Great Slave	2009	LC	190	72.8	n					
Great Slave	2009	LC	190	63.6	n					
Great Slave	2009	LC	190	68.0	n					
Great Slave	2009	LC	190	57.4	n					
Great Slave	2009	LC	193	69.5	n					
Great Slave	2009	LC	193	-	n					
Great Slave	2009	LC	193	58.8	n					
Great Slave	2009	LC	194	-	n					
Great Slave	2009	LC	196	72.9	n					
Great Slave	2009	LC	197	89.5	n					
Great Slave	2009	LC	198	82.4	n					
Great Slave	2009	LC	198	74.4	n					
Great Slave	2009	LC	205	80.6	n					
Great Slave	2009	LC	206	81.3	n					
Great Slave	2009	LC	212	90.2	n					
Great Slave	2009	LC	235	143.5	n					
Great Slave	2009	LC	275	234.5	n					
Great Slave	2009	LC	277	232.7	n					
Great Slave	2009	LC	295	259.2	n					
Great Slave	2009	LC	305	-	n					
Great Slave	2009	LC	380	648.1	n					
Great Slave	2009	LC	404	715.3	n					
Great Slave	2009	LC	405	805.7	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LC	-	-	n					
Great Slave	2009	LNS	112	17.9	n					
Great Slave	2009	LT	206	78.7	n					
Great Slave	2009	LT	217	94.3	n					
Great Slave	2009	LT	340	386.6	n					
Great Slave	2009	LT	525	1540.1	n					
Great Slave	2009	LT	529	-	n					
Great Slave	2009	LT	540	-	n					
Great Slave	2009	LT	550	2053.1	n					
Great Slave	2009	LT	570	-	n					
Great Slave	2009	LT	592	-	n					
Great Slave	2009	LT	620	-	n					
Great Slave	2009	LT	639	2995.2	n					
Great Slave	2009	LT	650	-	n					
Great Slave	2009	LT	650	-	n					
Great Slave	2009	LT	650	-	n					
Great Slave	2009	LT	655	3130.8	n					
Great Slave	2009	LT	660	-	n					
Great Slave	2009	LT	680	-	n					
Great Slave	2009	LT	685	3350.6	n					
Great Slave	2009	LT	700	-	n					
Great Slave	2009	LT	717	-	n					
Great Slave	2009	LT	750	-	n					
Great Slave	2009	LT	750	-	n					
Great Slave	2009	LT	770	-	n					
Great Slave	2009	LT	975	~15909	n					
Great Slave	2009	LWF	420	965.7	n	2009_GLLWF01	18	17.15	F	n
Great Slave	2009	LWF	417	781.1	n	2009_GLLWF02	13	6.57	F	n
Great Slave	2009	LWF	495	1997.9	n	2009_GLLWF03	20	31.68	M	n
Great Slave	2009	LWF	478	1520.7	n	2009_GLLWF04	16	20.93	F	n
Great Slave	2009	LWF	362	602.9	n	2009_GLLWF05	10	6.61	F	n
Great Slave	2009	LWF	446	1402.7	n	2009_GLLWF06	12	23.12	M	n
Great Slave	2009	LWF	445	1155.3	n	2009_GLLWF07	15	14.11	F	n
Great Slave	2009	LWF	390	772.7	n	2009_GLLWF08	15	7.74	F	n
Great Slave	2009	LWF	396	865.1	n	2009_GLLWF09	10	11.6	F	n
Great Slave	2009	LWF	394	592.0	n	2009_GLLWF10	10	3.53	M	n
Great Slave	2009	LWF	370	709.8	n	2009_GLLWF11	9	8.06	M	n
Great Slave	2009	LWF	542	2461.0	n	2009_GLLWF12	27	67.64	F	n
Great Slave	2009	LWF	338	449.2	n					
Great Slave	2009	LWF	370	604.2	n					
Great Slave	2009	LWF	371	610.6	n					
Great Slave	2009	LWF	372	641.9	n					
Great Slave	2009	LWF	375	663.8	n					
Great Slave	2009	LWF	375	789.6	n					
Great Slave	2009	LWF	382	752.7	n					
Great Slave	2009	LWF	385	707.8	n					
Great Slave	2009	LWF	398	876.8	n					
Great Slave	2009	LWF	402	859.6	n					
Great Slave	2009	LWF	406	744.2	n					
Great Slave	2009	LWF	413	892.0	n					
Great Slave	2009	LWF	420	1018.3	n					
Great Slave	2009	LWF	430	1084.1	n					
Great Slave	2009	LWF	435	1132.1	n					
Great Slave	2009	RWF	219	88.3	n					
Great Slave	2009	RWF	266	-	n					
Great Slave	2009	RWF	295	275.3	n					
Great Slave	2009	RWF	351	525.3	n					
Great Slave	2009	RWF	355	534.8	n					
Great Slave	2009	RWF	360	-	n					
Great Slave	2009	RWF	363	570.4	n					
Great Slave	2009	RWF	380	599.3	n					
Great Slave	2009	RWF	420	881.0	n					
Great Slave	2009	RWF	424	839.2	n					
Kinnikinnick	2009	CH	28	-	n					
Kinnikinnick	2009	CH	28	-	n					
Kinnikinnick	2009	CH	100	-	n					
Kinnikinnick	2009	LC	133	25.6	n					
Kinnikinnick	2009	LC	168	55.1	n					
Kinnikinnick	2009	LC	206	101.1	n					
Kinnikinnick	2009	LC	241	183.9	n					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Kinnikinnick	2009	NP	335	-	n	2009_KLNP01	3	4.4	M	n
Kinnikinnick	2009	NP	694	-	n	2009_KLNP02	9	29.44	F	n
Kinnikinnick	2009	NP	353	-	n	2009_KLNP03	4	5.24	M	n
Kinnikinnick	2009	NP	501	-	n	2009_KLNP04	5	14.71	M	n
Kinnikinnick	2009	NP	306	-	n	2009_KLNP05	2	3.28	U	n
Kinnikinnick	2009	NP	270	-	n	2009_KLNP06	2	2.45	U	n
Kinnikinnick	2009	NP	270	-	n	2009_KLNP07	2	2.21	U	n
Kinnikinnick	2009	NP	247	-	n	2009_KLNP08	3	1.93	U	n
Kinnikinnick	2009	NP	259	-	n	2009_KLNP09	2	1.86	U	n
Kinnikinnick	2009	NP	601	-	n	2009_KLNP10	10	33.31	F	n
Kinnikinnick	2009	NP	609	-	n	2009_KLNP11	9	26.17	F	n
Kinnikinnick	2009	NP	630	-	n	2009_KLNP12	8	41.34	F	n
Kinnikinnick	2009	NP	152	21.9	n					
Kinnikinnick	2009	NP	464	-	n					
Kinnikinnick	2009	NP	488	-	n					
Kinnikinnick	2009	NP	553	-	n					
Kinnikinnick	2009	NP	618	-	n					
Kinnikinnick	2009	NP	627	-	n					
Kinnikinnick	2009	SSC	30	-	n					
Long	2008	LC	105	10.8	-					
Long	2008	LC	111	13.1	-					
Long	2008	LC	114	13.2	-					
Long	2008	LC	127	16	-					
Long	2008	LC	131	22	-					
Long	2008	LC	147	36.3	-					
Long	2008	LC	149	37.1	-					
Long	2008	LC	156	37.1	-					
Long	2008	LC	163	39.5	-					
Long	2008	LC	166	49.8	-					
Long	2008	LWF	240	150	-	2008_LLLWF01	3	1.4	M	n
Long	2008	LWF	380	720	-	2008_LLLWF02	4	6.7	M	n
Long	2008	LWF	425	950	-	2008_LLLWF03	5	13.3	F	y
Long	2008	LWF	413	860	-	2008_LLLWF04	5	11.6	M	y
Long	2008	LWF	363	630	-	2008_LLLWF05	6	8.4	F	n
Long	2008	LWF	404	980	-	2008_LLLWF06	7	16.4	F	n
Long	2008	LWF	290	360	-	2008_LLLWF07	8	5	F	n
Long	2008	LWF	388	840	-	2008_LLLWF08	6	16.5	F	n
Long	2008	LWF	235	160	-	2008_LLLWF09	4	2.2	F	n
Long	2008	LWF	402	580	-	2008_LLLWF10	6	15.1	F	n
Long	2008	LWF	408	900	-	2008_LLLWF11	7	13	F	n
Long	2008	LWF	368	680	-	2008_LLLWF12	5	9.4	M	n
Long	2008	LWF	140	28.7	-					
Long	2008	LWF	146	38.9	-					
Long	2008	LWF	152	37.5	-					
Long	2008	LWF	155	41.9	-					
Long	2008	LWF	155	41.1	-					
Long	2008	LWF	158	41.4	-					
Long	2008	LWF	166	51.7	-					
Long	2008	LWF	166	46.4	-					
Long	2008	LWF	170	53.5	-					
Long	2008	LWF	174	64.4	-					
Long	2008	LWF	176	58.5	-					
Long	2008	LWF	183	76.1	-					
Long	2008	LWF	245	150	-					
Long	2008	LWF	251	160	-					
Long	2008	LWF	265	220	-					
Long	2008	LWF	301	220	-					
Long	2008	LWF	303	400	-					
Long	2008	LWF	305	490	-					
Long	2008	LWF	317	480	-					
Long	2008	LWF	332	640	-					
Long	2008	LWF	350	540	-					
Long	2008	LWF	376	820	-					
Long	2008	LWF	380	600	-					
Long	2008	LWF	380	720	-					
Long	2008	LWF	380	760	-					
Long	2008	LWF	385	760	-					
Long	2008	LWF	385	590	-					
Long	2008	LWF	389	750	-					
Long	2008	LWF	390	760	-					
Long	2008	LWF	390	900	-					
Long	2008	LWF	390	830	-					
Long	2008	LWF	390	800	-					
Long	2008	LWF	390	830	-					
Long	2008	LWF	394	800	-					
Long	2008	LWF	394	900	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Long	2008	LWF	394	490	-					
Long	2008	LWF	395	700	-					
Long	2008	LWF	395	800	-					
Long	2008	LWF	400	880	-					
Long	2008	LWF	400	920	-					
Long	2008	LWF	400	800	-					
Long	2008	LWF	400	920	-					
Long	2008	LWF	400	980	-					
Long	2008	LWF	400	800	-					
Long	2008	LWF	405	920	-					
Long	2008	LWF	405	845	-					
Long	2008	LWF	405	580	-					
Long	2008	LWF	410	1120	-					
Long	2008	LWF	410	920	-					
Long	2008	LWF	410	920	-					
Long	2008	LWF	410	980	-					
Long	2008	LWF	410	850	-					
Long	2008	LWF	420	1100	-					
Long	2008	LWF	420	1140	-					
Long	2008	LWF	420	1040	-					
Long	2008	LWF	420	960	-					
Long	2008	LWF	420	1000	-					
Long	2008	LWF	421	580	-					
Long	2008	LWF	423	1040	-					
Long	2008	NP	444	620	-	2008_LLNP01	4	10.5	M	n
Long	2008	NP	275	120	-	2008_LLNP02	2	1.4	F	n
Long	2008	NP	555	1080	-	2008_LLNP03	4	12.2	M	n
Long	2008	NP	455	640	-	2008_LLNP04	6	18.5	F	n
Long	2008	NP	465	710	-	2008_LLNP05	5	12.1	F	n
Long	2008	NP	507	1000	-	2008_LLNP06	5	18.3	F	n
Long	2008	NP	378	360	-	2008_LLNP07	3	5.8	F	n
Long	2008	NP	577	1545	-	2008_LLNP08	6	22.3	M	n
Long	2008	NP	608	1500	-	2008_LLNP09	7		F	n
Long	2008	NP	537	825	-	2008_LLNP10	4	13.8	F	n
Long	2008	NP	406	450	-	2008_LLNP11	4	7	M	n
Long	2008	NP	308	220	-	2008_LLNP12	3	4.3	M	n
Long	2008	NP	325	200	-					
Long	2008	NP	397	450	-					
Long	2008	NP	400	440	-					
Long	2008	NP	407	420	-					
Long	2008	NP	412	500	-					
Long	2008	NP	428	490	-					
Long	2008	NP	458	690	-					
Long	2008	NP	496	820	-					
Long	2008	NP	500	920	-					
Long	2008	NP	509	900	-					
Long	2008	NP	512	970	-					
Long	2008	NP	626	1580	-					
Long	2009	LC	106	14.0	n					
Long	2009	LC	112	14.8	n					
Long	2009	LC	113	-	n					
Long	2009	LC	113	16.2	n					
Long	2009	LC	113	17.2	n					
Long	2009	LC	116	17.7	n					
Long	2009	LC	118	15.5	n					
Long	2009	LC	118	14.0	n					
Long	2009	LC	119	17.5	n					
Long	2009	LC	128	22.5	n					
Long	2009	LC	132	26.9	n					
Long	2009	LC	132	25.2	n					
Long	2009	LC	133	27.3	n					
Long	2009	LC	137	26.3	n					
Long	2009	LC	147	38.8	n					
Long	2009	LC	157	44.7	y					
Long	2009	LC	158	51.6	n					
Long	2009	LC	162	50.6	n					
Long	2009	LC	162	47.9	n					
Long	2009	LC	165	45.1	n					
Long	2009	LC	165	52.3	n					
Long	2009	LC	168	55.0	n					
Long	2009	LC	168	52.3	n					
Long	2009	LC	169	57.0	n					
Long	2009	LC	169	53.3	n					
Long	2009	LC	174	60.3	n					
Long	2009	LC	175	67.9	n					
Long	2009	LC	176	74.9	n					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Long	2009	LC	177	44.0	n					
Long	2009	LC	215	124.0	n					
Long	2009	LC	-	-	n					
Long	2009	LWF	417	968.7	n	2009_LLLWF01	12	6.72	M	n
Long	2009	LWF	419	986.2	n	2009_LLLWF02	13	16.13	F	n
Long	2009	LWF	441	987.3	n	2009_LLLWF03	8	11.8	F	y
Long	2009	LWF	368	626.1	n	2009_LLLWF04	9	9.49	F	n
Long	2009	LWF	410	993.3	n	2009_LLLWF05	19	17.27	M	n
Long	2009	LWF	403	914.8	n	2009_LLLWF06	9	17.7	F	y
Long	2009	LWF	393	854.8	n	2009_LLLWF07	9	10.82	F	n
Long	2009	LWF	374	733.8	n	2009_LLLWF08	8	5.45	M	n
Long	2009	LWF	206	95.9	y	2009_LLLWF09	4	0.56	U	n
Long	2009	LWF	395	821.8	y	2009_LLLWF10	15	16.1	F	n
Long	2009	LWF	304	329.0	n	2009_LLLWF11	7	2.77	U	n
Long	2009	LWF	374	658.2	n	2009_LLLWF12	12	7.14	M	y
Long	2009	LWF	270	220.0	n					
Long	2009	LWF	296	300.2	n					
Long	2009	LWF	298	329.7	y					
Long	2009	LWF	312	380.3	y					
Long	2009	LWF	325	420.3	n					
Long	2009	LWF	336	462.9	n					
Long	2009	LWF	361	540.0	n					
Long	2009	LWF	369	216.9	y					
Long	2009	LWF	369	652.0	y					
Long	2009	LWF	371	710.6	y					
Long	2009	LWF	373	345.0	n					
Long	2009	LWF	382	961.8	n					
Long	2009	LWF	385	800.0	n					
Long	2009	LWF	387	826.0	n					
Long	2009	LWF	390	731.8	n					
Long	2009	LWF	397	859.1	n					
Long	2009	LWF	398	730.0	n					
Long	2009	LWF	400	933.7	n					
Long	2009	LWF	402	870.0	n					
Long	2009	LWF	404	847.9	n					
Long	2009	LWF	406	655.0	y					
Long	2009	LWF	410	969.1	n					
Long	2009	LWF	413	809.9	n					
Long	2009	LWF	422	1061.6	n					
Long	2009	LWF	425	943.6	n					
Long	2009	NP	257	115.3	n	2009_LLNP01	3	1.55	M	n
Long	2009	NP	526	938.3	n	2009_LLNP02	6	51.3	F	n
Long	2009	NP	406	437.1	n	2009_LLNP03	5	5.04	F	n
Long	2009	NP	486	824.0	n	2009_LLNP04	4	9.53	F	n
Long	2009	NP	110	-	n					
Long	2009	NP	150	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	20	-	n					
Long	2009	SSC	50	-	n					
Long	2009	SSC	82	5.5	n					
Long	2009	SSC	100	-	n					
Long	2009	STB	40	-	n					
Long	2009	STB	50	-	n					
Murky	2009	NP	177	38.1	n	2009_MLNP01	2	0.7	U	n
Redemption	2009	LC	196	325.6	n	2009_RLLC01	6	2.61	F	n
Redemption	2009	LC	287	335.9	n	2009_RLLC02	7	1.86	F	n
Redemption	2009	LC	289	309.7	n	2009_RLLC03	8	1.99	M	n
Redemption	2009	LC	264	261.5	n	2009_RLLC04	7	1.52	M	y
Redemption	2009	LC	267	263.6	n	2009_RLLC05	8	1.56	F	n
Redemption	2009	LC	233	170.6	n	2009_RLLC06	6	1.05	M	n
Redemption	2009	LC	265	233.4	n	2009_RLLC07	7	2.12	F	y
Redemption	2009	LC	251	229.3	n	2009_RLLC08	7	2.04	F	n

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Redemption	2009	LC	231	164.0	y	2009_RLLC09	6	1.07	M	n
Redemption	2009	LC	212	135.3	n	2009_RLLC10	5	1.15	F	n
Redemption	2009	LC	215	153.8	n	2009_RLLC11	5	0.86	M	n
Redemption	2009	LC	222	148.5	n	2009_RLLC12	4	1	M	n
Redemption	2009	LC	128	32.8	n	2009_RLLC13	2	0.2	U	n
Redemption	2009	LC	122	29.3	n	2009_RLLC14	2	0.19	U	n
Redemption	2009	LC	118	18.8	n	2009_RLLC15	2	0.22	U	n
Redemption	2009	LC	125	20.3	n	2009_RLLC16	3	0.17	U	n
Redemption	2009	LC	120	30.1	n	2009_RLLC17	2	0.19	U	n
Redemption	2009	LC	120	31.6	n	2009_RLLC18	2	0.18	U	n
Redemption	2009	LC	116	22.7	n	2009_RLLC19	2	0.15	U	n
Redemption	2009	LC	121	20.2	n	2009_RLLC20	3	0.2	U	n
Redemption	2009	LC	122	21.7	n	2009_RLLC21	3	0.17	U	n
Redemption	2009	LC	117	18.0	n	2009_RLLC22	3	0.14	U	n
Redemption	2009	LC	106	16.8	n	2009_RLLC23	1	0.12	U	n
Redemption	2009	LC	125	22.4	n	2009_RLLC24	3	0.18	U	n
Redemption	2009	LC	292	365.0	n					
Redemption	2009	LWF	168	68.6	n	2009_RLLWF01	2	0.34	U	n
Redemption	2009	LWF	207	120.1	n	2009_RLLWF02	2	1.05	U	n
Redemption	2009	LWF	480	1805.6	n	2009_RLLWF03	29	15.64	M	y
Redemption	2009	LWF	520	2345.7	n	2009_RLLWF04	17	18.51	M	y
Redemption	2009	LWF	250	224.9	n	2009_RLLWF05	7	1.95	U	n
Redemption	2009	LWF	468	1608.8	n	2009_RLLWF06	11	28.91	F	n
Redemption	2009	LWF	456	1531.6	n	2009_RLLWF07	7	10.5	M	n
Redemption	2009	LWF	172	66.3	n	2009_RLLWF08	3	0.56	U	n
Redemption	2009	LWF	487	2130.1	n	2009_RLLWF09	13	18.59	M	n
Redemption	2009	LWF	528	2345.8	y	2009_RLLWF10	18	33.84	F	y
Redemption	2009	LWF	474	1714.5	n	2009_RLLWF11	15	23.09	F	y
Redemption	2009	LWF	457	1451.1	y	2009_RLLWF12	14	9.35	M	n
Redemption	2009	LWF	110	10.8	n					
Redemption	2009	LWF	117	21.8	n					
Redemption	2009	LWF	165	60.8	n					
Redemption	2009	LWF	425	1201.3	n					
Redemption	2009	LWF	464	1756.1	n					
Redemption	2009	LWF	470	1840.3	n					
Redemption	2009	NP	280	164.5	n	2009_RLNP01	3	1.53	U	n
Redemption	2009	NP	459	702.2	n	2009_RLNP02	5	8.89	F	n
Redemption	2009	NP	481	864.1	n	2009_RLNP03	5	10.59	M	n
Redemption	2009	NP	549	1204.8	n	2009_RLNP04	6	13.27	M	n
Redemption	2009	NP	422	570.1	n	2009_RLNP05	5	7.08	F	n
Redemption	2009	NP	313	241.5	n	2009_RLNP06	4	2.35	U	n
Redemption	2009	NP	513	971.2	n	2009_RLNP07	8	14.85	M	n
Redemption	2009	NP	825	>4000	n	2009_RLNP08	18	33.67	F	n
Redemption	2009	SSC	30	-	n					
Redemption	2009	SSC	30	-	n					
Redemption	2009	SSC	70	-	n					
Redemption	2009	STB	40	-	n					
Redemption	2010	LC	149	38.4	n					
Redemption	2010	LC	152	46.8	n					
Redemption	2010	LC	154	-	n					
Redemption	2010	LC	156	45.7	n					
Redemption	2010	LC	162	54	n					
Redemption	2010	LC	163	52	n					
Redemption	2010	LC	164	51.8	n					
Redemption	2010	LC	164	57.5	n					
Redemption	2010	LC	164	52.1	n					
Redemption	2010	LC	165	54.3	n					
Redemption	2010	LC	166	-	n					
Redemption	2010	LC	167	58.2	n					
Redemption	2010	LC	199	99.1	n					
Redemption	2010	LC	213	125.2	n					
Redemption	2010	LC	221	130.9	n					
Redemption	2010	LC	222	166.7	n					
Redemption	2010	LC	223	160.4	n					
Redemption	2010	LC	223	142.8	n					
Redemption	2010	LC	224	149.2	n					
Redemption	2010	LC	225	15.2	n					
Redemption	2010	LC	226	157.5	n					
Redemption	2010	LC	229	170.5	n					
Redemption	2010	LC	230	140	n					
Redemption	2010	LC	231	158.3	n					
Redemption	2010	LC	231	163	n					
Redemption	2010	LC	232	145	n					
Redemption	2010	LC	234	155.5	n					
Redemption	2010	LC	235	166.5	n					
Redemption	2010	LC	235	-	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Redemption	2010	LC	235	162.1	n					
Redemption	2010	LC	235	172	n					
Redemption	2010	LC	236	166.1	n					
Redemption	2010	LC	236	-	-					
Redemption	2010	LC	240	175.5	n					
Redemption	2010	LC	240	-	-					
Redemption	2010	LC	250	186.6	n					
Redemption	2010	LC	250	-	-					
Redemption	2010	LC	251	206.9	n					
Redemption	2010	LC	256	210.8	n					
Redemption	2010	LC	257	213.1	n					
Redemption	2010	LC	264	251.2	n					
Redemption	2010	LC	264	243.1	n					
Redemption	2010	LC	270	216.2	n					
Redemption	2010	LC	274	159.1	n					
Redemption	2010	LC	275	-	-					
Redemption	2010	LC	287	285	n					
Redemption	2010	LWF	477	1527.4	n	2010_RLLWF01	24	15.2	F	y
Redemption	2010	LWF	349	669	n	2010_RLLWF02	7	7.78	M	y
Redemption	2010	LWF	194	97.4	n	2010_RLLWF03	4	0.74	U	n
Redemption	2010	LWF	510	1860.2	n	2010_RLLWF04	24	25.12	F	y
Redemption	2010	LWF	467	1587.3	n	2010_RLLWF05	21	27.42	F	y
Redemption	2010	LWF	447	1314.3	n	2010_RLLWF06	15	11.14	M	y
Redemption	2010	LWF	478	1610.2	n	2010_RLLWF07	26	20.23	F	y
Redemption	2010	LWF	469	1740.7	n	2010_RLLWF08	25	18.79	M	y
Redemption	2010	LWF	520	1783.9	n	2010_RLLWF09	30	16.52	M	y
Redemption	2010	LWF	527	2114	n	2010_RLLWF10	23	17.98	M	y
Redemption	2010	LWF	514	2031.9	n	2010_RLLWF11	34	20.16	M	y
Redemption	2010	LWF	505	1895.5	n	2010_RLLWF12	30	30.59	F	y
Redemption	2010	LWF	97	10.6	n					
Redemption	2010	LWF	97	-	n					
Redemption	2010	LWF	98	11.4	n					
Redemption	2010	LWF	100	11.4	n					
Redemption	2010	LWF	101	11.1	n					
Redemption	2010	LWF	101	11.5	n					
Redemption	2010	LWF	102	12.7	n					
Redemption	2010	LWF	102	11.9	n					
Redemption	2010	LWF	103	11.7	n					
Redemption	2010	LWF	103	12.5	n					
Redemption	2010	LWF	103	13.2	n					
Redemption	2010	LWF	103	12.2	n					
Redemption	2010	LWF	103	-	n					
Redemption	2010	LWF	104	-	n					
Redemption	2010	LWF	105	12.9	n					
Redemption	2010	LWF	105	13.9	n					
Redemption	2010	LWF	106	13.3	n					
Redemption	2010	LWF	106	14.7	n					
Redemption	2010	LWF	107	14.4	n					
Redemption	2010	LWF	107	13.7	n					
Redemption	2010	LWF	109	13.6	n					
Redemption	2010	LWF	109	-	n					
Redemption	2010	LWF	109	14.8	n					
Redemption	2010	LWF	225	-	n					
Redemption	2010	LWF	458	1657.1	n					
Redemption	2010	LWF	-	-	n					
Redemption	2010	LWF	-	-	n					
Redemption	2010	LWF	-	-	n					
Redemption	2010	LWF	-	-	n					
Redemption	2010	LWF	-	-	n					
Redemption	2010	LWF	-	-	n					
Redemption	2010	NP	574	1175.7	n	2010_RLNP01	8	11.97	F	n
Redemption	2010	NP	682	2094.1	n	2010_RLNP02	13	28.37	F	n
Redemption	2010	NP	530	1019.3	n	2010_RLNP03	6	7.64	F	n
Redemption	2010	NP	701	2368.4	n	2010_RLNP04	9	31.71	F	-
Redemption	2010	NP	726	2724.6	n	2010_RLNP05	12	31.54	F	-
Redemption	2010	NP	726	2601.6	n	2010_RLNP06	16	20.4	M	-
Redemption	2010	NP	650	-	-					
Thor	2008	LC	210	100	-					
Thor	2008	LC	215	130	-					
Thor	2008	LC	215	140	-					
Thor	2008	LWF	363	645	-	2008_TLLWF01	C/A	11.6	F	n
Thor	2008	LWF	260	210	-	2008_TLLWF02	3	3.7	F	n
Thor	2008	LWF	410	830	-	2008_TLLWF03	C/A	13.1	F	n
Thor	2008	LWF	421	1160	-	2008_TLLWF04	5	22.4	F	n
Thor	2008	LWF	432	1030	-	2008_TLLWF05	5	14.7	M	y
Thor	2008	LWF	398	1000	-	2008_TLLWF06	7	20.7	F	y

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Thor	2008	LWF	360	700	-	2008_TLLWF07	8	9.3	M	y
Thor	2008	LWF	370	670	-	2008_TLLWF08	6	11.7	F	y
Thor	2008	LWF	275	240	-	2008_TLLWF09	3	2	M	y
Thor	2008	LWF	427	1060	-	2008_TLLWF10	6	21.2	F	y
Thor	2008	LWF	351	660	-	2008_TLLWF11	9	6.1	M	n
Thor	2008	LWF	392	820	-	2008_TLLWF12	6	10.9	M	n
Thor	2008	LWF	71	15	-					
Thor	2008	LWF	115	11	-					
Thor	2008	LWF	176	71	-					
Thor	2008	LWF	183	70	-					
Thor	2008	LWF	188	61	-					
Thor	2008	LWF	190	73	-					
Thor	2008	LWF	193	80	-					
Thor	2008	LWF	193	78	-					
Thor	2008	LWF	195	75	-					
Thor	2008	LWF	200	80	-					
Thor	2008	LWF	202	80	-					
Thor	2008	LWF	261	220	-					
Thor	2008	LWF	264	240	-					
Thor	2008	LWF	279	240	-					
Thor	2008	LWF	305	340	-					
Thor	2008	LWF	316	400	-					
Thor	2008	LWF	334	450	-					
Thor	2008	LWF	340	560	-					
Thor	2008	LWF	340	520	-					
Thor	2008	LWF	350	600	-					
Thor	2008	LWF	350	600	-					
Thor	2008	LWF	350	640	-					
Thor	2008	LWF	353	780	-					
Thor	2008	LWF	354	560	-					
Thor	2008	LWF	360	590	-					
Thor	2008	LWF	360	740	-					
Thor	2008	LWF	360	700	-					
Thor	2008	LWF	360	520	-					
Thor	2008	LWF	360	590	-					
Thor	2008	LWF	362	600	-					
Thor	2008	LWF	363	660	-					
Thor	2008	LWF	364	770	-					
Thor	2008	LWF	365	670	-					
Thor	2008	LWF	366	660	-					
Thor	2008	LWF	368	740	-					
Thor	2008	LWF	369	740	-					
Thor	2008	LWF	369	720	-					
Thor	2008	LWF	370	650	-					
Thor	2008	LWF	370	690	-					
Thor	2008	LWF	370	700	-					
Thor	2008	LWF	370	840	-					
Thor	2008	LWF	370	760	-					
Thor	2008	LWF	371	760	-					
Thor	2008	LWF	372	820	-					
Thor	2008	LWF	372	840	-					
Thor	2008	LWF	373	880	-					
Thor	2008	LWF	373	740	-					
Thor	2008	LWF	373	870	-					
Thor	2008	LWF	373	800	-					
Thor	2008	LWF	373	720	-					
Thor	2008	LWF	375	790	-					
Thor	2008	LWF	379	700	-					
Thor	2008	LWF	380	760	-					
Thor	2008	LWF	380	780	-					
Thor	2008	LWF	381	760	-					
Thor	2008	LWF	381	760	-					
Thor	2008	LWF	383	780	-					
Thor	2008	LWF	383	720	-					
Thor	2008	LWF	385	720	-					
Thor	2008	LWF	391	880	-					
Thor	2008	LWF	392	790	-					
Thor	2008	LWF	393	920	-					
Thor	2008	LWF	403	840	-					
Thor	2008	LWF	405	820	-					
Thor	2008	LWF	406	830	-					
Thor	2008	LWF	406	1000	-					
Thor	2008	LWF	407	950	-					
Thor	2008	LWF	407	1000	-					
Thor	2008	LWF	408	900	-					
Thor	2008	LWF	420	1000	-					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Thor	2008	LWF	427	810	-					
Thor	2008	LWF	440	780	-					
Thor	2008	NP	564	1260	-	2008_TLNP01	7	22.7	F	n
Thor	2008	NP	496	1000	-	2008_TLNP02	5	21.7	F	n
Thor	2008	NP	385	360	-	2008_TLNP03	3	4.4	F	n
Thor	2008	NP	420	500	-	2008_TLNP04	3	7.4	F	n
Thor	2008	NP	320	210	-	2008_TLNP05	3	1.3	M	n
Thor	2008	NP	459	790	-	2008_TLNP06	4	13.6	M	y
Thor	2008	NP	406	460	-	2008_TLNP07	3	5.6	M	n
Thor	2008	NP	612	1500	-	2008_TLNP08	6	26.3	F	n
Thor	2008	NP	608	1420	-	2008_TLNP09	7	31.8	F	n
Thor	2008	NP	520	820	-	2008_TLNP10	5	13.6	F	n
Thor	2008	NP	565	1280	-	2008_TLNP11	5	24.8	F	n
Thor	2008	NP	325	200	-	2008_TLNP12	3	1.9	M	n
Thor	2008	NP	371	370	-					
Thor	2008	NP	383	400	-					
Thor	2008	NP	394	410	-					
Thor	2008	NP	414	530	-					
Thor	2008	NP	438	530	-					
Thor	2008	NP	564	1180	-					
Thor	2009	LC	116	17.2	n					
Thor	2009	LC	117	17.7	n					
Thor	2009	LC	117	20.2	n					
Thor	2009	LC	117	16.8	n					
Thor	2009	LC	117	19.1	n					
Thor	2009	LC	118	18.3	n					
Thor	2009	LC	118	16.5	n					
Thor	2009	LC	119	18.2	n					
Thor	2009	LC	120	19.3	n					
Thor	2009	LC	121	-	n					
Thor	2009	LC	127	25.3	n					
Thor	2009	LC	127	23.1	n					
Thor	2009	LC	127	23.4	n					
Thor	2009	LC	130	25.6	n					
Thor	2009	LC	152	48.6	n					
Thor	2009	LC	156	38.0	n					
Thor	2009	LC	164	51.6	n					
Thor	2009	LC	164	64.3	n					
Thor	2009	LC	191	91.9	y					
Thor	2009	LC	198	-	n					
Thor	2009	LC	210	115.8	n					
Thor	2009	LC	211	108.4	n					
Thor	2009	LC	212	113.7	n					
Thor	2009	LC	219	142.2	n					
Thor	2009	LC	-	-	n					
Thor	2009	LC	-	-	n					
Thor	2009	LC	-	-	n					
Thor	2009	LC	-	-	n					
Thor	2009	LC	-	-	n					
Thor	2009	LWF	177	56.9	n	2009_TLLWF01	3	0.55	U	n
Thor	2009	LWF	228	140.6	n	2009_TLLWF02	5	1.3	U	y
Thor	2009	LWF	278	238.2	n	2009_TLLWF03	5	2.31	U	y
Thor	2009	LWF	299	278.1	y	2009_TLLWF04	6	2.88	U	n
Thor	2009	LWF	365	633.1	n	2009_TLLWF05	6	7.14	F	y
Thor	2009	LWF	387	793.8	n	2009_TLLWF06	12	12.7	M	y
Thor	2009	LWF	294	292.8	n	2009_TLLWF07	6	3.16	U	y
Thor	2009	LWF	392	894.1	n	2009_TLLWF08	12	14.88	F	y
Thor	2009	LWF	381	773.0	n	2009_TLLWF09	13	15.38	F	y
Thor	2009	LWF	411	952.8	n	2009_TLLWF10	23	17.53	F	y
Thor	2009	LWF	439	1046.9	n	2009_TLLWF11	12	10.4	F	y
Thor	2009	LWF	397	952.8	n	2009_TLLWF12	9	14.61	F	y
Thor	2009	LWF	145	31.8	n					
Thor	2009	LWF	149	28.7	n					
Thor	2009	LWF	202	90.5	n					
Thor	2009	LWF	243	174.7	n					
Thor	2009	LWF	250	-	n					
Thor	2009	LWF	282	273.6	n					
Thor	2009	LWF	314	386.0	n					
Thor	2009	LWF	320	406.9	n					
Thor	2009	LWF	331	403.6	n					
Thor	2009	LWF	337	604.9	n					
Thor	2009	LWF	345	568.2	n					
Thor	2009	LWF	346	495.0	n					
Thor	2009	LWF	356	590.6	n					
Thor	2009	LWF	359	557.2	n					
Thor	2009	LWF	362	723.2	n					

Lake	Year	Species[a]	Length (mm)	Weight (g)	External Parasites[b]	Fish I.D.	Age[c] (years)	Liver Weight (g)	Sex[c]	Internal Parasites[b]
Thor	2009	LWF	365	620.3	n					
Thor	2009	LWF	365	633.2	n					
Thor	2009	LWF	367	609.2	n					
Thor	2009	LWF	372	657.8	n					
Thor	2009	LWF	374	564.8	n					
Thor	2009	LWF	375	909.9	n					
Thor	2009	LWF	377	673.1	n					
Thor	2009	LWF	379	738.1	n					
Thor	2009	LWF	380	742.2	n					
Thor	2009	LWF	380	691.2	n					
Thor	2009	LWF	380	791.0	n					
Thor	2009	LWF	384	683.0	n					
Thor	2009	LWF	386	769.4	n					
Thor	2009	LWF	386	754.9	n					
Thor	2009	LWF	386	784.2	n					
Thor	2009	LWF	386	722.9	n					
Thor	2009	LWF	387	774.2	n					
Thor	2009	LWF	389	745.9	n					
Thor	2009	LWF	390	716.7	n					
Thor	2009	LWF	390	778.8	n					
Thor	2009	LWF	391	749.7	n					
Thor	2009	LWF	394	768.2	n					
Thor	2009	LWF	396	845.4	n					
Thor	2009	LWF	397	841.2	n					
Thor	2009	LWF	398	826.1	n					
Thor	2009	LWF	398	892.4	n					
Thor	2009	LWF	399	791.2	n					
Thor	2009	LWF	399	851.9	n					
Thor	2009	LWF	405	845.1	n					
Thor	2009	LWF	406	805.1	n					
Thor	2009	LWF	410	795.8	n					
Thor	2009	LWF	415	804.3	n					
Thor	2009	LWF	-	-	n					
Thor	2009	LWF	-	-	n					
Thor	2009	LWF	-	-	n					
Thor	2009	LWF	-	-	n					
Thor	2009	LWF	-	-	n					
Thor	2009	NP	272	130.5	n	2009_TLNP01	2	1.57	M	n
Thor	2009	NP	631	1589.2	n	2009_TLNP02	7	26.56	F	n
Thor	2009	NP	567	1169.6	n	2009_TLNP03	7	26.67	F	n
Thor	2009	NP	565	1364.5	n	2009_TLNP04	5	18.17	F	n
Thor	2009	NP	367	296.1	n	2009_TLNP05	3	4.36	M	n
Thor	2009	NP	434	601.4	n	2009_TLNP06	3	10.74	F	n
Thor	2009	NP	434	590.4	n	2009_TLNP07	4	8.01	M	n
Thor	2009	NP	422	575.8	n	2009_TLNP08	4	9.7	M	n
Thor	2009	NP	490	784.1	n	2009_TLNP09	4	9.87	F	n
Thor	2009	NP	477	880.5	n	2009_TLNP10	6	12.41	M	n
Thor	2009	NP	477	709.2	n	2009_TLNP11	5	9.61	F	n
Thor	2009	NP	-	-	n					
Thor	2010	NP	250	-	n					
Thor	2010	SSC	20	-	n					
U	2008	NP	250	120	-	2008_ULNP01	2	1.5	M	-
U	2008	NP	260	130	-	2008_ULNP02	3	1.8	F	-
U	2008	NP	250	100	-	2008_ULNP03	2	1	F	-
U	2008	NP	260	130	-	2008_ULNP04	2	2	F	-
U	2008	NP	284	250	-	2008_ULNP05	2	2.4	F	-
U	2008	NP	250	160	-	2008_ULNP06	2	2	M	-
U	2008	NP	259	120	-	2008_ULNP07	2	1.9	M	-

Notes:

[a] AC = arctic cisco, AG = arctic grayling, BB = burbot, CH = lake chub, LC = lake cisco, LNS = longnose sucker, LT = lake trout, LWF = lake whitefish, NP = northern pike, RWF = round whitefish, SSC = slimy sculpin, STB = ninespine stickleback

[b] External/Internal parasites = yes (y), no (n) and data not collected (-)

[c] C/A = cannot age fish

[d] Sex = male (M), female (F) and unidentified (U)

APPENDIX L

Fish Tissue Metals Data

Table L1-1 A Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01
A	2009	LC	2009_ALLC01	296	410.4	-	-	82.1	*1*	*0.005*	0.292	0.107	*0.05*	*0.015*	-	*0.0025*	59.5	*0.05*	*0.01*	1.14
A	2009	LC	2009_ALLC02	303	468.5	-	-	72.1	*1*	*0.005*	0.163	0.074	*0.05*	*0.015*	-	0.0078	191	*0.05*	0.032	2.55
A	2009	LC	2009_ALLC03	283	342.0	-	-	75.5	*1*	*0.005*	0.275	0.3	*0.05*	*0.015*	-	0.0097	367	*0.05*	*0.01*	1.97
A	2009	LC	2009_ALLC04	252	213.3	-	-	72.5	*1*	*0.005*	0.346	0.11	*0.05*	*0.015*	-	0.0188	150	*0.05*	0.025	2.17
A	2009	LC	2009_ALLC05	281	354.8	-	-	74	*1*	*0.005*	0.539	0.123	*0.05*	*0.015*	-	0.0069	220	*0.05*	0.031	3.3
A	2009	LC	2009_ALLC06	237	144.2	-	-	75.8	*1*	*0.005*	0.351	0.052	*0.05*	*0.015*	-	0.0089	97.6	*0.05*	*0.01*	1.61
A	2009	LC	2009_ALLC0609	-	-	-	-	75	*1*	*0.005*	0.511	0.055	*0.05*	*0.015*	-	0.0215	287	0.12	0.03	3.98
A	2009	LC	2009_ALLC07	230	161.8	-	-	75.8	*1*	*0.005*	0.351	0.052	*0.05*	*0.015*	-	0.0089	97.6	*0.05*	*0.01*	1.61
A	2009	LC	2009_ALLC08	224	134.6	-	-	83.1	*1*	*0.005*	0.289	0.049	*0.05*	*0.015*	-	0.0092	168	*0.05*	*0.01*	2.02
A	2009	LC	2009_ALLC10TO22	-	-	-	-	75.7	*1*	0.099	0.54	0.108	*0.05*	*0.015*	-	0.0142	75	*0.05*	0.033	2.56
A	2008	LWF	2008_ALLWF01	525	2100	79	0.181	-	1.6	*0.025*	0.2	0.1	*0.0025*	-	*0.25*	0.026	-	*0.1*	0.016	7
A	2008	LWF	2008_ALLWF02	436	1900	78.5	0.121	-	1.8	*0.025*	0.38	0.04	*0.0025*	-	*0.25*	0.016	-	*0.1*	0.032	4.2
A	2008	LWF	2008_ALLWF03	522	2210	81.4	0.136	-	2.3	*0.025*	0.22	*0.01*	*0.0025*	-	*0.25*	0.016	-	*0.1*	0.02	3.1
A	2008	LWF	2008_ALLWF04	402	1350	79.3	0.0383	-	2.5	*0.025*	0.45	*0.01*	*0.0025*	-	*0.25*	0.018	-	*0.1*	0.03	5.3
A	2008	LWF	2008_ALLWF05	461	1390	81.7	0.143	-	4.7	*0.025*	0.2	*0.01*	*0.0025*	-	*0.25*	0.01	-	*0.1*	0.014	3.6
A	2008	LWF	2008_ALLWF06	519	1900	82.3	0.218	-	4.8	*0.025*	0.19	0.15	*0.0025*	-	*0.25*	0.017	-	*0.1*	0.027	5.9
A	2008	LWF	2008_ALLWF07	487	1480	81.2	0.217	-	1.5	*0.025*	0.18	*0.01*	*0.0025*	-	*0.25*	0.01	-	*0.1*	0.019	9.8
A	2008	LWF	2008_ALLWF08	448	1320	78.3	0.0981	-	0.66	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	0.008	-	*0.1*	0.025	7.7
A	2009	LWF	2009_ALLWF01	499	1771.6	76.6	0.29	78.6	*1*	*0.005*	0.292	0.174	*0.05*	*0.015*	-	0.0208	131	*0.05*	0.055	8.7
A	2009	LWF	2009_ALLWF02	480	1527.1	79.1	0.712	81.5	5	*0.005*	0.161	0.157	*0.05*	*0.015*	-	0.0811	79.1	*0.05*	0.026	5.52
A	2009	LWF	2009_ALLWF03	413	1298.4	75.1	0.125	79.7	*1*	*0.005*	0.112	0.042	*0.05*	*0.015*	-	0.0178	79.6	*0.05*	0.043	6.76
A	2009	LWF	2009_ALLWF04	413	1192.1	77.1	0.074	80	*1*	*0.005*	0.111	0.032	*0.05*	*0.015*	-	0.0453	72.6	*0.05*	0.062	9.03
A	2009	LWF	2009_ALLWF05	409	1067.7	74.8	0.088	76.7	*1*	*0.005*	0.273	0.036	*0.05*	*0.015*	-	0.0122	47.2	*0.05*	0.023	9.1
A	2008	NP	2008_ALNP01	437	630	81.3	0.101	-	0.71	*0.025*	0.06	*0.01*	*0.0025*	-	*0.25*	0.011	-	*0.1*	0.024	12
A	2008	NP	2008_ALNP02	437	560	78.2	0.272	-	0.73	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	0.009	-	*0.1*	0.023	7.6
A	2008	NP	2008_ALNP03	320	200	79.7	0.118	-	0.78	*0.025*	0.03	*0.01*	*0.0025*	-	*0.25*	0.016	-	*0.1*	0.023	6.8
A	2008	NP	2008_ALNP04	421	480	80.4	0.111	-	0.62	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	0.014	-	*0.1*	0.029	38
A	2008	NP	2008_ALNP05	342	290	80.1	0.122	-	0.5	*0.025*	0.06	*0.01*	*0.0025*	-	*0.25*	0.008	-	*0.1*	0.02	6.8
A	2008	NP	2008_ALNP06	283	130	79	0.129	-	0.49	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	0.014	-	*0.1*	0.024	30
A	2008	NP	2008_ALNP07	337	250	81.3	0.159	-	0.58	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	0.012	-	*0.1*	0.035	15
A	2008	NP	2008_ALNP08	438	560	78	0.182	-	0.66	*0.025*	0.07	*0.01*	*0.0025*	-	*0.25*	0.024	-	*0.1*	0.022	57

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
   - 210g tissue per week when total mercury is 0.5 mg/kg wet weight
   - 260g tissue per week when total mercury is 0.4 mg/kg wet weight
   - 350g tissue per week when total mercury is 0.3 mg/kg wet weight
   - 525g tissue per week when total mercury is 0.2 mg/kg wet weight
   - 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
	0.05	**0.03**	**0.1**	**1**	**0.01**	**0.01**	**0.02**	**5**	**20**	**0.02**	**0.005**	**20**	**0.01**	**0.01**	**0.02**	**0.02**	**0.002**	**0.05**	**0.1**
2009_ALLC01	42.4	*0.1*	*0.05*	160	1.59	0.105	*0.05*	3110	2710	0.76	-	1020	0.052	0.031	*0.025*	*0.5*	*0.001*	*0.05*	204
2009_ALLC02	48.3	*0.01*	*0.05*	159	1.44	0.136	*0.05*	3480	2930	1.28	-	1750	0.118	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	234
2009_ALLC03	54	*0.01*	*0.05*	210	3.53	0.151	*0.05*	4240	4300	0.91	-	990	0.226	0.029	*0.025*	*0.5*	*0.001*	*0.05*	440
2009_ALLC04	98.3	*0.01*	*0.05*	186	2.7	0.217	*0.05*	4170	3530	1.35	-	1080	0.13	0.054	*0.025*	*0.5*	*0.001*	*0.05*	284
2009_ALLC05	76.6	*0.01*	*0.05*	173	2.45	0.149	*0.05*	3980	3380	1.42	-	1150	0.167	0.058	*0.3*	*0.5*	*0.001*	*0.05*	140
2009_ALLC06	52.6	*0.01*	*0.05*	214	2.21	0.128	*0.05*	4640	4190	0.8	-	1230	0.074	0.026	*0.025*	*0.5*	*0.001*	*0.05*	180
2009_ALLC0609	129	*0.01*	*0.05*	191	2.63	0.19	*0.05*	4130	3500	1.3	-	1170	0.192	0.042	*0.025*	*0.5*	*0.001*	*0.05*	466
2009_ALLC07	52.6	*0.01*	*0.05*	214	2.21	0.128	*0.05*	4640	4190	0.8	-	1230	0.074	0.026	*0.025*	*0.5*	*0.001*	*0.05*	180
2009_ALLC08	34	*0.1*	*0.05*	170	1.68	0.099	*0.05*	3290	2790	0.56	-	640	0.137	0.018	*0.025*	*0.5*	*0.001*	*0.05*	210
2009_ALLC10TO22	62.8	*0.01*	*0.05*	174	3.38	0.195	*0.05*	3840	3320	1.08	-	1150	0.064	0.049	*0.3*	*0.5*	*0.001*	*0.05*	314
2008_ALLWF01	28	*0.0025*	-	-	2.4	0.1	*0.01*	-	-	0.82	0.15	-	0.07	*0.01*	*0.01*	0.13	0.015	0.09	25
2008_ALLWF02	73	*0.0025*	-	-	2.9	0.09	*0.01*	-	-	0.87	0.028	-	0.14	*0.01*	*0.01*	0.12	0.007	0.14	20
2008_ALLWF03	77	*0.0025*	-	-	2.1	0.1	*0.01*	-	-	0.68	0.016	-	0.05	*0.01*	*0.01*	0.12	0.01	0.09	20
2008_ALLWF04	66	*0.0025*	-	-	2	0.13	0.03	-	-	1	0.066	-	*0.025*	0.02	*0.01*	0.18	0.12	0.1	20
2008_ALLWF05	56	*0.0025*	-	-	1.6	0.08	*0.01*	-	-	0.88	0.016	-	*0.025*	*0.01*	*0.01*	0.13	0.011	0.13	20
2008_ALLWF06	65	*0.0025*	-	-	1.5	0.16	*0.01*	-	-	1.5	0.059	-	*0.025*	*0.01*	*0.01*	0.14	0.014	0.27	20
2008_ALLWF07	59	*0.0025*	-	-	1.5	0.13	*0.01*	-	-	0.87	0.054	-	*0.025*	*0.01*	*0.01*	0.1	0.007	*0.025*	22
2008_ALLWF08	39	*0.0025*	-	-	1.3	0.16	0.02	-	-	0.76	0.087	-	*0.025*	*0.01*	*0.01*	0.09	0.003	0.13	37
2009_ALLWF01	234	0.022	*0.05*	158	1.42	0.172	*0.05*	2860	2940	1.37	-	1360	0.127	*0.005*	*0.025*	*0.05*	0.0051	0.26	33.1
2009_ALLWF02	60.3	*0.01*	*0.05*	140	1.19	0.156	*0.05*	2830	2560	1.67	-	1490	0.058	*0.005*	*0.025*	*0.05*	0.0055	0.24	26.3
2009_ALLWF03	29.6	*0.01*	*0.05*	190	1.8	0.093	*0.05*	3510	3140	0.85	-	1240	0.06	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	26
2009_ALLWF04	51.2	*0.01*	*0.05*	199	3.31	0.104	*0.05*	3520	3230	1.09	-	1210	0.06	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	29.3
2009_ALLWF05	38.3	*0.01*	*0.05*	177	2.01	0.102	*0.05*	4230	4070	0.81	-	1120	0.041	0.018	*0.025*	*0.5*	*0.001*	*0.05*	29.5
2008_ALNP01	26	*0.0025*	-	-	1.6	0.15	*0.01*	-	-	1	0.13	-	*0.025*	*0.01*	*0.01*	0.11	0.002	0.06	50
2008_ALNP02	22	*0.0025*	-	-	1.3	0.07	*0.01*	-	-	0.6	0.066	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	*0.025*	43
2008_ALNP03	80	*0.0025*	-	-	0.98	0.18	*0.01*	-	-	0.66	0.062	-	*0.025*	*0.01*	*0.01*	0.1	0.002	0.16	38
2008_ALNP04	35	*0.0025*	-	-	1.5	0.21	0.03	-	-	1.5	0.17	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	0.14	74
2008_ALNP05	35	*0.0025*	-	-	1.8	0.15	*0.01*	-	-	0.72	0.046	-	*0.025*	*0.01*	*0.01*	0.09	0.014	0.06	30
2008_ALNP06	14	*0.0025*	-	-	0.9	0.13	*0.01*	-	-	0.66	0.14	-	*0.025*	*0.01*	*0.01*	0.08	*0.001*	0.09	70
2008_ALNP07	58	*0.0025*	-	-	1.6	0.17	*0.01*	-	-	0.71	0.11	-	*0.025*	*0.01*	*0.01*	0.1	*0.001*	0.13	40
2008_ALNP08	39	*0.0025*	-	-	1.3	0.16	*0.01*	-	-	0.96	0.25	-	*0.025*	*0.01*	*0.01*	0.1	0.002	0.19	30

Table L1-2 Elbow Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01
Elbow	2008	LWF	2008_ELLWF01	409	860	80.4	0.0472	-	0.77	*0.025*	0.13	*0.01*	*0.0025*	-	*0.25*	0.012	-	*0.1*	0.014	9.4
Elbow	2008	LWF	2008_ELLWF02	444	1000	80.8	0.0499	-	0.76	*0.025*	0.08	*0.01*	*0.0025*	-	*0.25*	0.036	-	*0.1*	0.02	7.6
Elbow	2008	LWF	2008_ELLWF03	423	900	83.5	0.0826	-	0.58	*0.025*	0.08	*0.01*	*0.0025*	-	*0.25*	0.011	-	*0.1*	0.009	1.3
Elbow	2008	LWF	2008_ELLWF04	430	1040	81.5	0.0266	-	2.7	*0.025*	0.07	*0.01*	*0.0025*	-	*0.25*	0.067	-	*0.1*	0.013	3.9
Elbow	2008	LWF	2008_ELLWF05	422	1260	80.2	0.0444	-	0.91	*0.025*	0.13	*0.01*	*0.0025*	-	*0.25*	0.01	-	*0.1*	0.012	5.1
Elbow	2008	LWF	2008_ELLWF06	434	1340	82.9	0.0453	-	1.1	*0.025*	0.07	*0.01*	*0.0025*	-	*0.25*	0.029	-	*0.1*	0.014	4.4
Elbow	2008	LWF	2008_ELLWF07	352	570	79.8	0.0117	-	0.66	*0.025*	0.17	*0.01*	*0.0025*	-	*0.25*	0.011	-	*0.1*	0.01	7.5
Elbow	2008	LWF	2008_ELLWF08	416	1240	80.6	0.0936	-	0.69	0.05	0.12	*0.01*	*0.0025*	-	*0.25*	0.01	-	*0.1*	0.012	5
Elbow	2009	LWF	2009_ELLWF01	398	927.6	77.3	0.085	79.6	3.4	*0.005*	0.159	0.065	*0.05*	*0.015*	-	0.0423	86.8	*0.05*	0.023	15
Elbow	2009	LWF	2009_ELLWF02	440	1153.8	74.7	0.095	79	*3*	*0.015*	0.227	0.12	*0.15*	*0.045*	-	0.024	86.5	*0.15*	*0.03*	11.8
Elbow	2009	LWF	2009_ELLWF04	456	1310	-	-	-	*1*	*0.005*	0.138	0.066	*0.05*	*0.015*	-	0.0531	73.9	*0.05*	0.023	7.82
Elbow	2009	LWF	2009_ELLWF05	428	1221.6	76.5	0.076	79.7	*1*	*0.005*	0.167	0.129	*0.05*	*0.015*	-	0.0217	543	*0.05*	*0.01*	9.1
Elbow	2009	LWF	2009_ELLWF06	450	1333.1	75.6	0.053	77.3	*1*	0.014	0.12	0.434	*0.05*	*0.015*	-	0.0075	90.2	*0.05*	0.021	11.8
Elbow	2009	LWF	2009_ELLWF07	435	1005.9	79.2	0.131	81	*1*	0.012	0.22	0.24	*0.05*	*0.015*	-	0.0652	94.7	*0.05*	0.02	8.8
Elbow	2009	LWF	2009_ELLWF08	469	1614	80.4	0.156	-	-	-	-	-	-	-	-	-	-	-	-	-
Elbow	2009	LWF	2009_ELLWF09	428	1039.1	-	-	79.1	*1*	*0.005*	0.229	0.09	*0.05*	*0.015*	-	0.0265	165	*0.05*	0.03	11.8
Elbow	2009	LWF	2009_ELLWF10	425	1109.4	75.2	0.107	79.2	*1*	*0.005*	0.143	0.087	*0.05*	*0.015*	-	0.0326	75.6	*0.05*	0.02	14
Elbow	2009	LWF	2009_ELLWF12	413	973.4	80	0.053	-	-	-	-	-	-	-	-	-	-	-	-	-
Elbow	2008	NP	2008_ELNP01	773	4410	79.5	0.284	-	0.55	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.009	0.88
Elbow	2008	NP	2008_ELNP02	574	1200	81.2	0.127	-	0.7	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	0.017	-	*0.1*	0.019	13
Elbow	2008	NP	2008_ELNP03	548	760	83.3	0.257	-	2.2	*0.025*	0.03	*0.01*	*0.0025*	-	*0.25*	0.056	-	*0.1*	0.037	18
Elbow	2008	NP	2008_ELNP04	568	1030	80.6	0.173	-	0.98	*0.025*	0.06	*0.01*	*0.0025*	-	*0.25*	0.028	-	*0.1*	0.029	20
Elbow	2008	NP	2008_ELNP05	480	760	80.9	0.0772	-	1.7	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	0.01	-	*0.1*	0.022	6.1
Elbow	2008	NP	2008_ELNP06	634	1680	82.7	0.155	-	1.1	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	0.02	-	*0.1*	0.016	7.1
Elbow	2008	NP	2008_ELNP07	543	980	80.6	0.167	-	0.84	*0.025*	0.06	*0.01*	*0.0025*	-	*0.25*	0.029	-	*0.1*	0.029	22
Elbow	2008	NP	2008_ELNP08	538	1010	79	0.173	-	0.76	*0.025*	0.06	*0.01*	*0.0025*	-	*0.25*	0.016	-	*0.1*	0.026	9.2
Elbow	2009	NP	2009_ELNP01	565	888.1	82.2	0.518	-	-	-	-	-	-	-	-	-	-	-	-	-
Elbow	2009	NP	2009_ELNP03	531	826.9	81.9	0.305	-	-	-	-	-	-	-	-	-	-	-	-	-
Elbow	2009	NP	2009_ELNP05	495	751.1	79.8	0.167	80.4	*2*	*0.01*	0.128	0.182	*0.1*	*0.03*	-	0.015	57.5	*0.1*	*0.02*	14.6
Elbow	2009	NP	2009_ELNP06	545	960.2	79.9	0.198	80	*1*	0.01	0.104	0.208	*0.05*	*0.015*	-	0.0207	128	*0.05*	0.025	16.2
Elbow	2009	NP	2009_ELNP07	558	877.4	-	-	79.8	*1*	0.017	0.091	0.164	*0.05*	*0.015*	-	0.0862	94.2	*0.05*	0.053	35.8
Elbow	2009	NP	2009_ELNP08	468	684.8	80.6	0.097	74.2	*1*	0.048	0.083	2.14	*0.05*	*0.015*	-	0.0148	72.6	*0.05*	0.029	7.05
Elbow	2009	NP	2009_ELNP09	446	562.6	80.6	0.125	80.8	*1*	0.022	0.049	0.419	*0.05*	*0.015*	-	0.0087	71.3	*0.05*	0.023	9.23
Elbow	2009	NP	2009_ELNP10	546	989.6	-	-	76.3	*1*	0.027	0.069	0.745	*0.05*	*0.015*	-	0.0392	141	*0.05*	0.035	20.8
Elbow	2009	NP	2009_ELNP11	464	662.1	-	-	81.2	*1*	0.023	0.064	0.202	*0.05*	*0.015*	-	0.0107	78.6	*0.05*	0.026	11
Elbow	2009	NP	2009_ELNP12	559	976.3	-	-	80.1	*1*	*0.005*	0.06	0.283	*0.05*	*0.015*	-	0.0379	75.1	*0.05*	0.026	18

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
   - 210g tissue per week when total mercury is 0.5 mg/kg wet weight
   - 260g tissue per week when total mercury is 0.4 mg/kg wet weight
   - 350g tissue per week when total mercury is 0.3 mg/kg wet weight
   - 525g tissue per week when total mercury is 0.2 mg/kg wet weight
   - 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   - Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   - Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
	0.05	0.03	0.1	1	0.01	0.01	0.02	5	20	0.02	0.005	20	0.01	0.01	0.02	0.02	0.002	0.05	0.1
2008_ELLWF01	52	*0.0025*	-	-	1.1	0.09	*0.01*	-	-	0.7	0.02	-	*0.025*	*0.01*	*0.01*	0.13	*0.001*	0.05	27
2008_ELLWF02	160	*0.0025*	-	-	1.3	0.16	*0.01*	-	-	1.2	0.036	-	*0.025*	*0.01*	*0.01*	0.1	*0.001*	0.1	27
2008_ELLWF03	240	*0.0025*	-	-	1.4	0.09	*0.01*	-	-	0.7	*0.0025*	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	0.06	18
2008_ELLWF04	94	*0.0025*	-	-	1	0.11	*0.01*	-	-	0.77	0.016	-	*0.025*	*0.01*	*0.01*	0.13	0.005	0.08	21
2008_ELLWF05	320	*0.0025*	-	-	1.4	0.08	*0.01*	-	-	0.57	0.007	-	*0.025*	*0.01*	*0.01*	0.11	0.005	*0.025*	19
2008_ELLWF06	230	*0.0025*	-	-	1.3	0.09	*0.01*	-	-	0.61	0.04	-	0.07	*0.01*	*0.01*	0.11	0.007	0.1	20
2008_ELLWF07	27	*0.0025*	-	-	2.7	0.13	*0.01*	-	-	0.67	0.02	-	0.06	*0.01*	*0.01*	0.14	0.005	*0.025*	40
2008_ELLWF08	110	*0.0025*	-	-	2.4	0.09	*0.01*	-	-	0.76	0.005	-	*0.025*	*0.01*	*0.01*	0.12	0.015	*0.025*	22
2009_ELLWF01	53.9	*0.01*	*0.05*	140	1.7	0.205	*0.05*	3080	2630	0.98	-	1990	0.075	0.012	*0.025*	*0.4*	0.0024	0.1	25.4
2009_ELLWF02	64.3	*0.03*	*0.15*	144	1.22	0.162	*0.15*	2750	2930	1.29	-	1590	0.082	*0.015*	*0.055*	*0.15*	*0.003*	*0.15*	23.9
2009_ELLWF04	94.5	*0.01*	*0.05*	153	1.34	0.179	*0.05*	2980	2910	1.05	-	1280	0.064	*0.005*	*0.025*	*0.05*	0.002	0.13	24.3
2009_ELLWF05	108	*0.01*	*0.05*	144	1.16	0.122	*0.05*	2890	2680	1.06	-	1430	0.361	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	21.3
2009_ELLWF06	361	*0.01*	*0.05*	144	0.953	0.115	*0.05*	2440	2640	0.79	-	1320	0.101	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	25.8
2009_ELLWF07	230	*0.01*	*0.05*	131	1.11	0.168	*0.05*	2540	2680	0.97	-	1490	0.087	*0.005*	*0.025*	*0.05*	0.0063	*0.05*	25.5
2009_ELLWF08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_ELLWF09	155	*0.01*	*0.05*	170	1.63	0.209	*0.05*	3610	3390	1.41	-	1650	0.151	*0.005*	*0.025*	*0.5*	0.0022	0.1	32.6
2009_ELLWF10	124	*0.01*	*0.05*	132	1.11	0.163	*0.05*	2540	2690	0.99	-	1270	0.08	*0.005*	*0.025*	*0.05*	0.0028	*0.05*	23.8
2009_ELLWF12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008_ELNP01	16	*0.0025*	-	-	1.1	*0.025*	*0.01*	-	-	0.44	0.011	-	*0.025*	*0.01*	*0.01*	0.07	*0.001*	*0.025*	14
2008_ELNP02	15	*0.0025*	-	-	1.6	0.14	*0.01*	-	-	0.82	0.072	-	*0.025*	*0.01*	*0.01*	0.11	0.003	0.08	40
2008_ELNP03	140	*0.0025*	-	-	2.1	0.15	*0.01*	-	-	0.94	0.19	-	*0.025*	*0.01*	*0.01*	0.13	0.004	0.19	170
2008_ELNP04	22	*0.0025*	-	-	1.4	0.17	*0.01*	-	-	0.96	0.13	-	*0.025*	*0.01*	*0.01*	0.11	0.004	0.11	30
2008_ELNP05	19	0.005	-	-	1.2	0.2	*0.01*	-	-	0.85	0.03	-	0.08	*0.01*	*0.01*	0.13	0.008	*0.025*	60
2008_ELNP06	21	*0.0025*	-	-	1.7	0.12	*0.01*	-	-	0.88	0.022	-	*0.025*	*0.01*	*0.01*	0.12	0.003	0.07	30
2008_ELNP07	29	*0.0025*	-	-	2.4	0.2	*0.01*	-	-	1.1	0.2	-	*0.025*	*0.01*	*0.01*	0.12	0.004	0.15	40
2008_ELNP08	50	*0.0025*	-	-	1.1	0.19	*0.01*	-	-	0.99	0.059	-	*0.025*	*0.01*	*0.01*	0.09	0.007	0.08	30
2009_ELNP01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_ELNP03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_ELNP05	37	*0.02*	0.1	212	2.36	0.164	*0.1*	3650	3330	0.84	-	976	0.054	*0.01*	*0.05*	*0.1*	*0.002*	*0.1*	41.1
2009_ELNP06	35	*0.01*	0.05	203	1.36	0.15	*0.05*	3430	2930	1.04	-	962	0.074	*0.005*	*0.025*	*0.05*	*0.001*	0.12	48.4
2009_ELNP07	249	*0.01*	0.05	148	1.83	0.328	*0.05*	2790	2660	1.64	-	1070	0.055	*0.005*	*0.025*	*0.05*	*0.001*	0.27	44.8
2009_ELNP08	44.7	*0.01*	0.05	172	1.37	0.246	*0.05*	3100	2630	1.15	-	838	0.123	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	50.7
2009_ELNP09	21	*0.01*	0.05	189	1.12	0.178	*0.05*	3560	2920	0.84	-	795	0.051	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	39
2009_ELNP10	34	*0.01*	0.05	163	1.57	0.246	*0.05*	3110	2960	1.57	-	765	0.09	*0.005*	*0.025*	*0.05*	*0.001*	0.15	59
2009_ELNP11	45.9	*0.01*	0.05	142	1.35	0.223	*0.05*	2750	2950	1.07	-	900	0.066	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	39
2009_ELNP12	31.3	*0.01*	0.05	170	1.57	0.169	*0.05*	3560	3220	0.96	-	1040	0.065	*0.005*	*0.025*	*0.05*	*0.001*	0.24	37

Table L1-3 Fred Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01
Fred	2008	LWF	2008_FLLWF01	407	1300	75.8	0.0719	-	0.57	*0.025*	0.16	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.015	11
Fred	2008	LWF	2008_FLLWF02	429	1320	75.9	0.0728	-	0.55	*0.025*	0.14	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.014	2.6
Fred	2008	LWF	2008_FLLWF03	330	620	74.3	0.0493	-	0.54	*0.025*	0.14	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.008	3.1
Fred	2008	LWF	2008_FLLWF04	270	300	77.5	0.0364	-	0.56	*0.025*	0.15	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.011	2.8
Fred	2008	LWF	2008_FLLWF05	259	260	75.6	0.0608	-	0.43	*0.025*	0.14	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.012	2.5
Fred	2008	LWF	2008_FLLWF06	405	1390	75.3	0.0708	-	0.39	*0.025*	0.14	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.01	3.6
Fred	2008	LWF	2008_FLLWF07	146	40	80.1	0.0352	-	4.6	*0.025*	0.14	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.016	3.1
Fred	2008	LWF	2008_FLLWF08	374	820	77.3	0.0499	-	0.64	*0.025*	0.12	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.019	13
Fred	2009	LWF	2009_FLLWF01	316	429.2	77.6	0.0757	76.8	*1*	0.073	0.157	0.074	*0.05*	*0.015*	-	*0.0025*	113	*0.05*	*0.01*	8.95
Fred	2009	LWF	2009_FLLWF02	231	184.6	77.6	0.0612	69.7	*1*	0.02	0.305	0.169	*0.05*	*0.015*	-	*0.0025*	247	*0.05*	0.02	3.98
Fred	2009	LWF	2009_FLLWF03	446	1541	73	0.164	-	-	-	-	-	-	-	-	-	-	-	-	-
Fred	2009	LWF	2009_FLLWF04	405	1176.7	73.3	0.119	73.1	*1*	0.04	0.193	0.07	*0.05*	*0.015*	-	*0.0025*	243	*0.05*	0.022	5.23
Fred	2009	LWF	2009_FLLWF05	387	886.4	73	0.112	-	-	-	-	-	-	-	-	-	-	-	-	-
Fred	2009	LWF	2009_FLLWF06	335	550.1	73.6	0.0858	70.5	*1*	0.018	0.18	0.078	*0.05*	*0.015*	-	*0.0025*	197	*0.05*	*0.01*	5.29
Fred	2009	LWF	2009_FLLWF07	331	644.1	75	0.0995	67.7	*1*	0.018	0.242	0.062	*0.05*	*0.015*	-	*0.0025*	143	*0.05*	*0.01*	15.3
Fred	2009	LWF	2009_FLLWF08	230	153.5	76.9	0.0636	65.3	*1*	*0.005*	0.298	0.042	*0.05*	*0.015*	-	*0.0025*	163	*0.05*	*0.01*	4.45
Fred	2009	LWF	2009_FLLWF09	246	205.2	77.8	0.0503	62.5	*1*	0.011	0.34	0.254	*0.05*	*0.015*	-	*0.0025*	680	*0.05*	0.024	6.12
Fred	2009	LWF	2009_FLLWF10	229	159.5	76.8	0.0509	64.1	3.5	0.012	0.245	0.261	*0.05*	*0.015*	-	*0.0025*	364	*0.1*	0.02	4.74
Fred	2009	LWF	2009_FLLWF11	244	192.4	77.2	0.053	-	-	-	-	-	-	-	-	-	-	-	-	-
Fred	2009	LWF	2009_FLLWF12	244	196.2	76.6	0.0582	-	-	-	-	-	-	-	-	-	-	-	-	-
Fred	2008	NP	2008_FLNP01	305	205	77.1	0.118	-	0.32	*0.025*	*0.01*	*0.01*	*0.0025*	-	*0.25*	0.099	-	*0.1*	0.045	32
Fred	2008	NP	2008_FLNP02	348	300	78	0.0703	-	0.16	*0.025*	0.03	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.012	27
Fred	2008	NP	2008_FLNP03	367	350	77.6	0.048	-	0.22	*0.025*	0.03	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.012	46
Fred	2008	NP	2008_FLNP04	313	20	77.3	0.0408	-	0.31	*0.025*	0.03	0.06	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.016	21
Fred	2008	NP	2008_FLNP05	220	80	79.4	0.0915	-	0.66	*0.025*	0.08	0.23	*0.0025*	-	*0.25*	0.008	-	*0.1*	0.052	50
Fred	2008	NP	2008_FLNP06	355	300	77.1	0.0629	-	0.25	*0.025*	*0.01*	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	*0.0025*	6.5
Fred	2008	NP	2008_FLNP07	320	240	78	0.0377	-	0.48	*0.025*	0.03	0.06	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.015	9.2
Fred	2009	NP	2009_FLNP01	442	511.4	78.7	0.177	71.4	*1*	0.021	0.041	0.218	*0.05*	*0.015*	-	0.0089	64.2	*0.05*	0.022	51.4
Fred	2009	NP	2009_FLNP02	434	501.4	78.1	0.148	76.3	*1*	*0.005*	0.054	0.316	*0.05*	*0.015*	-	0.0054	140	*0.05*	0.022	36.7
Fred	2009	NP	2009_FLNP03	354	355.2	79.2	0.0828	76.4	2.3	0.014	0.056	0.436	*0.05*	*0.015*	-	*0.0025*	123	*0.05*	0.023	34.5
Fred	2009	NP	2009_FLNP04	324	220.7	79.8	0.0951	83.5	*1*	0.027	0.044	0.537	*0.05*	*0.015*	-	0.0106	146	*0.05*	0.023	53.3
Fred	2009	NP	2009_FLNP05	290	180.4	79.1	0.0812	74	*2*	*0.01*	0.065	0.344	*0.1*	*0.03*	-	*0.005*	145	*0.1*	*0.02*	50.4
Fred	2009	NP	2009_FLNP06	256	127.3	79.2	0.103	73.9	*1*	0.055	0.051	0.157	*0.05*	*0.015*	-	0.007	124	*0.05*	0.02	56.6
Fred	2009	NP	2009_FLNP07	272	146.9	80	0.115	75	4.2	0.029	0.047	0.197	*0.05*	*0.015*	-	0.0126	158	*0.05*	0.026	65
Fred	2009	NP	2009_FLNP08	255	118.3	80.2	0.0965	61.5	*1*	0.022	0.054	0.177	*0.05*	*0.015*	-	0.0119	201	*0.1*	0.023	80.3

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
- 210g tissue per week when total mercury is 0.5 mg/kg wet weight
- 260g tissue per week when total mercury is 0.4 mg/kg wet weight
- 350g tissue per week when total mercury is 0.3 mg/kg wet weight
- 525g tissue per week when total mercury is 0.2 mg/kg wet weight
- 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
- Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
- Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
	0.05	0.03	0.1	1	0.01	0.01	0.02	5	20	0.02	0.005	20	0.01	0.01	0.02	0.02	0.002	0.05	0.1
2008_FLLWF01	21	*0.0025*	-	-	1.4	0.08	*0.01*	-	-	0.75	0.018	-	*0.025*	*0.01*	*0.01*	0.12	0.004	*0.025*	20
2008_FLLWF02	34	*0.0025*	-	-	0.91	0.08	*0.01*	-	-	0.75	*0.0025*	-	0.06	*0.01*	*0.01*	0.13	0.004	*0.025*	20
2008_FLLWF03	28	*0.0025*	-	-	0.73	0.07	*0.01*	-	-	0.54	0.005	-	*0.025*	*0.01*	*0.01*	0.07	*0.001*	*0.025*	14
2008_FLLWF04	27	*0.0025*	-	-	1	0.09	*0.01*	-	-	0.62	0.006	-	*0.025*	0.03	*0.01*	0.11	0.04	*0.025*	18
2008_FLLWF05	24	*0.0025*	-	-	0.97	0.08	*0.01*	-	-	0.68	*0.0025*	-	*0.025*	0.02	*0.01*	0.09	*0.001*	*0.025*	15
2008_FLLWF06	15	*0.0025*	-	-	0.88	0.07	0.02	-	-	0.66	0.006	-	*0.025*	*0.01*	*0.01*	0.1	0.004	*0.025*	17
2008_FLLWF07	56	*0.0025*	-	-	1.6	0.13	*0.01*	-	-	1	0.008	-	*0.025*	0.02	*0.01*	0.14	0.042	*0.025*	22
2008_FLLWF08	26	*0.0025*	-	-	1.1	0.13	*0.01*	-	-	1.2	0.029	-	*0.025*	*0.01*	*0.01*	0.13	0.011	*0.025*	20
2009_FLLWF01	72.2	*0.01*	*0.05*	167	1.43	0.158	*0.05*	3090	3130	1.22	-	1320	0.104	0.011	*0.025*	*0.5*	*0.001*	*0.05*	41.5
2009_FLLWF02	59.3	*0.01*	*0.05*	219	1.57	0.141	*0.05*	4090	3380	1.35	-	1120	0.252	0.018	*0.025*	*0.5*	*0.001*	*0.05*	39.5
2009_FLLWF03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_FLLWF04	124	*0.01*	*0.05*	156	1.24	0.138	*0.05*	2880	2710	1.15	-	1340	0.286	0.013	*0.025*	*0.5*	*0.001*	*0.05*	25.1
2009_FLLWF05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_FLLWF06	52.1	*0.01*	*0.05*	168	1.28	0.105	*0.05*	3060	2880	1.07	-	990	0.224	0.015	*0.025*	*0.5*	*0.001*	*0.05*	29.7
2009_FLLWF07	87.7	*0.01*	*0.05*	157	1.43	0.149	*0.05*	3250	2940	1.51	-	1160	0.184	0.02	*0.025*	*0.5*	*0.001*	*0.05*	33.7
2009_FLLWF08	47.8	*0.01*	*0.05*	191	1.2	0.155	*0.05*	4490	4090	1.5	-	1080	0.134	0.017	0.056	*0.5*	*0.001*	*0.05*	37.4
2009_FLLWF09	78.1	*0.01*	*0.05*	258	1.57	0.183	*0.05*	4290	3720	2.09	-	780	0.576	0.015	*0.025*	*0.5*	*0.001*	*0.05*	37.5
2009_FLLWF10	52	*0.01*	*0.05*	303	2.14	0.127	*0.05*	4860	2350	1.43	-	730	0.308	0.019	*0.025*	*0.5*	*0.001*	*0.05*	28.4
2009_FLLWF11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_FLLWF12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008_FLNP01	34	0.020	-	-	2	0.72	*0.01*	-	-	0.15	0.008	-	*0.025*	*0.01*	*0.01*	0.05	0.1	*0.025*	25
2008_FLNP02	14	*0.0025*	-	-	0.74	0.13	*0.01*	-	-	0.69	0.14	-	*0.025*	*0.01*	*0.01*	0.04	0.019	*0.025*	27
2008_FLNP03	37	*0.0025*	-	-	0.6	0.11	*0.01*	-	-	0.79	0.15	-	*0.025*	*0.01*	*0.01*	0.03	0.014	0.06	25
2008_FLNP04	18	*0.0025*	-	-	0.79	0.16	*0.01*	-	-	0.69	0.2	-	*0.025*	*0.01*	*0.01*	0.03	0.063	0.07	22
2008_FLNP05	45	*0.0025*	-	-	2	0.41	*0.01*	-	-	1.6	0.2	-	0.07	*0.01*	*0.01*	0.07	0.25	0.1	74
2008_FLNP06	3.7	*0.0025*	-	-	0.39	0.06	*0.01*	-	-	0.19	0.17	-	*0.025*	*0.01*	*0.01*	*0.01*	*0.001*	*0.025*	12
2008_FLNP07	17	*0.0025*	-	-	1.8	0.15	*0.01*	-	-	0.72	0.11	-	*0.025*	*0.01*	*0.01*	0.05	0.011	0.06	30
2009_FLNP01	62.8	*0.01*	*0.05*	124	0.881	0.178	*0.05*	2220	2320	1.73	-	820	0.061	*0.005*	*0.025*	*0.5*	*0.001*	0.16	44
2009_FLNP02	43.7	*0.01*	*0.05*	170	1.75	0.183	*0.05*	3010	3050	0.95	-	920	0.17	*0.005*	*0.025*	*0.5*	*0.001*	0.1	44.6
2009_FLNP03	41.4	*0.01*	*0.05*	173	1.63	0.205	*0.05*	2930	2940	1.08	-	1050	0.12	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	52.9
2009_FLNP04	50.3	*0.01*	*0.05*	194	1.68	0.173	*0.05*	3270	3260	0.95	-	1080	0.157	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	42.5
2009_FLNP05	37.1	*0.02*	*0.1*	181	1.85	0.183	*0.1*	2970	2870	1.18	-	970	0.148	*0.01*	*0.05*	*0.6*	*0.002*	*0.1*	67.9
2009_FLNP06	43.4	*0.01*	*0.05*	174	1.37	0.161	*0.05*	2840	2960	1	-	1300	0.122	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	61.3
2009_FLNP07	53.7	*0.01*	*0.05*	219	1.79	0.19	*0.05*	3320	2940	1.09	-	1140	0.125	*0.005*	*0.189*	*0.5*	*0.001*	*0.05*	74.6
2009_FLNP08	43.4	*0.01*	*0.05*	230	2.15	0.182	*0.05*	3930	2900	1.41	-	1020	0.146	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	77.5

Table L1-1 A Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01
Great Slave	2008	AG	2008_GLAG01	394	790	77.7	0.0176	-	0.46	*0.025*	*0.01*	0.03	*0.0025*	-	*0.25*	0.13	-	*0.1*	0.25	1.6
Great Slave	2008	AG	2008_GLAG02	458	1020	77.3	0.0324	-	0.51	*0.025*	*0.01*	0.03	*0.0025*	-	*0.25*	0.087	-	*0.1*	0.36	1.5
Great Slave	2008	AG	2008_GLAG03	413	1070	76	0.0368	-	0.61	*0.025*	*0.01*	0.03	*0.0025*	-	*0.25*	0.11	-	*0.1*	0.034	0.99
Great Slave	2008	AG	2008_GLAG04	421	1010	77	0.0434	-	0.71	*0.025*	*0.01*	0.04	*0.0025*	-	*0.25*	0.12	-	*0.1*	0.034	1.6
Great Slave	2008	AG	2008_GLAG05	400	870	76.8	0.0524	-	1.9	*0.025*	*0.01*	*0.01*	*0.0025*	-	*0.25*	0.14	-	*0.1*	0.053	1
Great Slave	2008	AG	2008_GLAG06	464	1160	80.8	0.0568	-	1.2	*0.025*	*0.01*	*0.01*	*0.0025*	-	*0.25*	0.086	-	*0.1*	0.25	0.86
Great Slave	2009	LC	2009_GLLC01	375	628.6	-	-	79.2	*1*	0.024	0.361	0.176	*0.05*	*0.015*	-	0.33	96.4	*0.05*	0.025	1.64
Great Slave	2009	LC	2009_GLLC02	227	121.9	-	-	73.1	*1*	0.013	0.841	0.264	*0.05*	*0.015*	-	0.187	598	*0.05*	0.024	2.44
Great Slave	2009	LC	2009_GLLC03	209	104.1	-	-	79.5	*1*	0.023	0.426	0.07	*0.05*	*0.015*	-	0.221	80.4	*0.05*	0.027	3.62
Great Slave	2009	LC	2009_GLLC0406	-	-	-	-	74.6	*1*	0.018	0.896	0.102	*0.05*	*0.015*	-	0.24	119	*0.05*	0.027	3.47
Great Slave	2009	LC	2009_GLLC05	233	128.1	-	-	74	*1*	*0.005*	1.1	0.059	*0.05*	*0.015*	-	0.225	99.2	*0.05*	0.022	1.76
Great Slave	2009	LC	2009_GLLC0715	-	-	-	-	71.6	*1*	0.019	0.928	0.128	*0.05*	*0.015*	-	0.142	168	*0.05*	0.036	2.71
Great Slave	2009	LC	2009_GLLC0809	-	-	-	-	74.8	*1*	0.01	0.667	0.085	*0.05*	*0.015*	-	0.245	127	*0.05*	0.035	3.26
Great Slave	2009	LC	2009_GLLC10TO13	-	-	-	-	73.9	*1*	0.034	1.15	0.154	*0.05*	*0.015*	-	0.326	167	*0.05*	0.035	3.09
Great Slave	2008	LWF	2008_GLLWF01	435	1210	78	0.0185	-	0.29	*0.025*	0.03	0.03	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.016	23
Great Slave	2008	LWF	2008_GLLWF02	485	1380	75.8	0.051	-	1.9	*0.025*	0.13	0.04	*0.0025*	-	*0.25*	0.13	-	*0.1*	0.078	11
Great Slave	2008	LWF	2008_GLLWF03	373	640	77	0.0085	-	0.58	*0.025*	0.05	0.02	*0.0025*	-	*0.25*	0.057	-	*0.1*	0.022	5.5
Great Slave	2008	LWF	2008_GLLWF04	481	1540	78.3	0.0129	-	1.2	*0.025*	0.24	0.05	*0.0025*	-	*0.25*	0.091	-	*0.1*	0.056	9.5
Great Slave	2008	LWF	2008_GLLWF05	395	920	78.6	0.0152	-	1.4	*0.025*	0.22	0.05	*0.0025*	-	*0.25*	0.1	-	*0.1*	0.049	17
Great Slave	2008	LWF	2008_GLLWF06	345	500	79.4	0.0091	-	0.83	*0.025*	0.2	0.04	*0.0025*	-	*0.25*	0.25	-	*0.1*	0.034	7.8
Great Slave	2008	LWF	2008_GLLWF07	465	1280	76.8	0.0237	-	0.89	*0.025*	0.05	0.01	*0.0025*	-	*0.25*	0.12	-	*0.1*	0.051	1
Great Slave	2008	LWF	2008_GLLWF08	364	580	79.2	0.0222	-	1.7	*0.025*	0.18	0.02	*0.0025*	-	*0.25*	0.11	-	*0.1*	0.031	3.7
Great Slave	2009	LWF	2009_GLLWF01	416	965.7	81.8	0.0552	80.5	3.7	*0.005*	0.308	0.02	*0.05*	*0.015*	-	0.17	67.7	*0.05*	0.029	10.4
Great Slave	2009	LWF	2009_GLLWF02	416	781.1	-	-	77.8	*1*	0.013	0.289	0.067	*0.05*	*0.015*	-	0.185	54	*0.05*	0.037	10.5
Great Slave	2009	LWF	2009_GLLWF03	496	1997.9	85.5	0.0424	78.5	4.6	0.029	0.146	0.29	*0.05*	*0.015*	-	0.217	89.7	*0.05*	0.04	15.8
Great Slave	2009	LWF	2009_GLLWF04	476	1520.7	78.3	0.0268	-	-	-	-	-	-	-	-	-	-	-	-	-
Great Slave	2009	LWF	2009_GLLWF05	366	602.9	80.4	0.0277	-	-	-	-	-	-	-	-	-	-	-	-	-
Great Slave	2009	LWF	2009_GLLWF06	446	1402.7	-	-	80.4	*1*	*0.005*	0.201	0.137	*0.05*	*0.015*	-	0.095	72.1	*0.05*	0.031	4.6
Great Slave	2009	LWF	2009_GLLWF07	445	1155.3	76.1	0.0315	-	-	-	-	-	-	-	-	-	-	-	-	-
Great Slave	2009	LWF	2009_GLLWF08	383	772.7	77.1	0.0265	77.6	*1*	*0.005*	*0.25*	0.023	*0.05*	*0.015*	-	0.156	50.9	*0.05*	0.04	7.36
Great Slave	2009	LWF	2009_GLLWF09	395	865.1	77.2	0.0355	80	*1*	0.012	0.218	0.111	*0.05*	*0.015*	-	0.0964	107	*0.05*	0.043	3.95
Great Slave	2009	LWF	2009_GLLWF10	394	592	-	-	70.9	*1*	0.02	1.53	0.16	*0.05*	*0.015*	-	0.278	81	*0.05*	0.041	15
Great Slave	2009	LWF	2009_GLLWF11	366	709.8	-	-	78.2	2	*0.01*	0.292	*0.01*	*0.1*	*0.03*	-	0.149	67.9	*0.1*	0.046	5.76
Great Slave	2009	LWF	2009_GLLWF12	544	2468.7	76.7	0.0645	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
   - 210g tissue per week when total mercury is 0.5 mg/kg wet weight
   - 260g tissue per week when total mercury is 0.4 mg/kg wet weight
   - 350g tissue per week when total mercury is 0.3 mg/kg wet weight
   - 525g tissue per week when total mercury is 0.2 mg/kg wet weight
   - 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   - Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   - Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
	0.05	0.03	0.1	1	0.01	0.01	0.02	5	20	0.02	0.005	20	0.01	0.01	0.02	0.02	0.002	0.05	0.1
2008_GLAG01	60	*0.0025*	-	-	1.4	0.12	*0.01*	-	-	5.6	*0.0025*	-	0.1	*0.01*	*0.01*	0.09	0.017	*0.025*	20
2008_GLAG02	53	*0.0025*	-	-	1.3	0.13	*0.01*	-	-	4.4	*0.0025*	-	0.12	*0.01*	*0.01*	0.08	0.032	*0.025*	21
2008_GLAG03	53	*0.0025*	-	-	1.2	0.08	*0.01*	-	-	3.2	*0.0025*	-	0.12	*0.01*	*0.01*	0.07	0.034	*0.025*	17
2008_GLAG04	29	*0.0025*	-	-	1.8	0.12	*0.01*	-	-	2.1	*0.0025*	-	*0.025*	*0.01*	*0.01*	0.09	0.011	*0.025*	21
2008_GLAG05	50	*0.0025*	-	-	1.5	0.1	*0.01*	-	-	4.3	*0.0025*	-	0.11	*0.01*	*0.01*	0.12	0.002	*0.025*	18
2008_GLAG06	47	*0.0025*	-	-	1.5	0.09	*0.01*	-	-	3.2	*0.0025*	-	0.18	*0.01*	*0.01*	0.11	*0.001*	*0.025*	18
2009_GLLC01	59.1	*0.01*	*0.05*	222	1.35	0.133	*0.05*	3860	3420	1.47	-	1090	0.158	0.138	*0.025*	*0.05*	0.0043	*0.05*	142
2009_GLLC02	65.1	*0.01*	*0.05*	287	2.08	0.131	*0.05*	5430	4570	1.69	-	780	0.872	0.241	*0.025*	*0.5*	*0.001*	*0.05*	169
2009_GLLC03	83.5	*0.01*	*0.05*	234	1.97	0.087	*0.05*	4830	4300	1.4	-	1630	0.143	0.28	*0.025*	*0.5*	0.0044	*0.05*	317
2009_GLLC0406	69.2	*0.01*	*0.05*	212	2.22	0.128	*0.05*	4340	3760	1.39	-	1310	0.216	0.208	*0.025*	*0.5*	*0.001*	*0.05*	188
2009_GLLC05	53.3	*0.01*	*0.05*	245	3.59	0.144	*0.05*	4880	4580	1.86	-	1180	0.178	0.249	*0.025*	*0.5*	*0.001*	*0.05*	100
2009_GLLC0715	95.9	*0.01*	*0.05*	236	2.31	0.183	*0.05*	4280	3530	1.7	-	1390	0.309	0.307	*0.025*	*0.5*	*0.001*	*0.05*	228
2009_GLLC0809	100	*0.01*	*0.05*	212	2.1	0.145	*0.05*	4100	3570	1.47	-	1300	0.242	0.243	*0.025*	*0.5*	*0.001*	*0.05*	298
2009_GLLC10TO13	91.6	*0.01*	*0.05*	213	2.24	0.186	*0.05*	3670	3450	1.88	-	1180	0.33	0.256	*0.025*	*0.5*	*0.001*	*0.05*	265
2008_GLLWF01	17	*0.0025*	-	-	0.66	0.13	*0.01*	-	-	0.66	0.17	-	*0.025*	*0.01*	*0.01*	0.04	*0.001*	0.08	21
2008_GLLWF02	43	*0.0025*	-	-	1.4	0.11	*0.01*	-	-	2	0.029	-	0.16	0.05	*0.01*	0.09	0.008	0.1	30
2008_GLLWF03	30	*0.0025*	-	-	1.1	0.1	*0.01*	-	-	1.7	0.024	-	0.06	0.07	*0.01*	0.08	0.17	*0.025*	30
2008_GLLWF04	47	*0.0025*	-	-	1.5	0.12	*0.01*	-	-	1.9	0.1	-	0.13	0.11	*0.01*	0.08	0.013	0.08	26
2008_GLLWF05	62	*0.0025*	-	-	1.5	0.13	*0.01*	-	-	2	0.15	-	0.09	0.12	*0.01*	0.1	0.1	0.07	28
2008_GLLWF06	69	*0.0025*	-	-	1.7	0.12	*0.01*	-	-	1.6	0.039	-	0.26	0.1	*0.01*	0.1	*0.001*	*0.025*	34
2008_GLLWF07	30	*0.0025*	-	-	1.6	0.11	*0.01*	-	-	2.5	*0.0025*	-	0.08	0.09	*0.01*	0.09	0.043	0.06	20
2008_GLLWF08	50	*0.0025*	-	-	1.7	0.14	*0.01*	-	-	2.2	0.021	-	0.11	0.1	*0.01*	0.12	*0.001*	0.07	29
2009_GLLWF01	37.2	*0.01*	*0.05*	197	1.56	0.098	*0.05*	3630	3120	1.68	-	991	0.148	0.118	*0.025*	*0.05*	0.0048	*0.05*	34
2009_GLLWF02	83.8	*0.01*	*0.05*	176	1.56	0.146	*0.05*	3940	3870	1.96	-	1090	0.125	0.152	*0.025*	*0.15*	0.0023	*0.05*	51
2009_GLLWF03	58.1	*0.01*	*0.05*	138	1.45	0.191	*0.05*	3150	3070	2.34	-	1230	0.177	0.043	*0.025*	*0.05*	0.0046	0.11	33.5
2009_GLLWF04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_GLLWF05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_GLLWF06	42.8	*0.01*	*0.05*	152	1.65	0.119	*0.05*	3070	2800	1.98	-	1260	0.179	0.041	*0.025*	*0.05*	*0.001*	*0.05*	27
2009_GLLWF07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_GLLWF08	51	*0.01*	*0.05*	164	1.56	0.129	*0.05*	3820	3150	2.24	-	1330	0.141	0.116	*0.025*	*0.15*	*0.001*	*0.05*	43.2
2009_GLLWF09	54.8	*0.01*	*0.05*	160	1.42	0.119	*0.05*	3110	2760	1.98	-	1180	0.281	0.072	*0.025*	*0.05*	*0.001*	*0.05*	33.9
2009_GLLWF10	58.9	*0.01*	*0.05*	227	2.56	0.22	*0.05*	5050	4860	3.02	-	1090	0.194	0.271	*0.025*	*0.5*	0.0025	0.11	48.7
2009_GLLWF11	64	*0.02*	*0.1*	173	1.52	0.156	*0.1*	3660	3400	2.41	-	1390	0.184	0.133	*0.05*	*0.2*	*0.002*	*0.1*	30
2009_GLLWF12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table L1-5 Long Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01
Long	2008	LWF	2008_LLLWF01	240	150	77.5	0.041	-	0.91	*0.025*	0.12	0.11	*0.0025*	-	*0.25*	0.006	-	*0.1*	0.017	2.1
Long	2008	LWF	2008_LLLWF02	380	720	77	0.0346	-	0.54	*0.025*	0.14	0.02	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.014	4.5
Long	2008	LWF	2008_LLLWF03	425	950	78.7	0.173	-	3.8	*0.025*	0.11	0.02	*0.0025*	-	*0.25*	0.036	-	*0.1*	0.018	4.9
Long	2008	LWF	2008_LLLWF04	413	860	84.2	0.0972	-	2.2	*0.025*	0.09	*0.01*	*0.0025*	-	*0.25*	0.01	-	*0.1*	0.013	3.1
Long	2008	LWF	2008_LLLWF05	363	630	77.1	0.0603	-	0.69	*0.025*	0.15	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.012	4.5
Long	2008	LWF	2008_LLLWF06	404	980	80.4	0.113	-	2.9	*0.025*	0.17	*0.01*	*0.0025*	-	*0.25*	0.009	-	*0.1*	0.013	5.7
Long	2008	LWF	2008_LLLWF07	290	360	79.1	0.151	-	0.5	*0.025*	0.26	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.01	1.6
Long	2008	LWF	2008_LLLWF08	388	840	78.6	0.294	-	0.43	*0.025*	0.1	*0.01*	*0.0025*	-	*0.25*	0.005	-	*0.1*	0.01	2.9
Long	2009	LWF	2009_LLLWF01	417	968.7	79.3	0.14	78.9	*1*	0.017	0.41	0.145	*0.05*	*0.015*	-	0.0093	124	*0.05*	0.026	21.1
Long	2009	LWF	2009_LLLWF02	419	986.2	-	-	81	2	*0.005*	0.109	0.067	*0.05*	*0.015*	-	0.0073	62.6	*0.05*	0.02	6.96
Long	2009	LWF	2009_LLLWF03	441	987.3	81.3	0.246	81.1	4.2	*0.005*	0.199	0.112	*0.05*	*0.015*	-	0.0199	135	*0.05*	0.026	3.08
Long	2009	LWF	2009_LLLWF04	368	626.1	-	-	76.9	*1*	0.015	0.522	0.457	*0.05*	*0.015*	-	0.0104	98.3	*0.05*	*0.01*	12.4
Long	2009	LWF	2009_LLLWF05	410	993.3	79	0.17	80.8	2.6	*0.005*	0.218	0.099	*0.05*	*0.015*	-	0.0059	118	*0.05*	*0.01*	7.07
Long	2009	LWF	2009_LLLWF06	403	914.8	-	-	80.7	*1*	*0.005*	0.292	0.094	*0.05*	*0.015*	-	*0.0025*	126	*0.05*	*0.01*	4.42
Long	2009	LWF	2009_LLLWF07	393	854.8	80.3	0.085	80.8	*2*	*0.01*	0.251	0.187	*0.1*	*0.03*	-	*0.005*	116	*0.1*	*0.02*	5.19
Long	2009	LWF	2009_LLLWF08	374	733.8	80.1	0.07	79.9	*1*	0.014	0.281	0.215	*0.05*	*0.015*	-	0.0079	134	*0.05*	*0.01*	5.37
Long	2009	LWF	2009_LLLWF09	206	95.9	80	0.053	65.1	*2*	0.058	0.217	0.379	*0.1*	*0.03*	-	*0.005*	415	*0.1*	*0.02*	3.9
Long	2009	LWF	2009_LLLWF10	401	823.5	78.2	0.195	79.6	*1*	0.015	0.179	0.057	*0.05*	*0.015*	-	0.0129	127	*0.05*	*0.01*	3.53
Long	2009	LWF	2009_LLLWF11	304	329.0	79.7	0.064	-	*1*	0.053	0.277	0.124	*0.05*	*0.015*	-	0.0079	118	*0.05*	0.022	4.67
Long	2009	LWF	2009_LLLWF12	374	658.2	-	-	82.2	*1*	0.025	0.314	0.146	*0.05*	*0.015*	-	0.012	148	*0.05*	0.043	6.02
Long	2008	NP	2008_LLNP01	444	620	75.6	0.129	-	0.23	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.012	7.9
Long	2008	NP	2008_LLNP02	275	120	78.7	0.0955	-	0.41	*0.025*	0.05	0.02	*0.0025*	-	*0.25*	0.009	-	*0.1*	0.02	17
Long	2008	NP	2008_LLNP03	555	1080	78.1	0.249	-	0.83	*0.025*	0.05	*0.01*	*0.0025*	-	*0.25*	0.015	-	*0.1*	0.024	7.5
Long	2008	NP	2008_LLNP04	455	640	79.4	0.316	-	0.62	*0.025*	0.04	0.03	*0.0025*	-	*0.25*	0.005	-	*0.1*	0.014	4.7
Long	2008	NP	2008_LLNP05	465	710	78.2	0.143	-	0.22	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.023	7.8
Long	2008	NP	2008_LLNP06	507	1000	78.2	0.123	-	0.24	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.013	7
Long	2008	NP	2008_LLNP07	378	360	78.7	0.125	-	0.59	*0.025*	0.04	0.03	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.017	5.1
Long	2008	NP	2008_LLNP08	577	1545	81.5	0.273	-	0.37	*0.025*	0.06	*0.01*	*0.0025*	-	*0.25*	0.006	-	*0.1*	0.018	11
Long	2009	NP	2009_LLNP01	257	115.3	78.9	0.098	67.2	*1*	0.011	0.09	0.027	*0.05*	*0.015*	-	*0.0025*	96.3	0.12	0.033	13.8
Long	2009	NP	2009_LLNP02	526	938.3	78.3	0.407	79.2	*1*	*0.005*	0.111	0.026	*0.05*	*0.015*	-	0.0087	78.7	*0.05*	0.023	14.7
Long	2009	NP	2009_LLNP03	406	437.1	80.8	0.261	75.9	*1*	0.01	0.047	0.053	*0.05*	*0.015*	-	0.0187	88.6	*0.05*	0.037	16.8
Long	2009	NP	2009_LLNP04	486	824.0	79.1	0.171	76.3	*1*	*0.005*	0.114	0.028	*0.05*	*0.015*	-	*0.0025*	77.1	*0.05*	0.026	11

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
   - 210g tissue per week when total mercury is 0.5 mg/kg wet weight
   - 260g tissue per week when total mercury is 0.4 mg/kg wet weight
   - 350g tissue per week when total mercury is 0.3 mg/kg wet weight
   - 525g tissue per week when total mercury is 0.2 mg/kg wet weight
   - 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
	0.05	0.03	0.1	1	0.01	0.01	0.02	5	20	0.02	0.005	20	0.01	0.01	0.02	0.02	0.002	0.05	0.1
2008_LLLWF01	42	*0.0025*	-	-	2	0.11	0.03	-	-	1.1	*0.0025*	-	0.1	*0.01*	*0.01*	0.15	*0.001*	*0.025*	22
2008_LLLWF02	32	*0.0025*	-	-	1.7	0.11	*0.01*	-	-	1.2	0.017	-	0.09	*0.01*	*0.01*	0.15	*0.001*	*0.025*	20
2008_LLLWF03	110	*0.0025*	-	-	2.5	0.1	*0.01*	-	-	0.96	0.024	-	0.06	*0.01*	*0.01*	0.14	0.039	0.1	22
2008_LLLWF04	194	*0.0025*	-	-	1.5	0.12	*0.01*	-	-	1.2	0.019	-	*0.025*	*0.01*	*0.01*	0.15	0.008	0.1	18
2008_LLLWF05	37	*0.0025*	-	-	1.7	0.11	0.04	-	-	0.97	0.016	-	0.15	*0.01*	*0.01*	0.13	0.002	*0.025*	20
2008_LLLWF06	42	*0.0025*	-	-	1.4	0.1	*0.01*	-	-	1.3	0.02	-	*0.025*	*0.01*	*0.01*	0.14	0.017	0.05	26
2008_LLLWF07	76	*0.0025*	-	-	2.1	0.1	*0.01*	-	-	1.3	*0.0025*	-	0.07	0.03	*0.01*	0.15	0.006	*0.025*	390
2008_LLLWF08	23	*0.0025*	-	-	1.1	0.08	*0.01*	-	-	1	0.022	-	0.1	0.01	*0.01*	0.13	0.007	*0.025*	20
2009_LLLWF01	129	*0.01*	*0.05*	171	1.62	0.232	*0.05*	3580	3160	1.45	-	1340	0.116	0.015	*0.025*	*0.5*	0.0126	0.17	33.2
2009_LLLWF02	67	*0.01*	*0.05*	176	0.993	0.126	*0.05*	3310	3140	1.06	-	1190	0.046	*0.005*	*0.025*	*0.05*	0.0075	*0.05*	21.6
2009_LLLWF03	124	*0.01*	*0.05*	173	1.4	0.107	*0.05*	3030	3070	0.94	-	1300	0.124	*0.005*	*0.025*	*0.05*	0.0152	0.16	23.9
2009_LLLWF04	48.5	*0.01*	*0.05*	265	2.62	0.147	*0.05*	4860	5170	1.26	-	1090	0.078	0.026	*0.025*	*0.5*	0.0035	*0.05*	32.8
2009_LLLWF05	86.1	*0.01*	*0.05*	147	3.68	0.213	*0.05*	2770	2770	1.34	-	1200	0.085	*0.005*	*0.025*	*0.05*	0.0073	0.12	25
2009_LLLWF06	38.8	*0.01*	*0.05*	190	2.21	0.106	*0.05*	3340	3350	1.02	-	1130	0.106	0.016	*0.025*	*0.05*	0.0026	*0.05*	23.5
2009_LLLWF07	62.5	*0.02*	*0.1*	202	2.68	0.109	*0.1*	3550	3350	1.2	-	1310	0.109	*0.01*	*0.05*	*0.1*	0.0045	*0.1*	23.2
2009_LLLWF08	88.3	*0.01*	*0.05*	182	2.01	0.141	*0.05*	3620	3880	1.44	-	1620	0.14	*0.005*	*0.025*	*0.5*	0.0029	0.12	21.6
2009_LLLWF09	92.1	*0.02*	*0.1*	279	2.89	0.231	*0.1*	5620	4470	1.95	-	1120	0.41	0.032	*0.05*	*0.6*	*0.002*	*0.1*	43.6
2009_LLLWF10	62.7	*0.01*	*0.05*	179	1.3	0.096	*0.05*	3430	3280	1.13	-	1080	0.093	*0.005*	*0.025*	*0.05*	0.0157	*0.05*	22.3
2009_LLLWF11	82.8	*0.01*	*0.05*	184	1.79	0.173	*0.05*	4080	4490	1.32	-	1780	0.129	0.011	*0.025*	*0.5*	*0.001*	*0.05*	29.9
2009_LLLWF12	159	*0.01*	*0.05*	222	1.98	0.189	*0.05*	4070	4150	1.82	-	2530	0.161	*0.005*	*0.025*	*0.65*	0.0068	0.15	26.9
2008_LLNP01	19	*0.0025*	-	-	1.3	0.15	*0.01*	-	-	1.3	0.034	-	*0.025*	*0.01*	*0.01*	0.09	*0.001*	*0.025*	30
2008_LLNP02	130	*0.0025*	-	-	1	0.21	*0.01*	-	-	1	0.073	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	*0.025*	50
2008_LLNP03	18	*0.0025*	-	-	1.3	0.19	*0.01*	-	-	1.5	0.057	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	*0.025*	30
2008_LLNP04	16	*0.0025*	-	-	2.5	0.11	0.04	-	-	0.87	0.028	-	*0.025*	*0.01*	*0.01*	0.09	0.002	*0.025*	30
2008_LLNP05	17	*0.0025*	-	-	2.2	0.14	0.02	-	-	1.3	0.027	-	*0.025*	*0.01*	*0.01*	0.12	0.003	*0.025*	30
2008_LLNP06	18	*0.0025*	-	-	1.5	0.11	*0.01*	-	-	1.2	0.031	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	*0.025*	40
2008_LLNP07	23	*0.0025*	-	-	1.9	0.17	0.02	-	-	1	0.019	-	*0.025*	*0.01*	*0.01*	0.14	0.003	*0.025*	30
2008_LLNP08	77	*0.0025*	-	-	0.9	0.16	*0.01*	-	-	1.8	0.049	-	*0.025*	*0.01*	*0.01*	0.11	0.015	*0.025*	50
2009_LLNP01	50.4	*0.01*	*0.05*	247	2.03	0.31	*0.05*	4080	3480	1.43	-	1020	0.051	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	54.1
2009_LLNP02	27.6	*0.01*	*0.05*	191	1.23	0.148	*0.05*	3140	3060	1.34	-	767	0.064	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	44
2009_LLNP03	111	*0.01*	*0.05*	237	1.66	0.251	*0.05*	3910	3350	1.28	-	940	0.065	*0.005*	*0.025*	*0.5*	*0.001*	0.16	48.7
2009_LLNP04	41.4	*0.01*	*0.05*	195	1.2	0.19	*0.05*	3310	3020	1.49	-	967	0.074	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	55.9

Table L1-6 Redemption Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper	Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt		mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01		0.05	0.03	0.1
Redemption	2009	LC	2009_RLLC01	196	332.5	-	-	80.7	*1*	0.023	0.116	0.032	*0.05*	*0.015*	-	0.0136	175	*0.05*	*0.01*	1.53	2009_RLLC01	155	*0.01*	*0.05*
Redemption	2009	LC	2009_RLLC02	275	298.6	-	-	72.7	*2*	*0.01*	0.239	0.034	*0.1*	*0.03*	-	0.012	159	*0.1*	*0.02*	1.61	2009_RLLC02	203	*0.02*	*0.1*
Redemption	2009	LC	2009_RLLC03	280	321.9	-	-	72.8	*2*	*0.01*	0.285	*0.01*	*0.1*	*0.03*	-	0.031	100	*0.1*	0.043	6.2	2009_RLLC03	616	*0.02*	*0.1*
Redemption	2009	LC	2009_RLLC04	258	245.8	-	-	71.9	*5*	*0.025*	0.248	*0.025*	*0.25*	*0.055*	-	0.03	115	*0.25*	*0.05*	2.51	2009_RLLC04	307	*0.05*	*0.25*
Redemption	2009	LC	2009_RLLC05	270	249	-	-	77.3	19.7	0.016	0.193	0.021	*0.05*	*0.015*	-	0.0122	127	*0.05*	0.02	1.65	2009_RLLC05	182	*0.01*	*0.05*
Redemption	2009	LC	2009_RLLC06	230	160	-	-	75	2.7	*0.005*	0.195	0.021	*0.05*	*0.015*	-	0.0095	105	*0.05*	0.03	2.69	2009_RLLC06	170	*0.01*	*0.05*
Redemption	2009	LC	2009_RLLC07	262	222.4	-	-	75.1	*1*	*0.005*	0.193	0.055	*0.05*	*0.015*	-	0.0245	312	*0.05*	0.024	2.2	2009_RLLC07	212	*0.01*	*0.05*
Redemption	2009	LC	2009_RLLC08	249	221.3	-	-	73.9	*2*	*0.01*	0.234	0.022	*0.1*	*0.03*	-	0.018	145	*0.1*	*0.02*	1.96	2009_RLLC08	169	*0.02*	*0.1*
Redemption	2009	LC	2009_RLLC09	227	154.2	-	-	73.9	*2*	*0.01*	0.173	0.026	*0.1*	*0.03*	-	*0.005*	155	*0.1*	*0.02*	3.22	2009_RLLC09	153	*0.02*	*0.1*
Redemption	2009	LC	2009_RLLC10	211	122.6	-	-	65.5	*2*	*0.01*	0.245	0.055	*0.1*	*0.03*	-	0.012	809	*0.1*	*0.02*	2.18	2009_RLLC10	152	*0.02*	*0.1*
Redemption	2009	LC	2009_RLLC12	218	139.2	-	-	65.3	*2*	*0.01*	0.211	*0.01*	*0.1*	*0.03*	-	0.012	80.1	*0.1*	*0.02*	3.75	2009_RLLC12	179	*0.02*	*0.1*
Redemption	2009	LC	2009_RLLC1320TO24	-	-	-	-	79.7	*1*	*0.005*	0.114	0.047	*0.05*	*0.015*	-	0.0072	223	*0.05*	0.029	2.58	2009_RLLC1320TO24	76.7	*0.01*	*0.05*
Redemption	2009	LC	2009_RLLC14to19	-	-	-	-	73.6	*2*	*0.01*	0.148	0.028	*0.1*	*0.03*	-	0.005	122	*0.1*	*0.02*	2.26	2009_RLLC14to19	84.3	*0.02*	*0.1*
Redemption	2009	LWF	2009_RLLWF01	165	68.6	78.5	0.036	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_RLLWF01	-	-	-
Redemption	2009	LWF	2009_RLLWF02	205	120.1	80.2	0.048	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_RLLWF02	-	-	-
Redemption	2009	LWF	2009_RLLWF03	464	1805.6	78.7	0.078	77.7	9	*0.005*	0.069	0.012	*0.05*	*0.015*	-	0.0761	111	*0.05*	0.06	7.37	2009_RLLWF03	196	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF04	515	2314.5	76.6	0.303	82.2	*1*	*0.005*	0.183	*0.005*	*0.05*	*0.015*	-	0.0249	53.3	*0.05*	0.03	23.9	2009_RLLWF04	98.6	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF05	254	210.8	78.7	0.0478	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_RLLWF05	-	-	-
Redemption	2009	LWF	2009_RLLWF06	461	1558.4	76	0.122	80.7	*1*	*0.005*	0.053	*0.005*	*0.05*	*0.015*	-	0.0117	60.4	*0.05*	0.027	7.53	2009_RLLWF06	66.1	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF07	423	1156.8	77.6	0.095	77.3	*1*	*0.005*	0.079	*0.005*	*0.05*	*0.015*	-	0.0093	68.1	*0.05*	0.029	9.44	2009_RLLWF07	57.5	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF08	171	56	78.8	0.036	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_RLLWF08	-	-	-
Redemption	2009	LWF	2009_RLLWF09	473	1759.1	77.6	0.0581	72.7	*1*	*0.005*	0.099	0.019	*0.05*	*0.015*	-	0.0107	66.2	*0.05*	0.024	3.05	2009_RLLWF09	59.5	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF10	523	2380.4	76.4	0.283	80.2	*1*	*0.005*	0.165	*0.005*	*0.05*	*0.015*	-	0.0109	92.5	*0.05*	0.022	9.89	2009_RLLWF10	48.1	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF11	461	1801.3	79.5	0.157	80	*1*	*0.005*	0.09	*0.005*	*0.05*	*0.015*	-	0.0119	81.8	*0.05*	0.021	18.3	2009_RLLWF11	43.7	*0.01*	*0.05*
Redemption	2009	LWF	2009_RLLWF12	455	1398.7	77.3	0.0647	78.9	*1*	*0.005*	0.026	*0.005*	*0.05*	*0.015*	-	0.022	64.8	*0.05*	0.061	26.3	2009_RLLWF12	194	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF01	477	1527.4	79.4	0.343	76.5	3.2	*0.005*	0.064	0.043	*0.05*	*0.015*	-	0.0234	62.8	*0.05*	*0.01*	9.4	2010_RLLWF01	87.7	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF02	349	669	78.7	0.0572	-	-	-	-	-	-	-	-	-	-	-	-	-	2010_RLLWF02	-	-	-
Redemption	2010	LWF	2010_RLLWF03	194	97.4	79.2	0.0355	-	-	-	-	-	-	-	-	-	-	-	-	-	2010_RLLWF03	-	-	-
Redemption	2010	LWF	2010_RLLWF04	467	1587.3	-	-	80.4	2.7	*0.005*	0.065	0.013	*0.05*	*0.015*	-	0.0345	126	*0.05*	0.047	7.54	2010_RLLWF05	109	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF05	510	1860.2	-	-	78.5	2.5	*0.005*	0.073	0.012	*0.05*	*0.015*	-	0.0201	36.4	*0.05*	*0.01*	9.5	2010_RLLWF04	77.3	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF06	447	1314.3	79.1	0.0627	80.2	*1*	*0.005*	0.061	0.034	*0.05*	*0.015*	-	0.0246	53.4	*0.05*	0.033	15.8	2010_RLLWF06	143	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF07	478	1610.2	-	-	82	10.2	*0.005*	0.087	0.109	*0.05*	*0.015*	-	0.0709	59.1	*0.05*	0.03	17.5	2010_RLLWF07	109	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF08	469	1740.7	77.8	0.0702	76	9.6	*0.005*	0.054	0.14	*0.05*	*0.015*	-	0.0693	58.9	*0.05*	0.039	9.22	2010_RLLWF08	176	0.025	*0.05*
Redemption	2010	LWF	2010_RLLWF09	520	1783.9	-	-	79.6	3.9	*0.005*	0.097	0.044	*0.05*	*0.015*	-	0.0545	53.9	*0.05*	0.028	11.4	2010_RLLWF09	86.9	*0.01*	*0.05*
Redemption	2010	LWF	2010_RLLWF10	527	2114	78.6	0.143	-	-	-	-	-	-	-	-	-	-	-	-	-	2010_RLLWF10	-	-	-
Redemption	2010	LWF	2010_RLLWF11	514	2031.9	78.3	0.215	-	-	-	-	-	-	-	-	-	-	-	-	-	2010_RLLWF11	-	-	-
Redemption	2010	LWF	2010_RLLWF12	505	1895.5	80.4	0.2	79.3	2.3	*0.005*	0.089	*0.005*	*0.05*	*0.015*	-	0.0366	63.4	*0.05*	0.023	8.57	2010_RLLWF12	153	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP01	276	142.9	80.5	0.129	74.5	*1*	0.017	0.021	0.01	*0.05*	*0.015*	-	0.006	63.7	*0.05*	0.028	48.1	2009_RLNP01	161	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP02	455	687	80.5	0.225	79	*1*	*0.005*	0.034	*0.005*	*0.05*	*0.015*	-	*0.0025*	49.2	*0.05*	0.027	18.4	2009_RLNP02	137	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP03	478	298.5	82.4	0.26	77.7	*1*	*0.005*	0.054	*0.005*	*0.05*	*0.015*	-	*0.0025*	47.6	*0.05*	0.021	12.9	2009_RLNP03	60.6	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP04	535	588.5	78.7	0.293	73.4	*1*	*0.005*	0.067	*0.005*	*0.05*	*0.015*	-	0.0051	34.3	*0.05*	0.021	7.62	2009_RLNP04	30.7	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP05	420	570.1	81.8	0.218	76.7	*1*	*0.005*	0.089	*0.005*	*0.05*	*0.015*	-	0.0061	51.7	*0.05*	0.024	14	2009_RLNP05	61.6	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP06	315	241.5	79.8	0.131	75.8	*1*	*0.005*	0.053	*0.005*	*0.05*	*0.015*	-	*0.0025*	36.1	*0.05*	*0.01*	5.68	2009_RLNP06	41.1	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP07	509	971.2	79.5	0.302	75.8	*1*	*0.005*	0.089	*0.005*	*0.05*	*0.015*	-	0.0088	44.9	*0.05*	*0.01*	10.8	2009_RLNP07	81.6	*0.01*	*0.05*
Redemption	2009	NP	2009_RLNP08	805	-	78.2	0.869	80.5	*1*	*0.005*	0.037	*0.005*	*0.05*	*0.015*	-	0.0082	51	*0.05*	0.021	10	2009_RLNP08	19.7	*0.01*	*0.05*
Redemption	2010	NP	2010_RLNP01	574	1175.7	79.3	0.321	77.5	*1*	*0.005*	0.044	0.043	*0.05*	*0.015*	-	*0.0025*	45.5	*0.05*	0.027	23.2	2010_RLNP01	64.9	*0.01*	*0.05*
Redemption	2010	NP	2010_RLNP02	682	2094.1	79.6	0.555	80.5	*1*	*0.005*	0.033	0.032	*0.05*	*0.015*	-	0.0103	43	*0.05*	0.022	7.55	2010_RLNP02	29	*0.01*	*0.05*
Redemption	2010	NP	2010_RLNP03	530	1019.3	79.4	0.227	72.7	*1*	*0.005*	0.048	0.022	*0.05*	*0.015*	-	0.0059	36.4	*0.05*	0.031	21.8	2010_RLNP03	64.7	*0.01*	*0.05*
Redemption	2010	NP	2010_RLNP04	701	2368.4	79.4	0.405	76.6	*1*	*0.005*	0.028	0.044	*0.05*	*0.015*	-	*0.0025*	34.1	*0.05*	0.02	8.06	2010_RLNP04	19.5	*0.01*	*0.05*
Redemption	2010	NP	2010_RLNP05	726	2724.6	80.2	0.435	75.3	*1*	*0.005*	0.031	0.037	*0.05*	*0.015*	-	*0.0025*	60.3	*0.05*	0.02	11.5	2010_RLNP05	18.7	*0.01*	*0.05*
Redemption	2010	NP	2010_RLNP06	726	2601.6	79.5	0.734	72.2	*1*	*0.005*	0.059	0.059	*0.05*	*0.015*	-	0.0143	48.3	*0.05*	0.034	18.4	2010_RLNP06	105	*0.01*	*0.05*

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
- 210g tissue per week when total mercury is 0.5 mg/kg wet weight
- 260g tissue per week when total mercury is 0.4 mg/kg wet weight
- 350g tissue per week when total mercury is 0.3 mg/kg wet weight
- 525g tissue per week when total mercury is 0.2 mg/kg wet weight
- 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Table L1-6 Redemption Lake Fish Muscle Mercury and Avalon Rare Metals Thor Lake, NT Project # 1235-10431

Lake	Year	Species	Fish I.D.	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
			Un	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			D	1	0.01	0.01	0.02	5	20	0.02	0.005	20	0.01	0.01	0.02	0.02	0.002	0.05	0.1
Redemption	2009	LC	2009_RLLC01	222	5.41	0.144	*0.05*	4090	3320	0.98	-	990	0.162	0.013	*0.025*	*0.5*	*0.001*	*0.05*	383
Redemption	2009	LC	2009_RLLC02	286	4.57	0.142	*0.1*	5050	4440	1.17	-	1020	0.101	*0.01*	*0.05*	*0.5*	*0.002*	*0.1*	625
Redemption	2009	LC	2009_RLLC03	229	3.67	0.219	*0.1*	4240	3310	1.51	-	1380	0.095	0.034	*0.05*	*0.5*	*0.002*	*0.1*	741
Redemption	2009	LC	2009_RLLC04	229	6.06	0.204	*0.25*	4420	3550	1.7	-	1240	0.098	*0.025*	*0.15*	*0.5*	*0.005*	*0.25*	2120
Redemption	2009	LC	2009_RLLC05	206	2.85	0.102	*0.05*	3900	4090	0.98	-	1230	0.087	0.021	*0.025*	*0.5*	*0.001*	*0.05*	402
Redemption	2009	LC	2009_RLLC06	197	4.2	0.18	*0.05*	3980	3410	1.24	-	1220	0.076	0.031	*0.025*	*0.5*	*0.001*	*0.05*	727
Redemption	2009	LC	2009_RLLC07	253	5.59	0.159	*0.05*	4550	3380	1.31	-	1400	0.287	0.021	*0.025*	*0.5*	*0.001*	*0.05*	517
Redemption	2009	LC	2009_RLLC08	261	5.66	0.162	*0.1*	4540	3870	1.2	-	1320	0.093	0.026	*0.05*	*0.5*	*0.002*	*0.1*	641
Redemption	2009	LC	2009_RLLC09	208	3.91	0.18	*0.1*	3710	3480	1.1	-	1160	0.102	0.035	*0.05*	1.9	*0.002*	*0.1*	925
Redemption	2009	LC	2009_RLLC10	272	6	0.175	*0.1*	5790	4420	1.13	-	1110	0.647	0.03	*0.05*	*0.5*	*0.002*	*0.1*	879
Redemption	2009	LC	2009_RLLC12	202	3.69	0.206	*0.1*	5240	4360	1.38	-	1340	0.088	0.025	*0.05*	*0.5*	*0.002*	*0.1*	1030
Redemption	2009	LC	2009_RLLC1320TO24	218	5.73	0.201	*0.05*	3710	3250	0.9	-	850	0.2	0.037	*0.025*	*0.5*	*0.001*	*0.05*	485
Redemption	2009	LC	2009_RLLC14to19	206	5.12	0.18	*0.1*	3460	3200	0.99	-	940	0.1	0.037	*0.05*	*0.5*	*0.002*	*0.1*	687
Redemption	2009	LWF	2009_RLLWF01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2009	LWF	2009_RLLWF02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2009	LWF	2009_RLLWF03	137	1	0.205	*0.05*	2560	2570	1.49	-	1490	0.099	*0.005*	*0.025*	*0.05*	0.0051	0.44	22.5
Redemption	2009	LWF	2009_RLLWF04	130	1.24	0.14	*0.05*	2520	2430	1.17	-	1610	0.05	*0.005*	*0.025*	*0.05*	*0.001*	0.16	29.3
Redemption	2009	LWF	2009_RLLWF05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2009	LWF	2009_RLLWF06	194	1.73	0.098	*0.05*	3530	3510	0.73	-	1350	0.054	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	24.7
Redemption	2009	LWF	2009_RLLWF07	152	1.64	0.119	*0.05*	3120	3260	0.91	-	1520	0.071	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	29.7
Redemption	2009	LWF	2009_RLLWF08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2009	LWF	2009_RLLWF09	231	6.11	0.15	*0.05*	4420	4130	0.84	-	1190	0.059	0.018	*0.025*	*0.5*	*0.001*	*0.05*	30.3
Redemption	2009	LWF	2009_RLLWF10	198	1.68	0.114	*0.05*	3540	3570	1.03	-	1130	0.064	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	27.6
Redemption	2009	LWF	2009_RLLWF11	220	1.9	0.104	*0.05*	4040	3560	0.67	-	764	0.063	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	37.3
Redemption	2009	LWF	2009_RLLWF12	143	1.5	0.18	*0.05*	3440	3370	0.93	-	1740	0.072	*0.005*	*0.025*	*0.5*	*0.001*	0.12	39
Redemption	2010	LWF	2010_RLLWF01	175	1.57	0.184	*0.05*	3840	3850	1.02	-	713	0.057	*0.005*	*0.025*	0.05	*0.001*	0.29	29
Redemption	2010	LWF	2010_RLLWF02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2010	LWF	2010_RLLWF03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2010	LWF	2010_RLLWF04	177	2.41	0.133	*0.05*	3350	3200	0.74	-	1220	0.096	*0.005*	*0.025*	*0.05*	0.0025	0.21	23.3
Redemption	2010	LWF	2010_RLLWF05	184	1.33	0.182	*0.05*	3670	3790	0.8	-	1010	0.029	*0.005*	*0.025*	*0.05*	0.002	0.11	24.5
Redemption	2010	LWF	2010_RLLWF06	138	2.7	0.182	*0.05*	2930	2900	0.85	-	1390	0.058	*0.005*	0.06	*0.05*	*0.001*	0.2	25.8
Redemption	2010	LWF	2010_RLLWF07	114	1.16	0.146	*0.05*	2740	2790	0.73	-	1440	0.059	*0.005*	0.06	*0.05*	0.0046	0.36	24.5
Redemption	2010	LWF	2010_RLLWF08	124	1.3	0.185	*0.05*	2310	2330	0.9	-	971	0.059	*0.005*	*0.025*	*0.05*	0.0039	0.35	18.3
Redemption	2010	LWF	2010_RLLWF09	141	1.76	0.223	*0.05*	3040	2810	1.06	-	1150	0.044	*0.005*	*0.025*	*0.05*	0.0083	0.23	25.2
Redemption	2010	LWF	2010_RLLWF10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2010	LWF	2010_RLLWF11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	2010	LWF	2010_RLLWF12	164	1.86	0.165	*0.05*	3390	3370	0.86	-	1270	0.053	*0.005*	*0.025*	*0.05*	0.0057	0.24	23.1
Redemption	2009	NP	2009_RLNP01	185	1.21	0.259	*0.05*	3650	3550	0.94	-	920	0.037	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	88.4
Redemption	2009	NP	2009_RLNP02	193	1.5	0.165	*0.05*	3770	3350	0.65	-	1160	0.027	*0.005*	*0.025*	*0.5*	*0.001*	0.11	45.6
Redemption	2009	NP	2009_RLNP03	138	1.12	0.153	*0.05*	2610	2900	0.89	-	1240	0.017	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	60.6
Redemption	2009	NP	2009_RLNP04	139	1.23	0.167	*0.05*	2810	3550	1.24	-	890	0.016	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	43.9
Redemption	2009	NP	2009_RLNP05	214	1.55	0.188	*0.05*	4230	3930	0.61	-	740	0.025	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	54.9
Redemption	2009	NP	2009_RLNP06	143	1.11	0.172	*0.05*	2950	3400	0.82	-	850	0.015	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	43.1
Redemption	2009	NP	2009_RLNP07	135	1.02	0.145	*0.05*	2560	3520	1.04	-	840	0.02	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	32.5
Redemption	2009	NP	2009_RLNP08	190	1.04	0.095	*0.05*	3280	3240	0.95	-	873	0.022	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	36.1
Redemption	2010	NP	2010_RLNP01	167	1.02	0.15	*0.05*	3020	2820	1.23	-	886	0.037	*0.005*	*0.085*	*0.05*	*0.001*	0.11	*42*
Redemption	2010	NP	2010_RLNP02	160	0.856	0.129	*0.05*	2800	2830	1.11	-	933	0.032	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	54.9
Redemption	2010	NP	2010_RLNP03	162	1.28	0.246	*0.05*	3140	3060	1.56	-	808	0.034	*0.005*	0.095	*0.05*	*0.001*	*0.05*	61.9
Redemption	2010	NP	2010_RLNP04	159	0.881	0.124	*0.05*	3050	3350	1.37	-	711	0.024	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	45.7
Redemption	2010	NP	2010_RLNP05	154	1.25	0.118	*0.05*	2860	3080	1.22	-	630	0.038	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	52.2
Redemption	2010	NP	2010_RLNP06	130	1.43	0.192	*0.05*	2570	2740	1.66	-	811	0.033	*0.005*	*0.025*	*0.05*	*0.001*	0.24	93.6

NOTES:

a. DL = Minimum laboratory detection limit. M

b. Total mercury guidelines for safe quantitie
210g tissue per week when to
260g tissue per week when to
350g tissue per week when to
525g tissue per week when to
1050g tissue per week when t

c. Inorganic arsenic monthly fish consumptic
Unrestricted fish meals per mc

d. Inorganic cadmium monthly fish consump
Unrestricted fish meals per mc

e. Total lead concentration of 0.8 mg/kg wet

f. Total selenium guideline for aquatic life (B

Table L1-7 Thor Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.		Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper	Fish I.D.
			Units		mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	
			DL[a]		-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01	
Thor	2008	LWF	2008_TLLWF01		363	645	79	0.0209	-	0.27	*0.025*	0.05	0.03	*0.0025*	-	*0.25*	0.006	-	*0.1*	0.011	4	2008_TLLWF01
Thor	2008	LWF	2008_TLLWF02		260	210	76.6	0.0155	-	0.23	*0.025*	0.15	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.008	1.6	2008_TLLWF02
Thor	2008	LWF	2008_TLLWF03		410	830	79.5	0.0849	-	1.6	*0.025*	0.07	0.04	*0.0025*	-	*0.25*	0.009	-	*0.1*	0.017	3.6	2008_TLLWF03
Thor	2008	LWF	2008_TLLWF04		421	1160	78.1	0.0605	-	0.62	*0.025*	0.08	*0.01*	*0.0025*	-	*0.25*	0.012	-	*0.1*	0.011	2.9	2008_TLLWF04
Thor	2008	LWF	2008_TLLWF05		432	1030	80.3	0.0285	-	1.2	*0.025*	0.02	0.06	*0.0025*	-	*0.25*	0.007	-	*0.1*	0.014	2.3	2008_TLLWF05
Thor	2008	LWF	2008_TLLWF06		398	1000	78.3	0.0409	-	0.28	*0.025*	0.07	*0.01*	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.006	4	2008_TLLWF06
Thor	2008	LWF	2008_TLLWF07		360	700	77.6	0.0263	-	0.42	*0.025*	0.04	*0.01*	*0.0025*	-	*0.25*	0.02	-	*0.1*	0.013	4.1	2008_TLLWF07
Thor	2008	LWF	2008_TLLWF08		370	670	79.6	0.0253	-	0.59	*0.025*	0.05	0.02	*0.0025*	-	*0.25*	0.009	-	*0.1*	0.007	3.2	2008_TLLWF08
Thor	2009	LWF	2009_TLLWF01		177	56.9	80.5	0.0158	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLLWF01
Thor	2009	LWF	2009_TLLWF02		228	140.6	78.3	0.0191	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLLWF02
Thor	2009	LWF	2009_TLLWF03		278	238.2	79.3	0.0196	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLLWF03
Thor	2009	LWF	2009_TLLWF04		299	278.1	80.6	0.0188	85.1	*1*	*0.005*	0.385	0.227	*0.05*	*0.015*	-	0.0188	149	*0.05*	*0.01*	6.85	2009_TLLWF04
Thor	2009	LWF	2009_TLLWF05		365	633.1	78.4	0.0384	76.6	*1*	*0.005*	0.109	0.125	*0.05*	*0.015*	-	0.0058	92	*0.05*	*0.01*	3.14	2009_TLLWF05
Thor	2009	LWF	2009_TLLWF06		387	793.8	76.3	0.0474	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLLWF06
Thor	2009	LWF	2009_TLLWF07		294	292.8	78	0.0244	75.3	*1*	0.013	0.103	0.491	*0.05*	*0.015*	-	*0.0025*	289	*0.05*	*0.01*	8.09	2009_TLLWF07
Thor	2009	LWF	2009_TLLWF08		392	894.1	79.2	0.117	80.5	*1*	*0.005*	0.103	0.102	*0.05*	*0.015*	-	*0.0025*	80.9	*0.05*	*0.01*	3.01	2009_TLLWF08
Thor	2009	LWF	2009_TLLWF09		381	773.0	77.2	0.0642	81.6	*1*	*0.005*	0.096	0.132	*0.05*	*0.015*	-	0.011	101	*0.05*	*0.01*	7.86	2009_TLLWF09
Thor	2009	LWF	2009_TLLWF10		411	952.8	78	0.0579	81.5	*1*	*0.005*	0.091	0.051	*0.05*	*0.015*	-	0.0142	103	*0.05*	*0.01*	12.4	2009_TLLWF10
Thor	2009	LWF	2009_TLLWF11		439	1046.9	79	0.131	78.6	*1*	*0.005*	0.119	0.075	*0.05*	*0.015*	-	0.0194	111	*0.05*	*0.01*	2.82	2009_TLLWF11
Thor	2009	LWF	2009_TLLWF12		397	952.8	79.7	0.094	81.1	*1*	*0.005*	0.073	0.032	*0.05*	*0.015*	-	0.0085	88.1	*0.05*	*0.01*	3.63	2009_TLLWF12
Thor	2008	NP	2008_TLNP01		564	1260	79.5	0.108	-	0.38	*0.025*	0.02	0.06	*0.0025*	-	*0.25*	0.006	-	*0.1*	0.014	7.6	2008_TLNP01
Thor	2008	NP	2008_TLNP02		496	1000	79	0.0406	-	0.6	*0.025*	0.04	0.06	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.01	6	2008_TLNP02
Thor	2008	NP	2008_TLNP03		385	360	80.2	0.0429	-	0.42	*0.025*	*0.01*	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.02	10	2008_TLNP03
Thor	2008	NP	2008_TLNP04		420	500	77.7	0.0488	-	0.43	*0.025*	0.02	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.017	8.2	2008_TLNP04
Thor	2008	NP	2008_TLNP05		320	210	81.7	0.0768	-	0.5	*0.025*	*0.01*	0.05	*0.0025*	-	*0.25*	0.006	-	*0.1*	0.022	1.6	2008_TLNP05
Thor	2008	NP	2008_TLNP06		459	790	76.9	0.0624	-	0.7	*0.025*	0.03	0.06	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.015	4.8	2008_TLNP06
Thor	2008	NP	2008_TLNP07		406	460	78	0.0286	-	0.38	*0.025*	0.03	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.017	5.9	2008_TLNP07
Thor	2008	NP	2008_TLNP08		612	1500	77.8	0.103	-	0.39	*0.025*	0.03	0.03	*0.0025*	-	*0.25*	0.006	-	*0.1*	0.018	6.8	2008_TLNP08
Thor	2009	NP	2009_TLNP01		272	130.5	79.3	0.0276	69.6	*1*	0.03	0.057	0.3	*0.05*	*0.015*	-	*0.0025*	185	*0.05*	0.021	3.95	2009_TLNP01
Thor	2009	NP	2009_TLNP02		631	1589.2	77.9	0.131	74.1	*1*	*0.005*	0.025	0.083	*0.05*	*0.015*	-	*0.0025*	60.6	*0.05*	*0.01*	4.28	2009_TLNP02
Thor	2009	NP	2009_TLNP03		567	1169.6	79.2	0.0841	73.4	*1*	*0.005*	0.048	0.131	*0.05*	*0.015*	-	0.006	59.8	*0.05*	*0.01*	8.57	2009_TLNP03
Thor	2009	NP	2009_TLNP04		565	1364.5	81.2	0.129	76.8	*1*	*0.005*	0.032	0.369	*0.05*	*0.015*	-	0.0081	97.1	*0.05*	0.021	8.33	2009_TLNP04
Thor	2009	NP	2009_TLNP05		367	296.1	79.6	0.0819	74.3	*1*	*0.005*	0.033	0.102	*0.05*	*0.015*	-	0.0061	96.8	*0.05*	0.024	7.64	2009_TLNP05
Thor	2009	NP	2009_TLNP06		434	601.4	80.2	0.0527	78.9	*1*	*0.005*	0.034	0.193	*0.05*	*0.015*	-	*0.0025*	101	*0.05*	*0.01*	5.83	2009_TLNP06
Thor	2009	NP	2009_TLNP07		434	590.4	79.2	0.0487	70.4	*1*	0.012	0.057	0.633	*0.05*	*0.015*	-	*0.0025*	71.3	*0.05*	*0.01*	7.7	2009_TLNP07
Thor	2009	NP	2009_TLNP08		422	575.8	78.2	0.0627	69.2	*1*	*0.005*	0.053	0.206	*0.05*	*0.015*	-	0.0052	58.2	*0.05*	0.02	7.27	2009_TLNP08
Thor	2009	NP	2009_TLNP09		490	784.1	80	0.0586	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLNP09
Thor	2009	NP	2009_TLNP10		477	880.5	79.9	0.0671	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLNP10
Thor	2009	NP	2009_TLNP11		477	709.2	80.3	0.0647	-	-	-	-	-	-	-	-	-	-	-	-	-	2009_TLNP11

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
   - 210g tissue per week when total mercury is 0.5 mg/kg wet weight
   - 260g tissue per week when total mercury is 0.4 mg/kg wet weight
   - 350g tissue per week when total mercury is 0.3 mg/kg wet weight
   - 525g tissue per week when total mercury is 0.2 mg/kg wet weight
   - 1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   - Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   - Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Table L1-7 Thor Lake Fish Muscle Mercury and Liver
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
				mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
				0.05	**0.03**	**0.1**	**1**	**0.01**	**0.01**	**0.02**	**5**	**20**	**0.02**	**0.005**	**20**	**0.01**	**0.01**	**0.02**	**0.02**	**0.002**	**0.05**	**0.1**
Thor	2008	LWF	2008_TLLWF01	170	*0.0025*	-	-	0.84	0.05	*0.01*	-	-	0.55	0.018	-	0.07	*0.01*	*0.01*	0.14	*0.001*	*0.025*	23
Thor	2008	LWF	2008_TLLWF02	47	*0.0025*	-	-	1.1	0.07	*0.01*	-	-	0.47	*0.0025*	-	0.11	*0.01*	*0.01*	0.11	*0.001*	*0.025*	18
Thor	2008	LWF	2008_TLLWF03	230	*0.0025*	-	-	1.5	0.09	0.02	-	-	0.85	0.032	-	*0.025*	*0.01*	*0.01*	0.13	0.008	0.07	20
Thor	2008	LWF	2008_TLLWF04	92	*0.0025*	-	-	1.9	0.1	0.02	-	-	0.88	0.011	-	*0.025*	*0.01*	*0.01*	0.13	0.002	*0.025*	20
Thor	2008	LWF	2008_TLLWF05	330	*0.0025*	-	-	1.4	0.1	0.02	-	-	0.67	0.02	-	0.13	*0.01*	*0.01*	0.13	*0.001*	0.13	21
Thor	2008	LWF	2008_TLLWF06	31	*0.0025*	-	-	2.3	0.07	*0.01*	-	-	0.87	0.023	-	*0.025*	*0.01*	*0.01*	0.14	*0.001*	*0.025*	26
Thor	2008	LWF	2008_TLLWF07	230	*0.0025*	-	-	1	0.12	0.03	-	-	0.67	0.012	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	*0.025*	19
Thor	2008	LWF	2008_TLLWF08	85	*0.0025*	-	-	1.2	0.06	0.02	-	-	0.61	0.019	-	*0.025*	*0.01*	*0.01*	0.13	*0.001*	*0.025*	20
Thor	2009	LWF	2009_TLLWF01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thor	2009	LWF	2009_TLLWF02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thor	2009	LWF	2009_TLLWF03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thor	2009	LWF	2009_TLLWF04	173	*0.01*	*0.05*	191	4.42	0.153	*0.05*	3540	3550	1.09	-	1200	0.097	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	45
Thor	2009	LWF	2009_TLLWF05	54.3	*0.01*	*0.05*	210	1.91	0.16	*0.05*	3940	3700	1.19	-	853	0.054	*0.005*	*0.025*	*0.15*	*0.001*	*0.05*	42.7
Thor	2009	LWF	2009_TLLWF06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thor	2009	LWF	2009_TLLWF07	193	*0.01*	*0.05*	199	2.51	0.137	*0.05*	3670	3620	1.08	-	1250	0.216	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	35.2
Thor	2009	LWF	2009_TLLWF08	63.4	*0.01*	*0.05*	182	1.21	0.09	*0.05*	3220	3190	0.83	-	1070	0.056	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	21.1
Thor	2009	LWF	2009_TLLWF09	153	*0.01*	*0.05*	163	1.29	0.108	*0.05*	3020	2740	0.81	-	1350	0.092	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	26.7
Thor	2009	LWF	2009_TLLWF10	289	*0.01*	*0.05*	169	1.25	0.114	*0.05*	3110	2880	0.81	-	1390	0.068	*0.005*	*0.025*	*0.05*	0.0132	*0.05*	25.8
Thor	2009	LWF	2009_TLLWF11	234	*0.01*	*0.05*	198	1.39	0.089	*0.05*	3700	3320	0.87	-	1560	0.074	*0.005*	*0.025*	*0.15*	0.01	*0.05*	34.4
Thor	2009	LWF	2009_TLLWF12	97.2	*0.01*	*0.05*	201	1.65	0.113	*0.05*	3760	3460	0.97	-	1180	0.051	*0.005*	*0.025*	*0.15*	*0.001*	*0.05*	24.8
Thor	2008	NP	2008_TLNP01	26	*0.0025*	-	-	2.3	0.1	*0.01*	-	-	1.1	0.062	-	0.07	*0.01*	*0.01*	0.11	*0.001*	*0.025*	50
Thor	2008	NP	2008_TLNP02	16	*0.0025*	-	-	2.2	0.09	*0.01*	-	-	0.73	0.032	-	*0.025*	*0.01*	*0.01*	0.09	*0.001*	*0.025*	30
Thor	2008	NP	2008_TLNP03	31	*0.0025*	-	-	1.2	0.19	*0.01*	-	-	0.82	0.082	-	*0.025*	*0.01*	*0.01*	0.13	*0.001*	*0.025*	40
Thor	2008	NP	2008_TLNP04	39	*0.0025*	-	-	1.9	0.15	*0.01*	-	-	0.74	0.085	-	*0.025*	*0.01*	*0.01*	0.11	*0.001*	*0.025*	40
Thor	2008	NP	2008_TLNP05	170	0.007	-	-	1.5	0.22	0.03	-	-	0.56	*0.0025*	-	*0.025*	*0.01*	*0.01*	0.09	0.003	*0.025*	27
Thor	2008	NP	2008_TLNP06	34	*0.0025*	-	-	1.1	0.14	*0.01*	-	-	1.1	0.086	-	*0.025*	*0.01*	*0.01*	0.11	*0.001*	*0.025*	70
Thor	2008	NP	2008_TLNP07	34	*0.0025*	-	-	1.4	0.2	*0.01*	-	-	1.1	0.047	-	*0.025*	*0.01*	*0.01*	0.11	*0.001*	*0.025*	60
Thor	2008	NP	2008_TLNP08	22	0.016	-	-	2.7	0.12	*0.01*	-	-	1.1	0.032	-	*0.025*	*0.01*	*0.01*	0.12	*0.001*	*0.025*	40
Thor	2009	NP	2009_TLNP01	41.2	*0.01*	*0.05*	237	2	0.207	*0.05*	4320	2930	0.88	-	920	0.137	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	48.9
Thor	2009	NP	2009_TLNP02	19.9	*0.01*	*0.05*	165	1.16	0.12	*0.05*	2850	2760	0.83	-	958	0.032	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	70.5
Thor	2009	NP	2009_TLNP03	23.2	*0.01*	*0.05*	177	2.12	0.071	*0.05*	2970	2940	1.1	-	701	0.034	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	37.2
Thor	2009	NP	2009_TLNP04	37	*0.01*	*0.05*	196	1.39	0.142	*0.05*	3200	2710	0.86	-	924	0.064	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	41.2
Thor	2009	NP	2009_TLNP05	34.2	*0.01*	*0.05*	188	1.35	0.198	*0.05*	3300	3150	0.63	-	1150	0.06	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	34.8
Thor	2009	NP	2009_TLNP06	51.6	*0.01*	*0.05*	175	1.64	0.136	*0.05*	3320	3250	0.78	-	1250	0.069	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	31.9
Thor	2009	NP	2009_TLNP07	87.1	*0.01*	*0.05*	160	1.18	0.192	*0.05*	2870	2920	1.09	-	890	0.073	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	38.9
Thor	2009	NP	2009_TLNP08	64	*0.01*	*0.05*	148	1.3	0.187	*0.05*	2700	3050	1.08	-	1050	0.051	*0.005*	*0.025*	*0.5*	*0.001*	*0.05*	39.2
Thor	2009	NP	2009_TLNP09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thor	2009	NP	2009_TLNP10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thor	2009	NP	2009_TLNP11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTES:

a. DL = Minimum laboratory detection limit.

b. Total mercury guidelines for safe quantit
210g tissue per week whe
260g tissue per week whe
350g tissue per week whe
525g tissue per week whe
1050g tissue per week wh

c. Inorganic arsenic monthly fish consumpt
Unrestricted fish meals pe

d. Inorganic cadmium monthly fish consum
Unrestricted fish meals pe

e. Total lead concentration of 0.8 mg/kg we

f. Total selenium guideline for aquatic life (

Table L1-8 Kinnikinnick, U, and Murky Lake Fish Muscle Mercury and Liver Metals
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury[b]	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic[c]	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium[d]	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01
Kinnikinnick	2009	NP	2009_KLNP01	337	313.1	-	-	79.5	*1*	*0.005*	0.031	0.517	*0.05*	*0.015*	-	0.0076	87.6	*0.05*	0.02	5.87
Kinnikinnick	2009	NP	2009_KLNP02	678	969	81.7	0.57	81.1	*1*	*0.005*	0.056	0.308	*0.05*	*0.015*	-	0.053	60.7	*0.05*	0.038	30.3
Kinnikinnick	2009	NP	2009_KLNP03	350	332.9	78.9	0.128	74	*1*	*0.005*	0.038	0.342	*0.05*	*0.015*	-	*0.0025*	91.2	*0.05*	*0.01*	5.71
Kinnikinnick	2009	NP	2009_KLNP04	500	987.6	80.2	0.17	76.1	*1*	*0.005*	0.038	0.913	*0.05*	*0.015*	-	0.0104	52	*0.05*	0.022	6.64
Kinnikinnick	2009	NP	2009_KLNP05	305	193.2	80.9	0.0959	79.4	*1*	0.015	0.036	0.235	*0.05*	*0.015*	-	0.0086	139	*0.05*	0.028	24.5
Kinnikinnick	2009	NP	2009_KLNP07	264	140.5	79.7	0.0865	-	-	-	-	-	-	-	-	-	-	-	-	-
Kinnikinnick	2009	NP	2009_KLNP08	246	109	79.3	0.0896	-	-	-	-	-	-	-	-	-	-	-	-	-
Kinnikinnick	2009	NP	2009_KLNP10	591	1730.5	-	-	77.7	*1*	*0.005*	0.045	0.13	*0.05*	*0.015*	-	0.0286	79.3	*0.05*	0.028	15.5
Kinnikinnick	2009	NP	2009_KLNP11	596	1321.3	81.1	0.502	81.4	*1*	*0.005*	0.042	0.225	*0.05*	*0.015*	-	0.038	105	*0.05*	0.033	9.34
Kinnikinnick	2009	NP	2009_KLNP12	623	1853.1	78.3	0.393	78.3	*1*	*0.005*	0.038	0.127	*0.05*	*0.015*	-	0.02	56	*0.05*	*0.01*	15.7
Murky	2009	NP	2009_MLNP01	177	38.1	79.3	0.0182	-	-	-	-	-	-	-	-	-	-	-	-	-
U	2008	NP	2008_ULNP01	250	120	77.4	0.0322	-	0.42	*0.025*	0.11	0.08	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.018	8.2
U	2008	NP	2008_ULNP02	260	130	77.1	0.0251	-	0.84	*0.025*	0.08	0.12	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.02	11
U	2008	NP	2008_ULNP03	250	100	77.1	0.0203	-	0.85	*0.025*	0.11	0.1	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.019	9.1
U	2008	NP	2008_ULNP04	260	130	78.1	0.0181	-	0.48	*0.025*	0.11	0.08	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.016	10
U	2008	NP	2008_ULNP05	284	250	77	0.0221	-	0.3	*0.025*	0.07	0.04	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.018	12
U	2008	NP	2008_ULNP06	250	160	76.6	0.0263	-	0.05	*0.025*	0.07	0.05	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.021	8.1
U	2008	NP	2008_ULNP07	259	120	76.8	0.0285	-	0.32	*0.025*	0.1	0.03	*0.0025*	-	*0.25*	*0.0025*	-	*0.1*	0.016	8.9

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

b. Total mercury guidelines for safe quantities for weekly consumption on a regular basis when the diet is based primarily on fish (BC MOE 2006):
   210g tissue per week when total mercury is 0.5 mg/kg wet weight
   260g tissue per week when total mercury is 0.4 mg/kg wet weight
   350g tissue per week when total mercury is 0.3 mg/kg wet weight
   525g tissue per week when total mercury is 0.2 mg/kg wet weight
   1050g tissue per week when total mercury is 0.1 mg/kg wet weight

c. Inorganic arsenic monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   Unrestricted fish meals per month when tissue arsenic is 0-0.088 mg/kg wet weight

d. Inorganic cadmium monthly fish consumption limits for noncarcinogenic health endpoints (US EPA 2000):
   Unrestricted fish meals per month when tissue cadmium is 0-0.088 mg/kg wet weight

e. Total lead concentration of 0.8 mg/kg wet weight should be considered an alert level (BC MOE 2006)

f. Total selenium guideline for aquatic life (BC MOE 2006): 1.0 mg/kg body weight (wet weight mean).

Fish I.D.	Liver Iron	Liver Lead[e]	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium[f]	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
	0.05	**0.03**	**0.1**	**1**	**0.01**	**0.01**	**0.02**	**5**	**20**	**0.02**	**0.005**	**20**	**0.01**	**0.01**	**0.02**	**0.02**	**0.002**	**0.05**	**0.1**
2009_KLNP01	48.1	*0.01*	*0.05*	151	1.25	0.205	*0.05*	2900	3160	0.92	-	1050	0.1	*0.005*	*0.025*	*0.15*	*0.001*	*0.05*	42.3
2009_KLNP02	31.5	*0.01*	*0.05*	134	1.64	0.18	*0.05*	2670	2570	2.03	-	878	0.044	*0.005*	*0.025*	*0.05*	*0.001*	0.17	55.7
2009_KLNP03	36.9	*0.01*	*0.05*	141	1.02	0.192	*0.05*	2890	3000	1.03	-	1000	0.078	*0.005*	*0.025*	*0.15*	*0.001*	*0.05*	45.4
2009_KLNP04	45.5	*0.01*	*0.05*	122	0.947	0.186	*0.05*	2600	2650	1.52	-	695	0.058	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	34.9
2009_KLNP05	64.6	*0.01*	*0.05*	189	1.37	0.266	*0.05*	3170	3010	1.49	-	935	0.123	*0.005*	*0.025*	*0.15*	*0.001*	*0.05*	43.6
2009_KLNP07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_KLNP08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009_KLNP10	48.1	*0.01*	*0.05*	174	1.79	0.147	*0.05*	2910	2620	1.71	-	848	0.058	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	64.6
2009_KLNP11	15.6	*0.01*	*0.05*	187	1.63	0.179	*0.05*	3290	3170	1.38	-	973	0.07	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	56.9
2009_KLNP12	32.9	*0.01*	*0.05*	155	1.42	0.112	*0.05*	2870	2950	1.2	-	730	0.055	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	45.1
2009_MLNP01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008_ULNP01	32	0.006	-	-	1.1	0.16	0.02	-	-	0.69	0.085	-	0.09	*0.01*	*0.01*	0.1	0.017	*0.025*	22
2008_ULNP02	31	0.010	-	-	0.89	0.15	0.03	-	-	0.68	0.07	-	0.13	*0.01*	*0.01*	0.11	0.004	*0.025*	23
2008_ULNP03	43	0.023	-	-	1.1	0.15	0.03	-	-	0.76	0.23	-	0.08	*0.01*	*0.01*	0.11	*0.001*	*0.025*	23
2008_ULNP04	46	0.011	-	-	0.88	0.14	*0.01*	-	-	0.71	0.098	-	0.1	*0.01*	*0.01*	0.1	*0.001*	*0.025*	22
2008_ULNP05	68	0.010	-	-	0.76	0.13	*0.01*	-	-	0.5	0.067	-	0.11	*0.01*	*0.01*	0.07	*0.001*	*0.025*	23
2008_ULNP06	33	*0.0025*	-	-	0.82	0.12	*0.01*	-	-	0.47	0.12	-	0.11	*0.01*	*0.01*	0.04	*0.001*	*0.025*	19
2008_ULNP07	50	*0.0025*	-	-	0.79	0.13	*0.01*	-	-	0.67	0.042	-	0.1	*0.01*	*0.01*	0.03	0.002	*0.025*	22

Table L2 **Fish Liver Composite Rare Earth Metals**
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Liver Cerium	Liver Disprosium	Liver Erbium	Liver Europium	Liver Gadolinium	Liver Holmium	Liver Lanthanum	Liver Neodymium	Liver Praseodymium	Liver Samarium	Liver Terbium	Liver Thulium	Liver Yttrium	Liver Ytterbium
			Units	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
			DL[a]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
A	2009	LC	2009_ALLCCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
A	2008	LWF	2008_ALLWFCOMP	0.01	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
A	2009	LWF	2009_ALLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
A	2008	NP	2008_ALNPCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Elbow	2008	LWF	2008_ELLWFCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Elbow	2009	LWF	2009_ELLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Elbow	2008	NP	2008_ELNPCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Elbow	2009	NP	2009_ELNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Fred	2008	LWF	2008_FLLWFCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Fred	2009	LWF	2009_FLLWFCOMP	-	-	-	-	*0.005*	-	*0.02*	-	-	-	-	-	*0.005*	-
Fred	2008	NP	2008_FLNPCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Fred	2009	NP	2009_FLNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Great Slave	2008	AG	2008_GLAGCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Great Slave	2009	LC	2009_GLLCCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Great Slave	2008	LWF	2008_GLLWFCOMP	0.02	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	0.01	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Great Slave	2009	LWF	2009_GLLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Kinnikinnick	2009	NP	2009_KLNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Long	2008	LWF	2008_LLLWFCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Long	2009	LWF	2009_LLLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Long	2008	NP	2008_LLNPCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Long	2009	NP	2009_LLNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Redemption	2009	LC	2009_RLLCCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Redemption	2009	LWF	2009_RLLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Redemption	2010	LWF	2010_RLLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Redemption	2009	NP	2009_RLNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Redemption	2010	NP	2010_RLNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Thor	2008	LWF	2008_TLLWFCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Thor	2009	LWF	2009_TLLWFCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
Thor	2008	NP	2008_TLNPCOMP	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	-	*0.005*
Thor	2009	NP	2009_TLNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-
U	2008	NP	2008_ULNPCOMP	-	-	-	-	*0.005*	-	*0.005*	-	-	-	-	-	*0.005*	-

NOTES:

a. DL = Laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.

Table L3-1 Fish Tissue Duplicate Results
Avalon Rare Metals
Thor Lake, NT
Project # 1235-10431

Lake	Year	Species	Fish I.D.	Length	Weight	Muscle Moisture	Muscle Mercury	Liver Moisture	Liver Aluminum	Liver Antimony	Liver Arsenic	Liver Barium	Liver Beryllium	Liver Bismuth	Liver Boron	Liver Cadmium	Liver Calcium	Liver Chromium	Liver Cobalt	Liver Copper	Fish I.D.
			Units	mm	g	%	mg/kg wwt	%	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	
			DL[a]	-	-	0.1	0.001	0.1	0.02	0.01	0.01	0.01	0.005	0.003	0.5	0.005	2	0.1	0.005	0.01	
A	2009	LWF	2009_ALLWF05	409	1067.7	74.8	0.088	76.7	*1*	*0.005*	0.273	0.036	*0.05*	*0.015*	-	0.0122	47.2	*0.05*	0.023	9.1	2009_ALLWF05
A	2009	LWF	Duplicate	-	-	75.5	0.085	76.7	*1*	*0.005*	0.272	0.09	*0.05*	*0.015*	-	0.0143	52.4	*0.05*	0.024	10.7	2009_ALLWF06
Redemption	2009	NP	2009_RLNP08	805	-	78.2	0.869	80.5	*1*	*0.005*	0.037	*0.005*	*0.05*	*0.015*	-	0.0082	51	*0.05*	0.021	10	2009_RLNP08
Redemption	2009	NP	Duplicate	-	-	80.2	0.87	79.9	*1*	*0.005*	0.034	*0.005*	*0.05*	*0.015*	-	0.0084	34.9	*0.05*	0.022	9.96	2009_RLNP09
Thor	2009	LWF	2009_TLLWF12	397	952.8	79.7	0.094	81.1	*1*	*0.005*	0.073	0.032	*0.05*	*0.015*	-	0.0085	88.1	*0.05*	*0.01*	3.63	2009_TLLWF12
Thor	2009	LWF	Duplicate	-	-	77.6	0.116	80.2	*1*	*0.005*	0.107	0.081	*0.05*	*0.015*	-	0.0197	123	*0.05*	*0.01*	2.77	2009_TLLWF13

NOTES:

a. DL = Minimum laboratory detection limit. Metals values below detection limits are presented at half the detection limit, in italics.
b. Replicate result where precision threshold (RPD > 25%) was exceeded

Liver Iron	Liver Lead	Liver Lithium	Liver Magnesium	Liver Manganese	Liver Molybdenum	Liver Nickel	Liver Phosphorus	Liver Potasium	Liver Selenium	Liver Silver	Liver Sodium	Liver Strontium	Liver Thallium	Liver Tin	Liver Titanium	Liver Uranium	Liver Vanadium	Liver Zinc
mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt	mg/kg wwt
0.05	**0.03**	**0.1**	**1**	**0.01**	**0.01**	**0.02**	**5**	**20**	**0.02**	**0.005**	**20**	**0.01**	**0.01**	**0.02**	**0.02**	**0.002**	**0.05**	**0.1**
38.3	*0.01*	*0.05*	177	2.01	0.102	*0.05*	4230	4070	0.81	-	1120	0.041	0.018	*0.025*	*0.5*	*0.001*	*0.05*	29.5
37.1	*0.01*	*0.05*	211	2.42	0.107	*0.05*	4160	4010	0.93	-	1070	0.043	0.019	*0.025*	*0.5*	*0.001*	*0.05*	31.4
19.7	*0.01*	*0.05*	190	1.04	0.095	*0.05*	3280	3240	0.95	-	873	0.022	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	36.1
16.7	*0.01*	*0.05*	191	0.953	0.102	*0.05*	3760	3560	1.03	-	752	0.017	*0.005*	*0.025*	*0.05*	*0.001*	*0.05*	33.9
97.2	*0.01*	*0.05*	201	1.65	0.113	*0.05*	3760	3460	0.97	-	1180	0.051	*0.005*	*0.025*	*0.15*	*0.001*	*0.05*	24.8
218	*0.01*	*0.05*	189	1.52	0.092	*0.05*	3410	3290	0.82	-	1510	0.1	*0.005*	*0.025*	*0.15*	0.0093	*0.05*	37.1